The Chiba University Internatinal Collaborative Research
2015

Contents

The subject of this survey is specified as “International Collaborative Research”. It refers to an international research carried out jointly on a departmental, laboratory or personal level, and introduces works, which were presented officially, as well as works expected to be presented.

Matters of Survey

1. Name of the research project
2. Chiba University representative research worker
   (place of work / occupation / full name)
3. Partner abroad
   (country / name of institution / full name)
4. Implementation period
5. Project outline
6. Funds, grants, etc
7. Main result
8. Other important items to be stated
   (awards received, symposiums attended, etc)

Faculty of Letters

1. Study on Russian Literature and Culture of Silver Age
2. Faculty of Letters / Associate Professor / Wakana Kono
3. Russia / Russian State University of Humanities / Professor Dina Makhmudovna Magomedova
4. 2002～
5. Reading the texts of Silver Age and 20-th Russian literature, and looking into the issues of religion, philosophy and culture.
6. Grants-in-Aid for Scientific Reseach
7. Main result
   - KONO, Wakana. Khdozhestvennoe prostranstvo i personazhi v <Serebryanom golube> A. Belogo i <Pesne Sud'by> A. Bloka // Problemy izucheniya khdozhestvennogo proizvedeniya v shkole i vuze. Vyp.2: Prostranstvo i vremya v khurozhestvennom proizvedenii. pp.135-139. Orenburg,2002.,
   - KONO, Wakana. Obraz lesa kak <russkoe prostranstvo> (<Serebryanyj golub'> A. Belogo v kontekste <neonarodnichekoj> literatury nachala 20 v.) Bulletin of the Japanese Association of Russian Scholars No.34Japanese Association of Russian Scholars, 2002.pp.67-73,
   - KONO, Wakana. Zhizn'goroda i zhizn'cheloveka:Obraz Letnego sada v<Peterburge>A.Belogo//Japanese Slavic and East European Studies Vol.25.Japanese Society for Slavic and East European Studies, 2004.pp.53-70.
   - KONO, Wakana. Otnosheniya k miru v iskusstve russko-evrejskikh nonkonformistov // Beyond the Empire: Images of Russia in the Eurasian Cultural Context. 21st Century COE Program Slavic Eurasian Studies Series. No.17. (Ed. by Mochizuki Tetsuo). Hokkaido: Slavic Research Center Hokkaido University, 2008. C. 93-109.
   - KONO, Wakana. Motiv "glaza" v "Moskve" Andreya Belogo // Andrej Belyj v izmenyayushemsya mire. K 125-letiyu so dnya rozhdeniya .M.: Nauka, 2008. C.489-498.
   - KONO, Wakana. Funktsiya zhivopisi v <Peterburge> Andreya Belogo // Miry Andreya Belogo. Belgrad-Moskva: Izdatel'stvo filologichheskogo fakul'teta v Belgrade, 2011.C.827-836.
   - KONO, Wakana. Khudozhestvennoe prostranstvo v <Moskve> Andreya Belogo // Dialog soglasiya: sbornik nauchnykh statej k 70-letiyu V.I. Tyupy. M.: Ingrada, 2015. S.109-119. etc
8. None

1. Cognitive development in honeybees
2. Faculty of Letters／Associate Professor／Tomokazu Ushitani
3. Australia/ Macquarie University/ Prof Ken Cheng & A/Prof Andrew B. Barron
4. 2012-
5. An exploration of hazardous factors of honeybee colony collapse by the investigation of the effect of their developmental precociousness on color- and spatial-memory.
6. KAKEN (Kiban C)

7. Ushitani, T., Perry, C. J., Cheng, K. & Barron, A. B. (2016). Accelerated behavioural development changes fine-scale search behaviour and spatial memory in honey bees (*Apis mellifera* L.). *Journal of Experimental Biology*, *219*, 412-418. DOI:10.1242/jeb.126920. Peer reviewed.
8. N.A.

Faculty of Law, Politics and Economics

1. Multidisciplinary research related to conflicts and the environment
   Applications of theory and practice (IT Technology)
   Climate change and risk mitigation strategies
   Food Security and energy security
   FTA, Policy and the construction of win-win relationship
   Business strategies and multidisciplinary approach
   Sustainable development and management
   Global policy and international relation
2. Faculty of Law, Politics and Economics/ Assistant Professor／Li Xiang
3. The United States／Cornell University／Harry M. Kaiser
   Canada／York University／Charles J. McMillan
   Canada／Theechim Management Group／Lori C Sparrow
   Canada／Calgary Government/Corporate EHS Auditor／Stephen Leung
4. 2010～
5. Analyzing global issues from a multidisciplinary perspective and proposing effective solutions are my research characteristics. My research topics range from strategic management to food security, energy security, risk mitigation strategies, climate change, adaption to aging issues, construction of win-win relationship, global supply chain and eco business, global policy, IT technology, and the innovation.
6. Cornell University (the USA), York UniversirtySchulich School of Business (Canada), The University of Tokyo (Japan), Tokyo Institute of Technology (Japan), Hitotsubashi University **Graduate School of International Corporate Strategy,** Juntendo University, Pi technology Institute, Yamaoka Scholarship Foundation, other foundations, etc.
7. Main result

   2011 年

   Xiang Li, Taro Takahashi, Nobuhiro Suzuki, Harry M. Kaiser. 2011. The Impacts of climate change maize yields in the United States and China. Agricultural Systems 104, 348-353. (More information can be found online)

   1) The published academic article was selected to be a cutting-edge research by Nature Climate Change in 2011.
      For more details, please refer to

Nature Climate Change:
http://www.nature.com/nclimate/2011/110215/full/nclimate1046.html)

2) Cornell University Cornell Chronicle:
http://news.cornell.edu/stories/2011/02/technology-economics-may-counter-climate-impact

2013

1) Xiang Li, Taro Takahashi, Nobuhiro Suzuki, and Harry M. Kaiser. 2013. Impact of climate change on maize production in Northeast and Southwest China and risk mitigation strategies. ICAAA 2013, 11-20.
2) Xiang Li and Nobuhiro Suzuki. 2013. Implications of Climate Change Impacts on Regional maize Production in the United States: Risk Mitigation Strategies and Food Security. International Journal of Environmental Science and Development 4, pp. 446-451.

2014

1) Xiang Li and Charles McMillan. 2014. Corporate Strategy and the Weather: Towards a Corporate Sustainability Platform. Journal of Problems and Perspectives in Management 12 (Issue 2), pp. 200-214.
2) Xiang Li, Taro Takahashi, Nobuhiro Suzuki, Harry M. Kaiser. 2014. Impact of Climate Change on Maize Production in Northeast and Southwest China and Risk Mitigation Strategies. APCBEE Procedia 8, pp. 11-20.

2015

1) Xiang Li. 2015. Impacts of Business Strategies on Coffee Production and the Environment, International Journal of Environmental Science and Development 6, pp. 405-408.
2) Charles McMillan and Xiang Li. 2015. Impacts of prices incentives, Costs and Management Awareness on maize supply in two regions of the USA. International Journal of Environmental Science and Development 6, pp. 254-258.

2016

8. Hidefumi Kurasaka, Teruya Sekine, Sasiro Murayama, Takahide Aoyagi, and Karen Mitamura, Xiang Li. 2016. Impacts of climate change on Japanese Radish in Ichihara and their potential implications. International Journal of Environmental Science and Development 7, pp. 778-782 (to be published).

8. (Granted Japanese Patent (IT Technology), 2012)

1) Li Xiang and Ken Tatsuzawa. 2014. Encryption and decryption method of Pi++ cipher and Pi data-based encryption algorithm and decryption algorithm. Japanese Patent 5044848, Granted in July 27th, 2014.
2) The published academic article was selected to be a cutting-edge research by Nature Climate

Change in 2011.

Xiang Li, Taro Takahashi, Nobuhiro Suzuki, Harry M. Kaiser. 2011. The Impacts of climate change maize yields in the United States and China. Agricultural Systems 104, 348-353.

For more details, please refer to

1) Nature Climate Change: http://www.nature.com/nclimate/2011/110215/full/nclimate1046.html)
2) Cornell University Cornell Chronicle: http://news.cornell.edu/stories/2011/02/technology-economics-may-counter-climate-impact

1. Comparative study on female labor and income disparity among child rearing households
2. Faculty of Law, Politics, and Economics/ Professor/ Akiko Oishi
3. Hong Kong/ City University of Hong Kong/ Raymond Chan
   Korea/ Chungnam National University/ Ju-Hyun Kim
   Taiwan/ National Taiwan University /Li-Rong Wang
4. 2014~
5. This study aims to explore how differences in women's labor supply affect the income disparity and poverty among child rearing households from a comparative perspective. To highlight the characteristics of each society, family and labor market policies are studied.
6. Grant-in-Aid for Scientific Research (C)
7. Oishi, A. S., Chan, R. K., Wang, L. L. R., & Kim, J. H. (2015). Do Part-Time Jobs Mitigate Workers' Work-Family Conflict and Enhance Wellbeing? New Evidence from Four East-Asian Societies. Social Indicators Research, 121(1), 5-25.
8. Have organized an international symposium in December 2014 at National Taiwan University, Taiwan.

1. International study on migration, gender, and labour in East Asia
2. Faculty of Law, Politics, and Economics/ Professor/ Akiko Oishi
3. Hong Kong/ City University of Hong Kong/ Raymond Chan
   Korea/ Chungnam National University/ Ju-Hyun Kim
   Korea/ Sogang University/ Hong-Ju Park
   Taiwan/ National Taiwan University /Li-Rong Wang
   Taiwan/ National Yang-Ming University/ Li-Fang Liang
4. 2014~
5. The aim of this study is to examine policies concerning migrant care workers in East Asia (Japan, Korea, Taiwan, and Hong Kong) with a gender perspective and highlight the characteristics of each society and explore social and economic factors of policy development. In East Asia, where women were considered to be the main care-giver, an aging and shrinking population and rise in female labour market participation has brought up the issue of who and how care are to be provided. Introduction of migrant care workers is a popular policy option, however, the content and context of migrant care worker policy, especially those concerning citizenship rights, differ greatly in each society. Through a case study focusing on the relationship

between migrant care workers and host society, quality of care, gender, and social rights of migrant workers, the goal of this study is to provide a perspective on how "fairness" can be achieved in the global era of the 21 century.

6. Chiba University Leading Research Promotion Program
7. Have received a publishing offer from Palgrave. A book titled "Gender, Care, and Migration in East Asia" (tentative) is to be published in 2017.
8. Have organized an international symposium on migration, gender, and labour in East Asia on February 19th, 2016. More than 50 participants joined the symposium.

Graduate School of Humanities and Social Sciences

1. Japan in East Asia
2. Graduate School for Humanities and Social sciences/ Professor/ MIYAKE, Akimasa
3. Germany/Heidelberg University/Professor Wolfgang Seifert,/ Total 10 scholars in Germany, Belgium, United Kingdom and Japan.
4. Since 2013
5. Multilateral study on Modern Japan in East Asia
6. Nomos-Verlag, Baden-Baden.
7. Eun-Jeung Lee, Ostasien Denken.2014, Nomos,Baden-baden. (Bamd 3)

1. Cultural Memories of Tsingtau/Quingdao and Yantai in Germany, Japan and China.
2. Graduate School of Humanities and Social Sciences /Professor/ Akiko MIYAKE.
3. China：Yantai University / Wenzhe LI, Ludon University / Yinji PIAO.
4. Since 2014
5. This study researches cultural memories of the colonial cities Tsingtau/Quingdao in German-occupied period(1898-1914), Japan-occupied period(1914-1922,1938-1945) and Post World War II,and Yantai which was in1858 opened. We regard these cities als media of cultural memory and analyze architecture, journals, literature, photos, film,oral history, etc.from German, Japanease, and Chinese view.
6. Grant in Aid for Scientific Research B
7. Main result
   - MIYAKE, Akiko. The Historical Context of Transcendent Values in "Moral Education" as an Official School Subject: From "Religious Feelings" to "Feelings of Owe", *Education Law* Review,2016 March,pp.96-106.
   - Hashimoto, Yuichi. The War our side began, and the Others who stand in colonies , *Now here and beyond*, Vol.5,2015, pp.49-55.
   - Hashimoto,Yuichi. Thinking from the Languagespace China Self who becomes >The another< in the life of outer language, *Multicultural Rader,*2016, Tokyo University of Foreign Studies, pp.80-98.

1. International Academic study on Communication of In-service Teachers Emerged from A Centralized Training
2. Graduate School of Social Sciences and Humanities, Chiba University, Professor, YOSHIDA Masami
3. Thailand/ Thailand Cyber University Project, Ministry of Education, Thailand/ Operational Team Members.
4. Since 2014
5. Online communication emerged from a centralized conference is monitored, and plolonged investigation is prepared to know development of online communication of in-service teachers.
6. The research project Grant-in-Aid for scientific research (B) of JSPS, project number 26301035
7. Main result
   - Yoshida, M. and Thammetar, T. (2014, May), Observed Discrepancy of In-service Training for Media Information Literacy between Local and International, Paper presented at International Conference on Education and Leadership in Glocalization; ELGIC2014, at Phuket Graceland Resort & Spa, Phuket: Thailand, May 21-24 (Presentation on 23rd), Proceedings pp. 248-253.
   - Yoshida, M. and Thammetar, T. (2014, June), Continual Social Graph Analysis of Online Community for a Cultural Project in the Foreign Country, Paper presented at Global Trends in Academic Research 2014; GTAR2014, at Pan Pacific Nirwana Bali Resort, Bali: Indonesia, June 2-3 (Presentation on 3rd), Proceedings p.14-24.
   - Yoshida, M. and Thammetar, T. (2014, Oct.), Analysis of Online Community for Business Project in the Foreign Country. Paper presented at the 6th Indonesia Japan Joint Scientific Symposium; IJJSS 2014, At Grafika Room, University Club Universitas Gadjah Mada: Yogjakarta, Indonesia, Octber 29-30 (Presentation on 30th), Program P.23
   - Yoshida, M. (2014, Dec.), Study on Online Communication Emerged from Centralized Conference, 6th International Conference on Information and Multimedia Technology (ICIMT), Flora Grand Hotel: Dubai, UAE, December 8-10 (Presentation 9th), Program P.29.
   - Yoshida M. and Thammetar, T. (2015, Jan.), Analysis of an Online Community of an International Cultural Project, Paper Presented at the 2015 International Conferences on Socio-Cultural Relationship and Education Pedagogy Learning Sciences; SOCIO-CULTURAL 2015, January 31-February 1 (Presentation on 31st), At the Westin Resort Nusa Dua: Bali, Indonesia, Conference Book pp.7-13.
   - Yoshida, M.(2015, Feb.), Study on Dissemination of Scholarly Papers with Open Source Options about Regional In-service Courses, 7th International Conference on Computer Research and Development; ICCRD 2015, February 6-7 (Presentation on 7th), At Vissai Saigon Hotel: Ho Chi Minh City, Vietnam, Proceedings pp.109-113.
   - Yoshida, M. and Thammetar, T. (2015), Continual Social Graph Analysis of Online Community for a Cultural Project in the Foreign Country, The Social Sciences, Vol. 10, Issue 2, pp.194-200.
   - Yoshida, M. and Thammetar, T. (2015, July), Analysis of an Online Community of an International

Cultural Project, Advanced Science Engineering and Medicine, Vol.7, No.7, pp.550-556.

- Yoshida, M. (2016, July), Study on Dissemination of Scholarly Papers with Open Source Options about Regional In-service Courses, International Journal of Information and Educational Technology (IJIET), Vol.6, No.7, pp.550-554.
- Yoshida, M.(2015, May), Comparative Study to Understand the Potential Difference of Communication in Group Learning, Proceedings of the 8th International Conference on Education Reform for Social Justice (ICER 2015), May 26-28 (resentation on 27), At Lotus Hotel Pang Suan Kaew: Chiangmai, Thailand.
- Yoshida, M. and Duangchinda, V. (2015, June), Study on Potential Online Communication of Regional In-service Training, Paper presented at International Conference on Education (ICOED) 2015, June 2-4 (Presentation on 2nd), At Aston Kuta Hotel & Residence: Bali, Indonesia, P.13.
- Yoshida, M. and Duangchinda, V. (2015, July), Study on Potential Online Communication of Regional In-service Training, Advanced Science Letters, Vo.21, No.7, pp.2390-2395.
- Yoshida, M.(2015, Dec.), Study on Online Communication Emerged from Centralized Conference, Journal of Industrial and Intelligent Information (JIII), Vol3. No.4, pp.314-317.
- Yoshida, M. (2015, July), Perspective Views of Empowerment and Protectionism of In-service Teachers about Using Social Media in Education, Paper presented at The Sixth International e-Learning Conference 2015. Global Trends in Digital Learning, July 20-21, at BITEC: Bangkok, Thailand, (Presentation on 20th), Proceedings pp.8-13.
- Yoshida, M.(2015, Sep), Investigation of Protectionism of In-Service Teachers Regarding Social Media Use by Students, Paper presented at the Forth International Conference on E-Learning and E-technologies in Education, Surya University: Tangerang, Indonesia, September 10-12 (Presentation on 10th), Proc. pp.35-40.
- Yoshida, M., Theeraroungchaisri, A., and Pengsuparp, T.(2015, Nov.), Incorporating the Opinions of Teachers and Pre-Service Students to Design a New Lesson Plan, Paper presented at the International Conference on Education, Psychology, and Learning. LCEPL2015-Fall, Nagoya Congress Center: Aichi, Japan, November 10-12 (Presentation on 12th), Proc. pp.65-77

8. Other important item to be stated

- The best paper award:

  Yoshida, M. and Thammetar, T. (2014, June), Continual Social Graph Analysis of Online Community for a Cultural Project in the Foreign Country, Paper presented at Global Trends in Academic Research 2014; GTAR2014, at Pan Pacific Nirwana Bali Resort, Bali: Indonesia, June 2-3 (Presentation on 3rd), Proceedings p.14-24.
- Award of highly commended paper:

  Yoshida, M.(2015, May), Comparative Study to Understand the Potential Difference of Communication in Group Learning, Proceedings of the 8th International Conference on Education Reform for Social

Justice (ICER 2015), May 26-28 (resentation on 27), At Lotus Hotel Pang Suan Kaew: Chiangmai, Thailand.

- Outstanding Paper Award:

  Yoshida, M., Theeraroungchaisri, A., and Pengsuparp, T.(2015, Nov.), Incorporating the Opinions of Teachers and Pre-Service Students to Design a New Lesson Plan, Paper presented at the International Conference on Education, Psychology, and Learning. LCEPL2015-Fall, Nagoya Congress Center: Aichi, Japan, November 10-12 (Presentation on 12th), Proc. pp.65-77

Faculty of Education

1. Comparative study for brain cognition of mother and foreign languages between Japanese and Italian children
2. Faculty of Education / Professor / Katsuo Sugita
3. Italy / Tor Vergata University of Rome / Paolo Culatoro
4. 2010-
5. We perform phonological reaction time test to Italian primary school students who learn Japanese and compare the time differences between these students and native Japanese children. We study the brain mechanism and language-environment factors for cognition of language characters in children.
6. Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology, Japan
7. Main result
   - Suzuki C, Sugita K, Hoshino F, Sugita Ki, Shimoyama I, Orihira S, Yokota A, Minohara M. Development of "Lexicon-Concept Link" in the First Language and Second Language –Part 6-. IMJ2016, vol64, pp309-316
   - Sugita K, Uesaka T, Nomura J, Sugita Ki, Inagaki M. A family-based association study does not support DYX1C1 as a candidate gene in dyslexia in Japan. IMJ 2011, 18(2), 130-132
   - Torii M, Shimoyama I, Sugita K Phonemic and semantic working memory in information processing in children with high function pervasive developmental disorders IMJ Vol 17, No 1, 35-39, 2010
   - Sugita K, Suzuki N, Oi K, Allen-Tamai M, Sugita Ki, Shimoyama I. Cross-Sectional Analysis for Matching Words to Concepts in Japanese and English Languages. IMJ Vol 17, No 1, 41-45, 2010
8. None

1. Comparative Research about Health Promoting School in Asia
2. Education / Professor / Kanako OKADA
3. Partner abroad
   - South Korea, Wonju / Department of Health Administration ,College of Health Sciences, Yonsei University (Sister University) / Eun Woo Nam,
   - Taiwan, Taichung / Department of Healthcare Administration,College of Health Science, & Director,

Learning and Career Development Center, Asia University / S. Y. Huang

4. 2008
5. This study aims to show an overview and characteristics of Asian HPS and school health related organizational activities and collaboration. Investigations regarding HPS were conducted via literature review and observational studies of schools visited in Asia
6. The United graduate school of Education Tokyo Gakugei University「Research Project」subvention in 2008-2009、COE start up subsidy in 2009、Model curricula development research for course of Teacher in 2010、2011、Grant-in-Aid for Scientific Research B from the Ministry of Education, Culture, Sports, Science and Technology, Japan
7. Main result
   - Yuko Kamazuka etal. : Health Promoting Schools in Taiwan, Journal of Educational Research,21,127-135,2010.3
   - Kanako OKADA etal. : Health Promoting Schools in Hong Kong Special Administrative Region of China ,Journal of Educational Research, 21, 127-135, 2010.3
   - Bulletin of the faculty of education, 58, 2010.3
   - Megumi KAGOTANI,Yuko KAMAZUKA, Syusaku SASADA et.al.(2009): Three Policies for the Development of Health Promoting Schools in Japan, The First Asia-Pacific Conference on Health Promotion and Health Education, Makuhari, Japan.
   - Kanako OKADA et.al. : CHARACTERISTICS OF HEALTH PROMOTING SCHOOLS IN ASIA:JAPAN, HONG KONG, CHINA,SOUTH KOREA AND TAIWAN 20th IUHPE World Conference on Health Promotion,11-15 July 2010, Geneva, Switzerland (2010.7)
8. Other important items to be stated
   - Speaker／International Health Promoting School Symposium in Taipei (Taiwan) (2009.12)
   - Special Lecture／International Health Promoting School Conference in Taipei (Taiwan) (2009.12) (2013.12)
   - Speakers (Kanako OKADA, Daisuke Fujikawa, Satoshi Isobe&fumiko Sunagami) at Health Promoting School Seminar in Shanghai (Mainland China)
   - International Symposium Planner ,coordinator&speaker /The 2nd East Asian International Conference on Teacher Education Research
   - WHO／WPRO Meeting (2012.2)
   - International Symposium in Chiba University (2013.3)

1. Development of Method and Materials for Physics Education (PDL system)
2. Education / Professor / Tetsuya KATO
3. Cambodia, Phnom Penh / Royal University of Phnom Penh (RUPP) / Ing Heng, Sou Kalyan,
4. 2002
5. This study aims to develop the method and materials on physics teaching/learning for wider people in the

world. The apparatus named PDL has the characteristics as: low cost, small space, ease of re-construction, portable.

6. Asia-Pacific Cultural Centre for UNESCO (ACCU), Okamoto Scholarship Foundation, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Cambodia International Education Support Foundation (CIESF).

7. Main result

- Materials developed:
  - PDL type experimentes; Measurement of shear modulus using by tortional oscillator, and Measurementof Youg's modulus using by reed vibration (2013).
- Published paper:
  - Novel Determination of Peltier Coefficient, Seebeck Coefficient and Thermal Resistance of Thermoelectric Module, Jpn. J. Appl. Phys., 45 No 6A (2006)
  - "DESK LAB" SERIES: A NOVEL EXPERIMENTAL APPARATUS WITH DESK TOP SIZE, EASE OF RESTRUCTURE AND LOW COST" : Kalyan SOU, Naoto OZAKI, Satoshi MATSUDA, and Ken-ichi TOZAKI, Journal of the Physics Education Society of Japan (Proc. Int. Conf. Physics Education 2006)
  - A Novel Experimental Apparatus(PDL) and Its Application in Higher Education in Japan and Cambodia: K. Sou, T. Kato, K, Oto, T, Sakurai, K, Yamamoto, E. Omosa, and K. Tozaki (Proc. Int. Conf. on Physics Education 2009(ICPE 2009) AIP Conf. Proc. 1263 (2010) 175-178.
- Patent:
  1) Patent application, 2005－239958: Evaluation method of thermoelectric module
  2) Patent application, 2005－368470 Apparatus for measurement of fluid density and the measurement method
  3) Patent application, 2007－513561 Sectional desk experiment method and device
  4) Patent application, 2006－199741 Radiative heat flow sensor and measurement method of radiative heat flow
  5) Patent application, 2006－337152 Method for magnetic flux measurement and magnetic field sensor
  6) Patent application, 2007－010053 Education system with sectional experimental apparatus
  7) Patent application, 2007－137936 Thermal analyzer

8. Other Important items to be stated

- Pregident prise award at open research expibijion (2006)
- Good Practice (GP) project (2007-2010, MEXT)
- Work shop (« Higher Experimental Physics Education) : RUPP (10/2008, 10/2009 and 10/2011)
- Short stay at Chiba university for the progress of master research by the student of Royal University of Phnom Penh (7/2009 and 7/2012)

- Advise the researches for master course students of Royal University of Phnom Penh (5-11/2013)

1. Perception of human emotional stimuli in Italy and Japan
2. Faculty of Education / Professor / Jun Nakazawa
3. Italy / University of Torento / Esposito,G., Venuti,P.
   U.S.A. / NIH / Bornstein,M.H.
4. 2010-
5. Funds, grants, etc.
   (1) We compared perception of infant crying between Italian and Japanese adults. In both cultures, cries with higher fundamental frequency and shorter pause durations were judged more distressing and distressed, and observers perceived cries of children with Autism Disorder(AD) as more distressing and distressed than cries of typically developing children. It shows reactions to cries of children with AD might be universal.
   (2) We compared perception of infant face and adult face of Japanese and Italian between Italian and Japanese adults. We found cognitive and physiological response to infant face was same, but response to adult face were differ depend on race of adult face.
6. Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology, Japan
7. Main result
   - Esposito,G., Nakazawa,J. Bembich,C., Venuti,P. & Bornstein,M.H.(2011).Perception of early distress of children with autistic spectrum disorder in Italy and Japan. Society Research in Child Development 2011 Biennial Meeting.
   - Esposito,G.,Nakazawa,J., Venuti,P. & Bornstein,M.H.(2012). Perceptions of distress in young children with autism compared to typically developing children: A cultural comparison between Japan and Italy. Research in Developmental Disabilities,33,1059-1067.
   - Nakazawa,J., Esposit,G., Venuti,P., & Bornstein,M. (2012).How is distress expressed in children with autism spectrum disorders? A cultural comparison between Japan and Italy. 76th Annual conference of Japanese Psychological Association.
   - Esposito,G., Nakazawa,J., Venuti, P., & Bornstein, M. (2013). Componential deconstruction of infant distress vocalizations via tree-based model: A study of cry in autism spectrum disorder and typical development. Research in Developmental Disability,34,2717-2724.
   - Esposito,G., Nakazawa,J., Venuti,P., & Bornstein,M.(2014). The role of acoustic characteristics in adult judgements of infant cry. 2014 International Conference on Infant Studies. Berlin,Germany.
   - Esposito, G. Nakazawa, J. ,Ogawa,S., Stival, .R.,, Putnick, D.L., & Bornstein, M.H. (2015) Using infrared thermography to assess emotional responses to infants. Early Child Development and Care, Vol. 185, No. 3, 438–447.
   - Esposito,G., Nakazawa,J., Ogawa,S., Stival,R., Kawashima,A., Putnick,D.L., & Bornstein,M.H.(2014)

Baby, You Light-up My Face: Culture-General Physiological Responses to Infants and Culture-Specific Cognitive Judgements of Adults. Plos One,9,(10), e106705.

- Esposito,G., Nakazawa,J., Venuti,P., & Bornstein,M.H.(2015) Judgement of infant cry: The roles of acoustic characteristics and sociodemographic characteristics. Japanese Psychological Research,57,126-134.
- Nakazawa,J(2015) Measuring temperature as an index of emotional response through infrared thermography. Japan Society of Developmental Psychology News Letter,75,4-5.
- Ogawa, S.(2015) Despatch to Italia for excecuting psychological experiment using infrared thermography.. Japan Society of Developmental Psychology News Letter, 76,.14-1

8. None

1. International Comparative Study of Parenting and Children's social Development.
2. Faculty of Education / Professor / Jun Nakazawa
3. USA／Brighamyoung University／Craig H. Hart
4. 2012～
5. Effect of parenting on social development of young children among Japan, USA, Turkey, China and Taiwan.
6. Pacific Project of Brigham Young University
7. Kawashima, A., Nelson, D.A., Nakazawa, J., Hart, C.H. Yang, C., & Cheah, C.S.L.(2016) Marital and Parenting Liabilities: Predicting Aggression in Japanese Preschoolers. International Society for the Study of Behavior Development, 2016 Conference.
8. None

1. Family and Child Development in East Asia
2. Faculty of Education / Professor / Jun Nakazawa
3. USA／Southern Uta University／David W. Shwalb
   Korea／Seoul Theological University／Hyun, J-H.
4. 2012～
5. Examination for Same and differences among the family and child in EastAsia
6. None
7. Main result
   - Nakazawa,J., & Shwalb, D.W.(2012)Fathering in Japan: Entering an Era of Involvement with Children. In Shwalb,D.W., Shwalb, B. J., & Lamb,M.E.(Eds.), *Fathers in cultural context*. (pp.42-67). New York:Routledge.
   - Nakazawa, J.(2015) Fathering in Japan. In J. L. Roopnarine(Ed.), Fathers across cultures: The importance, roles, and diverse practice of dads. (pp.307-324). Santa Barbara, CA: Praeger.
   - Hyun, J-H. , Nakazawa, J., Shwalb, D. W., & Shwalb, B. J. (2016). Parents and childcare in South Korea and Japanese families. In U. P. Gielen & J. L. *Roopnarine.(Eds). Childhood and adolescence: Cross-cultural perspectives and applications* (pp. 177-206). Santa Barbara, CA: Praeger

8. None

1. Development of radiation learning program in the context of risk education
2. Faculty of Education / Professor / Katsuo Sugita
3. U.K. / Faculty of Children and Learning, Institute of Education University of London/Dr. Ralph Levinson
4. 2014~
5. We develop educational program for learning radiation risk in comparison with that of U.K.
6. Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology, Japan
7. Main result
   - Wilson BT, Stark Z, Sutton RE, Danda S, Ekbote AV, Elsayed SM, Gibson L, Goodship JA, Jackson AP, Keng WT, King MD, McCann E, Motojima T, Murray JE, OmataT, Pilz D, Pope T, Sugita K, Susan M. White SM, Wilson IJ. The Cockayne Syndrome Natural History (CoSyNH) study: clinical findings in 102 individuals and recommendations for care. Genet Med. 2015 Jul 23. doi: 10.1038/gim.2015.110.
   - Kubota M, Ohta S, Ando A, Koyama A, Terashima H, Kashii H, Hoshino H, Sugita K, Hayashi M. Nationwide survey of Cockayne syndrome in Japan: Incidence, clinical course and prognosis. Pediatr Int. 2015 Jun;57(3):339-47. doi: 10.1111/ped.12635
   - Tanaka T, Arai M, Jiang X, Sugaya S, Kanda T, Fujii K, K Kita, Sugita K, Imazeki F, T Miyashita, A Kaneda, Yokosuka O. Downregulation of microRNA-431 by human IFN-β inhibits viability of medulloblastoma and glioblastoma cells via upregulation of SOCS6. Int J Oncol. Vol 44, 1685-1690, 2014.
   - Endo M, Fuji K, Sugita K, Saito K, Kohno Y, Miyashita T. 2011. Nationwide survey of nevoid basal cell carcinoma syndrome in Japan revealing the low frequency of basal cell carcinoma. Am J Med Genet Feb;158A(2):351-7、2012.
   - Kita K, Sugita K, Chen S-p, Suzuki T, Sugaya S, Tanaka T, Jin Y-U, Satoh T, Tong X-B, Suzuki N. Extracellular recombinant annexin II confers UVC resistance and increases the Bcl-xL to Bax protein ratios in human UVC-sensitive cells Radiation Research 176, 732–742, 2011
8. None

1. Study of biological activity of specimen which extract from sponge-associated Bacteria
2. Faculty of Education／Professor／Jun Nomura
3. Indonesia／Bogol agricaltuer University／NAHROWI RAMLI
4. 2013~
5. This study aim to identify several bioactive substances containing in extract of sponge-associated bacteria.
6. Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology,
   Japan（B)、TWINCLE program
7. CYTOTOXICITY OF CRUDE EXTRACT FROM SPONGE-ASSOCIATED BACTERIA AGAINST MOLT4

LEUKEMIC CELL LINES THROUGH APOPTOSIS, AI KARWATI, JUN NOMURA, NAHROWI RAMLI, ARIS TRI WAHYUDI, International Journal of Pharmacy and Pharmaceutical Sciences Vol 7, Issue 12, 2015

8. none

Graduate School of Science

1. In-situ Monitoring of Active Structure Transformation Selectively Extracted among Metallic Nanoparticle Catalysts
2. Department of Chemistry, Graduate School of Science / Associate Professor / Dr. Yasuo Izumi
3. France / CNRS / Dr. Jean Pierre Candy (Director), Dr. Eric Roisin
4. 2005 to Present
5. One of the most important applications of nanotechnology is catalysis of nanoparticles for environment and energy. This international joint project delineates the reason why the selective hydrogenation activity is enhanced by some orders with the addition of tin to nanoparticles and nanoparticles at three phase interface of electrodes of Polymer Electrolyte Fuel Cells, e.g. platinum, immobilized on surface. The structural and electronic effects of tin are investigated to surface Pt atoms. The originality of this work is to monitor the in-situ structure transformation by selecting Pt atoms to participate in catalysis using high-energy-resolution fluorescence spectrometry.
6. Grant-in-Aid for Scientific Research B and C from the Ministry of Education, Culture, Sports, Science, and Technology. Research Grant for Basic Science from Sumitomo Foundation, The Iwatani Naoji Foundation's Research Grant.
7. Main result
   (a) "State-sensitive Monitoring of Active and Promoter Sites. Applications to Au/titania and Pt-Sn/silica Catalysts by XAFS Combined with X-ray Fluorescence Spectrometry",
   Yasuo Izumi, Dishad Masih, Jean-Pierre Candy, Hideaki Yoshitake, Yasuko Terada, Hajime Tanida, and Tomoya Uruga, "X-Ray Absorption Fine Structure 13th International Conference", Hedman, B., Pianetta, P. Eds., AIP Conference Proceedings Vol. 882, 588 – 590 (2007).
   (b) "X-ray Absorption Fine Structure Combined with X-ray Fluorescence Spectrometry. Part 18. Tin Site Structure of Pt-Sn Catalyst",
   Yasuo Izumi, Dilshad Masih, Eric Roisin, Jean-Pierre Candy, Hajime Tanida, and Tomoya Uruga, Materials Letters, 61(18), 3833 – 3836 (2007).
   (c) "X-ray Absorption Fine Structure Combined with X-ray Fluorescence Spectrometry. Improvement of Spectral Resolution at the Absorption Edges of 9 – 29 keV (Correction)",
   Yasuo Izumi, Hiroyasu Nagamori, Fumitaka Kiyotaki, Dilshad Masih, Taketoshi Minato, Eric Roisin, Jean-Pierre Candy, Hajime Tanida, and Tomoya Uruga, Analytical Chemistry, 78(6), 2075 (2006).
   (d) "X-ray Absorption Fine Structure Combined with X-ray Fluorescence Spectrometry. Improvement of Spectral Resolution at the Absorption Edges of 9 – 29 keV",

Yasuo Izumi, Hiroyasu Nagamori, Fumitaka Kiyotaki, Dilshad Masih, Taketoshi Minato, Eric Roisin, Jean-Pierre Candy, Hajime Tanida, and Tomoya Uruga, Analytical Chemistry, 77(21), 6969 – 6975 (2005).

(e) "Development of Structural Analysis Technique for Nano-particles"
Yasuo Izumi, Polyfile, 45(528), 46 – 49 (2008).

(f) "Synthesis and Site Structure of a Replica Platinum-Carbon Composite Formed Utilizing Ordered Mesopores of Aluminum-MCM-41 for Catalysis in Fuel Cells",
Kazuki Oka, Yoshiyuki Shibata, Takaomi Itoi, and Yasuo Izumi, Journal Physical Chemistry C, 114(2), 1260 – 1267 (2010).

(g) "X-ray evaluation of the boundary between polymer electrolyte and platinum and carbon functionalization to conduct protons in polymer electrolyte fuel cells",
Kazuki Oka, Yuta Ogura, and Yasuo Izumi, Journal of Power Sources, 258C, 83–88 (2014).

8. None

1. Application of Metal Nanoparticle Catalysts Modified with Tin to Fine Chemicals Synthesis and In-situ Monitoring of the Active Structure Transformation
2. Department of Chemistry, Graduate School of Science / Associate Professor / Dr. Yasuo Izumi
3. Italy / CNR / Dr. Matteo Giudotti, Dr. Vladimiro Dal Santo, Dr. Alverto Naldoni, Professor Dr. Rinaldo Psaro
4. 2004 to Present
5. One of the most important applications of nanotechnology is catalysis of nanoparticles for environment and energy. This international joint project explores the application of nanoparticles, e.g. platinum, immobilized on surface to fine chemicals synthesis. Concretely, selective hydrogenation of unsaturated carbonyl intermediate is performed. In-situ active structure over the discovered catalysts is investigated for surface metallic and Sn sites and control factor of selective catalysis is clarified.
6. Grant-in-Aid for Scientific Research B and C from the Ministry of Education, Culture, Sports, Science, and Technology. Research Grant for Basic Science from Sumitomo Foundation.
7. Main result
   (a) "Tin K-edge XAFS of Pt-Sn/MgO Catalyst Combined with the X-ray Fluorescence Spectrometry",
   Yasuo Izumi, Laura Sordelli, Sandro Recchia, Rinaldo Psaro, and Dilshad Masih, SPring-8 User Experiment Report 2004A, 13, 169 (2004).

   (b) "Tin K-edge XAFS study of supported Ir-Sn/SiO2 bimetallic catalysts for selective propane dehydrogenation",
   Yasuo Izumi, Dilshad Masih, Laura Sordelli, Matteo Guidotti, and Rinaldo Psaro, Photon Factory Activity Report 2005, 23B, 38 (2006).

   (c) "Tin K-edge XAFS study of supported Ir-Sn/SiO2 catalysts utilizing brilliant X-ray beam at 29 keV from PF-AR",
   Yasuo Izumi, Kazushi Konishi, Laura Sordelli, Matteo Guidotti, and Rinaldo Psaro, Photon Factory

Activity Report 2006, 24B, 16 (2007).

(d) A. Gallo, L. Sordelli, G. Peli, L. Garlaschelli, R. Della Pergola, V. Dal Santo, R. Psaro, Y. Izumi, Characterization of supported Ir-Sn nanoparticles catalysts for dehydrogenation of propane; XXXV Congress of Inorg. Chem., (2007), 9 月, Milano (Domestic Conference in Italy).

(e) "Development of Structural Analysis Technique for Nano-particles"
Yasuo Izumi, Polyfile, 45(528), 46 – 49 (2008).

(f) "Cluster-derived Ir-Sn/SiO2 catalysts for the catalytic dehydrogenation of propane: a spectroscopic study",
Alessandro Gallo, Rinaldo Psaro, Matteo Guidotti, Vladimiro Dal Santo, Roberto Della Pergola, Dilshad Masih, and Yasuo Izumi, Dalton Transactions, **42**(35), 12714–12724 (2013). September 21 2013, DOI: 10.1039/C3DT51144H.

8. None

1. Development of Environmental-benign Catalysts based on Nano/Meso Reaction Space
2. Department of Chemistry, Graduate School of Science / Associate Professor / Dr. Yasuo Izumi
3. People's Republic of China / Henan University of Science and Technology / Associate Professor / Shuge Peng
4. 2007 to Present
5. Hetero-atom-doped titanium oxides have been applied to photo-catalysis excited under visible light, however, very few examples are known consisted of ordered pore structure. In this project, visible light-excited photo-catalysts consisted of nanotubes or ordered mesopores are synthesized and the catalytic performance will be optimized. Further, we found new catalyst to convert carbon dioxide to methanol utilizing sunlight.
6. Grant-in-Aid for Scientific Research B and C from the Ministry of Education, Culture, Sports, Science, and Technology. Research Grant from Research Foundation for Opto-Science and Technology, Research Grant from the Asahi Glass Foundation. The fee for travel and stay in Japan of Dr. Shuge Peng is based on Henan University of Science and Technology (at Chiba University, February 25 2008 – August 24 2008).
7. Main result

(a) "Site Structure and Photocatalytic Role of Sulfur or Nitrogen-Doped Titanium Oxide with Uniform Mesopores under Visible Light",
Yasuo Izumi, Takaomi Itoi, Shuge Peng, Kazuki Oka, and Yoshiyuki Shibata, Journal of Physical Chemistry C, 113(16), 6706 – 6718 (2009).

(b) "Site Structure and Photocatalytic Role of Sulfur or Nitrogen-Doped Titanium Oxide with Uniform Mesopores under Visible Light." (Erratum),
Yasuo Izumi, Takaomi Itoi, Shuge Peng, Kazuki Oka, and Yoshiyuki Shibata, Journal of Physical Chemistry C, 113(29), 12926 (2009).

(c) "Specific Oxidative Dehydrogenation Reaction Mechanism over Vanadium(IV/III) Sites in TiO2 with Uniform Mesopores under Visible Light", Yasuo Izumi, Kazushi Konishi, and Hideaki Yoshitake, Bulletin of Chemical Society of Japan, 81(10), 1241 – 1249 (2008).

(d) "X-ray Absorption Fine Structure Combined with X-ray Fluorescence Spectroscopy. Monitoring of Vanadium Site in Mesoporous Titania Excited under Visible Light by Selective Detection of the Vanadium K □5,2 Fluorescence",
Yasuo Izumi, Kazushi Konishi, Diaa Mosbah Obaid, Tomohisa Miyajima, and Hideaki Yoshitake, Analytical Chemistry, 79(18), 6933 – 6940 (2007).

(e) "Photo-oxidation over mesoporous V-TiO2 catalyst under visible light monitored by vanadium K □5,2-selecting XANES spectroscopy"
Yasuo Izumi, Kazushi Konishi, Tomohisa Miyajima, and Hideaki Yoshitake, Materials Letters, 62(6/7), 861 -864 (2008).

(f) "Photocatalytic Conversion of Carbon Dioxide into Methanol using Zinc-Copper-M(III) (M = Aluminum, Gallium) Layered Double Hydroxides",
Naveed Ahmed, Yoshiyuki Shibata, Tatsuo Taniguchi, Yasuo Izumi, Journal of Catalysis, 279(1), 123 – 135 (2011).

(g) "Photocatalytic conversion of carbon dioxide into methanol using optimized layered double hydroxide catalysts",
Naveed Ahmed, Motoharu Morikawa, and Yasuo Izumi, Catalysis Today, **185**(1), 263–269 (2012).

(h) "Recent advances in the photocatalytic conversion of carbon dioxide to fuels with water and/or hydrogen using solar energy and beyond",
Yasuo Izumi, Coordination Chemistry Reviews, **257**, 171–186 (2013).

(i) "Photocatalytic Performance of Sulfur-Doped Titanate Nanotubes",
Shuge Peng, Yasuo Izumi, Xiaofei Liu, Jun Zhang, Chinese Journal of Applied Chemistry, 29, 285–290 (2012). DOI: 10.3724/SP.J.1095.2012.00217.

8. None

1. Photoreduction of Carbon dioxide Utilizing Natural Light
2. Department of Chemistry, Graduate School of Science / Associate Professor / Dr. Yasuo Izumi
3. Romania / Technical University "Gh. Asachi" of Iasi / Professor / Gabriela Carja, Graduate Student: Magda C. Puscasu
4. 2014 to Present
5. Photoreduction of carbon dioxide into hydrocarbon fuels or carbon monoxide contributes to CO2 emission and energy saving simultaneously. In this project, new genre of self-reconstuctive layered double hydroxides is utilized for this porpose. Sustainable, and extremely efficient photocatalysts are expected.
6. Kakenhi C, JSPS; A-STEP, JST
7. Main result

(a) "Photocatalytic conversion of carbon dioxide into methanol in reverse fuel cells with tungsten oxide and layered double hydroxide photocatalysts for solar fuel generation",
Motoharu Morikawa, Yuta Ogura, Naveed Ahmed, Shogo Kawamura, Gaku Mikami, Seiji Okamoto,

and Yasuo Izumi, Catalysis Science and Technology, 4(6), 1644–1651 (2014).

(b) "Photoconversion of carbon dioxide in zinc–Copper–gallium layered double hydroxides: The kinetics to hydrogen carbonate and further to CO/methanol",
Motoharu Morikawa, Naveed Ahmed, Yusuke Yoshida, and Yasuo Izumi, Applied Catalysis B, 144, 561–569 (2014).

(c) "Tailoring assemblies of plasmonic silver/gold and zinc-gallium layered double hydroxides for photocatalytic conversion of carbon dioxide using UV-visible light",
Shogo Kawamura, Puscasu Magda Cornelia, Yusuke Yoshida, Yasuo Izumi, and Gabriela Carja, Applied Catalysis A, 504, 238–247 (2015). DOI: 10.1016/j.apcata.2014.12.042.

(d) "Photocatalytic Conversion of Carbon Dioxide Using Zn–Cu–Ga Layered Double Hydroxides Assembled with Cu Phthalocyanine: Cu in Contact with Gaseous Reactant is Needed for Methanol Generation",
Shogo Kawamura, Naveed Ahmed, Gabriela Carja, and Yasuo Izumi, Oil & Gas Science and Technology, **70**, 841–852 (2015). DOI: 10.2516/ogst/2015020.

8. None

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1. Theoretical Study of Excitonic Insulator State
2. Department of Physics / Professor / Yukinori Ohta
3. Germany / Ernst Moritz Arndt University of Greifswald / Holger Fehske
4. from 2012
5. Theoretical study on the condensation mechanism of excitons in the ground state of strongly correlated electron systems is developed. Focusing in particular on the continuous crossover between a BCS-like transition of Cooper-type pairs (BCS mechanism) and a Bose-Einstein condensation of preformed tightly bound excitons (BEC mechanism), we study the lattice models, such as the extended Falicov-Kimball model and two-orbital Hubbard model, by means of the exact-diagonalization technique on small clusters, density-matrix renormalization group (DMRG) method, and variational cluster approximation (VCA) based on the self-energy functional theory. Based on the results, we aim at quantitative elucidation of the mechanism of condensation of recently-discovered excitonic insulator materials.
6. Grant-in-Aid for Scientific Research
7. Main result
   (1) Order, Criticality, and Excitons in the Extended Falicov-Kimball Model, S. Ejima, T. Kaneko, Y. Ohta, and H. Fehske, Phys. Rev. Lett. 112, 026401/1-5 (2014).
   (2) Excitonic BCS-BEC Crossover in Double-Layer Systems, T. Kaneko, S. Ejima, H. Fehske, and Y. Ohta, JPS Conf. Proc. 3, 017006/1-6 (2014).
   (3) Competition between excitonic charge and spin density waves: Influence of electron-phonon and Hund's rule couplings, T. Kaneko, B. Zenker, H. Fehske, and Y. Ohta, Phys. Rev. B **92**, 115106/1-7 (2015)
8. N/A

1. Theoretical Study of Anomalous Properties of Strongly Correlated Electron Systems
2. Department of Physics / Professor / Yukinori Ohta
3. Germany / Karlsruhe Institute of Technology / Robert Eder
4. from 2003
5. In order to clarify the mechanisms of anomalous electronic properties of strongly correlated electron systems, such as cuprate and iron-based high-temperature superconductors as well as a variety of phase transitions observed in transition-metal oxides and organic materials, we study the Hubbard and related theoretical models using the field-theoretical and computational methods of condensed-matter physics. In particular, we apply the variational cluster approximation (VCA) based on the self-energy functional theory (SFT) to these models and clarify the mechanisms of a variety of phase transitions of these systems that occur at low temperatures. Based on the series of our studies, we aim at the understanding of the basic electronic structures of these systems and elucidation of the origins of the anomalous low-energy electronic, magnetic, and transport properties observed in experiment.
6. Grant-in-Aid for Scientific Research
7. Main result
   (1) Quasiparticle States in the Antiferromagnetic Phase of Double Exchange Systems, K. Nakano, R. Eder, Y. Ohta, and P. Wrobel, Eur. Phys. J. B **86**, 314/1-10 (2013).
   (2) Magnetic Properties and Mott Transition in the Hubbard Model on the Square Lattice with Frustration, A. Yamada, K, Seki, R. Eder, and Y. Ohta, Phys. Rev. B **88**, 075114/1-12 (2013).
   (3) The Book-Keeping Fermion Analysis of the Double Exchange Model with Antiferromagnetic Background, K. Nakano, Y. Ohta, R. Eder, and P. Wrobel, J. Korean Phys. Soc. **63**, 751-755 (2013).
8. Collaborations are made by sending graduate students to the relevant laboratories.

1. DMRG Study of Strongly Correlated Electron Systems
2. Department of Physics / Professor / Yukinori Ohta
3. Germany / Leibniz Institute for Solid State and Materials Research Dresden / Satoshi Nishimoto
4. since 2001
5. We study the electronic states of low-dimensional strongly correlated electron systems such as transition -metal oxides and organic materials by means of recently developed computational techniques such as density-matrix renormalization group (DMRG) method. In particular, we aim at the construction of the theory that can explain experimental findings for novel quantum phase transitions such as charge ordering and anisotropic superconductivity. Recently, we have started a new project for clarifying the topological phase transition of quantum spin systems using the DMRG method, the results of which will be published soon.
6. Grant-in-Aid for Scientific Research
7. in preparation.
8. Collaborations are made by sending graduate students to the relevant laboratories.

1. Integral transforms in hyperfunctions and singularities
2. Graduate School of Science / Professor / Yasunori Okada
3. Republic of Italy / University of Bologna / Prof. Otto Liess (retired)
4. 2007～
5. The properties of integral transforms in hyperfunctions are deeply related to the properties of their kernels. We focus on their singularities, i.e., supports, singular supports and their microlocal variants.
6. JSPS Grant-in-Aid for Scientific Research (C),
   Programma Professori Visitatori GNAMPA/CNR,
   JSPS Invitation Fellowship Program.
7. Main result
   (1) O. Liess and Y. Okada, The kernel theorem in ultradistributions: microlocal regularity of the kernel, Rend. Sem. Mat. Univ. Pol. Torino, 67-2 (2009), pp.179--201.
   (2) O. Liess and Y. Okada, Support properties for integral operators in hyperfunctions, Adv. Math., 231(3－4), (2012), pp.1439－1461.
   (3) O. Liess and Y. Okada, Ultra-differentiable classes and intersection theorems, Math. Nachr., 287(5--6), (2014), pp.638—665.
   (4) O. Liess and Y. Okada, Analytic singular support properties for integral operators in hyperfunctions, Publ. RIMS. Kyoto Univ., 51(4), (2015), pp.745—767.
8. None

1. Algebraic analysis on coupling theory
2. Graduate School of Science / Professor / Yasunori Okada
3. French Republic / University of Strasbourg / Prof. Reinhard Schäfke (retired)
4. 2014～
5. The coupling theory is a theory of transformations for complex nonlinear partial differential equations. We extend the coupling theory using algebraic analytic methods, in collaboration with Prof. Reinhard Schäfke and Prof. Hidetoshi Tahara.
6. JSPS Grant-in-Aid for Scientific Research (C).
7. Main result
   (1) Y. Okada, R. Schäfke and H. Tahara, Unique solvability of coupling equations in holomorphic functions, to appear in RIMS Kokyuroku Bessatsu
8. None

1. Theoretical study on nuclear level densities by the shell model Monte Carlo methods
2. Graduate School of Science／Professor／Hitoshi Nakada
3. U. S. A.／YALE UNIVERSITY／Yoram Alhassid
   TURKEY／KADIR HAS UNIVERSITY／Cem Oezen
4. 1994～

5. Nuclear level densities are important physical quantities in low energy nuclear reactions, and therefore are key inputs to nucleosynthesis in the space , as well as to calculations of reaction rates in nuclear reactors. However, it has been difficult to reproduce or to predict nuclear level densities to a good accuracy.

   We have proposed a method to compute nuclear level densities via the shell model Monte Carlo methods. Applying it to the nuclei in the iron-nickel region, we have shown that the experimental data on the nuclear level densities are reproduced to an excellent accuracy, from microscopic standpoints. We have further shown that the crossover from spherical to deformed phase in medium-heavy nuclei is handled appropriately, and opened a road to investigate effects of the nuclear collective motions on the level densities applied the methods microscopically. We now proceed to the study aiming at better and wider understanding of the physics regarding the nuclear level densities.

6. Grant-in-Aid (for Encouragement of Young Scientists, Category A; for Scientific Research, Category B; for Scientific Research, Category C)

7. Main result

   ① H. Nakada and Y. Alhassid, Physical Review Letters 79, pp.2939-2942 (1997)

   ② H. Nakada and Y. Alhassid, Physics Letters B436, pp.231-237 (1998)

   ③ Y. Alhassid, S. Liu and H. Nakada, Physical Review Letters 83, pp.4265-4268 (1999)

   ④ Y. Alhassid, G. F. Bertsch, S. Liu and H. Nakada, Physical Review Letters 84, pp.4313-4316 (2000)

   ⑤ H. Nakada and Y. Alhassid, Nuclear Physics A718, pp.691c-693c (2003)

   ⑥ Y. Alhassid, S. Liu and H. Nakada, Physical Review Letters 99,162504 (2007)

   ⑦ Y. Alhassid, L.Fang and H. Nakada, Physical Review Letters 101, 082501 (2008)

   ⑧ H. Nakada and Y. Alhassid, Physical Review C 78, 051304(R) (2008)

   ⑨ C. Oezen, Y. Alhassid and H. Nakada, Physical Review Letters 110, 042502 (2013)

   ⑩ C. Oezen, Y. Alhassid and H. Nakada, Physical Review C91,034329(2015)

   ⑪ Y. Alhassid, M. Bonett-Matiz, S. Liu and H. Nakada, Physical Review C 92, 024307 (2015)

8. None

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1. Theoretical and Numerical Studies of Black hole Accretion Flows and State Transitions
2. Graduate School of Science / Professor / Ryoji Matsumoto
3. USA / Harvard University / Professor / Ramesh Narayan
4. 2009～
5. The aim of this collaboration is to reveal the structure of black hole accretion disks during hard-to-soft state transitions by means of theoretical modeling and magnetohydrodynamic simulations.
6. Grants in Aid for Scientific Research (2008-)
7. Oda, H., Machida, M., Nakamura, K.E., Matsumoto, R., and Narayan, R., Global Structure of Optically Thin, Magnetically Supported, Two-Temperature, Black Hole Accretion Disks, Publ. Astron. Soc. Japan, 64, Article No.15 (2012)
8. A JSPS postdoctoral fellow at Chiba University visited Harvard Smithsonian Center for Astrophysics in

	2009 and collaborated with prof. Ramesh Narayan for theoretical models of magnetized black hole accretion flows.
1.	Theoretical and Numerical Studies of Black Hole Accretion Flows
2.	Graduate School of Science / Professor / Ryoji Matsumoto
3.	China / Shanghai Astronomical Observatory / Professor / Feng Yuan
4.	2008～
5.	The aim of this collaboration is to study the structure, time variability and radiation spectra of black hole accretion flows by means of theoretical modeling and magnetohydrodynamic simulations
6.	JSPS, Grants in Aid for Scientific Research (2008-2010, 2011-)
7.	None
8.	Matsumoto visited Shanghai Astronomical Observatory in Nov. 2008. Prof. Feng Yuan visited Chiba University in Feb. 2009 and carried out collaborative study on black hole accretion flows. Dr. Hiroshi Oda, who was rewarded the doctoral degree at Chiba University in March, 2009 visited Shanghai Astronomical Observatory in 2010-2011 as a post doctoral fellow and worked with prof. Feng Yuan. Dr. Tomihisa Kawashima, who was rewarded the doctoral degree at Chiba University in March 2011 has been visiting Shanghai Astronomical Observatory since August 2012 as a post doctoral fellow and working with prof. Feng Yuan. Matsumoto discussed with prof. Feng Yuan about the collaborative research between Chiba University and Shanghai Astronomical Observatory when they attended the IAU General Assembly held at Beijing, China in August, 2012. Dr. Defu Bu and Mr. Guobin Mou at Shanghai Astronomical Observatory visited Chiba University in September, 2013, and collaborated on magnetohydrodynamic simulations of accretion flows. In June, 2015, Matsumoto was invited to the international workshop on “Black Hole Accretion and AGN Feedback” organized by prof. Feng Yuan at Shanghai and discussed with prof. F. Yuan and Dr. Defu Bu on global magnetohydrodynamic simulations of state transitions in black hole accretion flows.
1.	Theoretical and Numerical Studies of Quasi-Periodic Oscillations Observed in Accreting Objects
2.	Graduate School of Science / Professor / Ryoji Matsumoto
3.	Sweden / Goteborg University / Professor / Marek Abramowicz
4.	2006～
5.	The aim of this collaboration is to explain the origin of quasi-periodic oscillations (QPOs) observed in accreting objects such as black hole candidates by means of theoretical modeling and magnetohydrodynamic simulations.
6.	Grants in Aid for Scientific Research (2006,2008-2010, 2011-), Yukawa Institute for Theoretical Physics
7.	None
8.	Matsumoto chaired the international workshop “Quasi-periodic Oscillations and Time Variabilities of Accretion Flows” held at Yukawa Institute for Theoretical Physics in Nov. 20-22, 2007. Prof. Marek Abramowicz was invited to Japan from Nov. 18 to Nov. 23.

1. Magnetic Reconnection and Magnetic Self-organization in Space and Laboratory Plasmas
2. Graduate School of Science / Professor / Ryoji Matsumoto
3. USA / Princeton University / Dr Hantao Ji
   USA / University of Wisconsin-Madison / professor / Ellen Zweibel
4. 2010～
5. The aim of this collaboration is to study the physical mechanism of magnetic reconnection and magnetic self-organization in astrophysical plasmas and laboratory plasmas by means of laboratory experiments and numerical simulations.
6. Grants in Aid for Scientific Research, JSPS Core-to-Core Program (PI: Yasushi Ono, Tokyo University), JIFT, Chiba University
7. Matsumoto, R., and Ji, H., Preface to Special Topic: Advances in Magnetic Reconnection Research in Space and Laboratory Plasmas, Physics of Plasmas 18, 111101 (2011)
   Ji, H., Ono, Y., and Matsumoto, R., Preface to Special Topic Section: Advances in Magnetic Reconnection Research in Space and Laboratory Plasmas. Part II, Physics of Plasmas 20, pp.061101 (2013)
8. Matsumoto chaired the international workshop "US-Japan Workshop on Magnetic Reconnection MR2010" held at Nara, in December 2010. Papers presented at this workshop have been published in the Special Topics section of Physics of Plasmas (Physics of Plasmas Vol. 18 No. 11, 2011). Matsumoto worked as a guest editor of Physics of Plasmas to publish this issue. A graduate student of the graduate school of science visited University of Wisconsin-Madison during the period October-December 2011 to work with prof. E. Zweibel and S. Heinz. This visit was supported by Chiba University. Matsumoto attended the US-Japan workshop on magnetic reconnection (MR2012) held at Princeton University in May 2012. Matsumoto attended IPELS (International Workshop on the Interrelationship between Plasma Experiments in the Laboratory and in Space 2013) held at Hakuba, Nagano in July, 2013 as a SOC member, and discussed with US collaborators such as prof. H.Ji. Matsumoto worked as a SOC member of the US-Japan Workshop on Magnetic Reconnection MR2014 held at Tokyo University in May, 2014, and US-Japan Workshop on Magnetic Reconnection MR2016 held at Napa, California, USA in March, 2016.

1. Theoretical and Numerical Studies of Supercritical Black Hole Accretion Flows
2. Graduate School of Science / Professor / Ryoji Matsumoto
3. USA / University of California Santa Barbara / professor / Omer Blaes
4. 2011～
5. The aim of this collaboration is to study the dynamics and stability of supercritical accretion flows onto a black hole. We carry out radiation magneto-hydrodynamic simulations to study the interaction of plasmas with radiation. We also compute the radiation spectrum from the results of numerical simulations, and compare them with X-ray observations.
6. Grants in Aid for Scientific Research, JSPS Institutional Program for Young Researcher Overseas Visits
7. None

8.	JSPS Research Fellow, Tomohisa Kawashima, who obtained the doctoral degree at Chiba University in March, 2011 visited University of California at Santa Barbara during the period July 2011-March 2012 and worked with prof. Omer Blaes on the polarized radiation from supercritical accretion flows onto a black hole.
1.	Theoretical and Numerical Studies of Jet Propagation
2.	Graduate School of Science / Professor / Ryoji Matsumoto
3.	USA / Princeton University / Professor / James M. Stone
4.	2012～
5.	The aim of this collaboration is to study the interaction of magnetohydrodynamic jets with the ambient medium by means of three-dimensional magnetohydrodynamic simulations. Another aim is to improve the accuracy and stability of magnetohydrodynamic codes and cross-check the results of magnetohydrodynamic simulations carried out by our code and those by the ATHENA code developed by J. Stone.
6.	Grants in Aid for Scientific Research, JSPS Institutional Program for Young Researcher Overseas Visits
7.	None
8.	One of the graduate students at Chiba University visited Princeton University in November-December 2012, and collaborated with prof. J. Stone on the propagation of magnetohydrodynamic jets. They compared the results of three-dimensional magnetohydrodynamic simulations carried out by our code and by the ATHENA code.
1.	Molecular mechanisms of myofibrillogenesis and their physiological significance
2.	Graduate School of Science / Professor / Takeshi Endo
3.	Italy / Institute of Genetic and Biomedical Research, National Research Council / Marie-Louise Bang
4.	2012～
5.	This project aims to elucidate molecular mechanisms of myofibrillar actin filament formation by using gene-targeting mice and their physiological significance.
6.	Grants-in-Aid for Scientific Research (B); Grants-in-Aid for Scientific Research on Innovative Areas
7.	Yamamoto, D. L., Vitiello, C., Zhang, J., Gokhin, D. S., Castaldi, A., Coulis, G., Piaser, F., Filomena, M. C., Eggenhuizen, P. J., Kunderfranco, P., Camerini, S., Takano, K., Endo, T., Crescenzi, M., Luther, P., Lieber, R. L., Chen, J., and Bang, M.-L. (2013) The nebulin SH3 domain is dispensable for normal skeletal muscle structure but is required for effective active load bearing in mouse. J. *Cell Sci.* 126: 5477–5489.
8.	None
1.	Brauer blocks theory in representation theory of finite groups
2.	Graduate Shool of Science / Professor / Shigeo Koshitani
3.	United Kingdom / City University London / Markus Linckelmann, Radha Kessar
4.	2003～
5.	Block theory which was developed by R. Brauer (1901--1977) in representation theory of finite groups. A notion "groups" is essentially a way to describe a sort of "symmetries" abstractly. Representation theory is a kind of a way to describe groups in terms of matirices 1.Brauer blocks theory in representations of finite

groups.over fields which are something like sets of all real numbers, complex numbers, ...

6. Grant-in-Aid for Scientific Research(C) 17540010,2005-2007,

   Oberwolfach Mathematical Institute in Germany,

   Grant-in-Aid for Scientific Research(C) 20540008, JSPS 2008-2010

   Grant-in Aid for Scientific Research(C) 23540007, JSPS 2011-2014

   Grant-in Aid for Scientific Research(C) 15K04776, JSPS 2015—2017

   Mathematics Institute of University of Aberdeen

   Canada, Banff International Research Station

   France, Central Institute of Research of Science (Luminy Mathematics Institute)

7. Main result

   (1) The indecomposability of a certain bimodule given by the Brauer construction, S.Koshitani and M.Linckelmann, Journal of Algebra 285(2005), 726-729

   (2) Conjectures of Alperin and Broue for 2-blocks with elementary abelian defect groups of order 8, Radha Kessar, Shigeo Koshitani, Markus Linckelmann, Journal fuer die reine und angewandte Mathematik (Crelle's Journal) 671 (2012), 85-130

   (3) On Symmetric quotient of symmetric algebras, Radha Kessar, Shigeo Koshitani, Markus Linckelmann, Journal of Algebra (2015) 442 (2015), 423—437.

   (4) On the indecomposability of Scott modules, Radha Kessar, Shigeo Koshitani, Markus Linckelmann, Quarterly Journal of Mathematics 66 (2015) , 859--903

8. Other important items to be stated

   - Joint work with M.Linckelmann and R.Kessar during 17 March - 17 April 2005, in EPFL Lausanne Switzerland, during 9-19 June 2005, in EPFL Lausanne Switzerland, during 20 November-1 December 20005, in University of Aberdeen in the UK, during 26 March-1 April 2006, Oberwolfach Mathematical Institute in Germany.
   - Joint work with M.Linckelmann and R.Kesssar, during 19 November-29 Nobember 2006 in University of Aberdeen in the UK.
   - Joint work with M. Linckelmann and R.Kessar, during 27 May-2 June, 2007 Lumiyn Mathematics Institute in France.
   - Joint work with M.Linckelmann and R.Kessar,during 21 August-2 September, 2007, in Chiba University and Kyoto University.
   - Joint work with M.Linckelmann and R.Kessar during 7 December-15 December, 2008, in University of Aberdeen, UK.
   - Joint work with M.Linckelmann and R.Kessar during 22 March-28 March, 2009, Oberwolfach Mathematical Institute in Germany.
   - Joint work with M.Linckelmann and R.Kessar during 8-15 June, 2009, in the institute in Isle Skye in Scotland, UK.

- Joint work with R.Kessar during 18- 24 October, 2009, Luminy Mathematics Institute in France.
- Joint work with R.Kessar and M.Linckelmann during 16-19 June, and 17-25 December, 2009, 21 Nov-7 Dec 2010,
- Talk on the joint work 7(2) above 17—18 March, 2011 in Banff International Research Station, Canada
- Joint work with R.Kessar and M. Linckelmann, during 12-25 October, 2011 in University of Aberdeen in the UK. Joint work with R.Kessar and M.Linckelmann, during 29 January-12 February 2012 in University of Aberdeen UK.
- Joint work with R.Kessar and M.Linckelmann, during 26-31 March 2012, Oberwolfach Mathematical Institute in Germany.
- Joint work with R.Kessar and M.Linckelmann, during 18-28 March 2013, City University London UK.
- Jonit work with R.Kessar and M.Linckelmann, during 13-22 October 2013, City University in London, UK.
- Joint work with M.Linckelmann, during 17-22 March 2014, Banff International Research Station, Canada
- Joint work with M.Linckelmann, during 21-26 September 2014, France Ceter of Institute of Research Science (Luminy Mathematics Institute)
- Jonit work with R.Kessar and M.Linckelmann, during 20--28 November 2014, City University in London, UK.
- Jonit work with M.Linckelmann, during 5--11 2015, Oberwolfach Mathematics Institute, Germany

1. Morita equivalences in blocks theory in representation theory of finite groups
2. Graduate School of Science / Professor / Shigeo Koshitani
3. USA / University of Illinois at Chicago / Morton E. Harris
4. 2002～
5. Block theory which was developed by R. Brauer (1901-1977) in representation theory of finite groups. A notion "groups" is essentially a way to describe a sort of "symmetries" abstractly. Representation theory is a kind of a way to describe groups in terms of matrices over fields. Here we study Morita equivalences appearing blocks of finite groups.
6. Grant-in-Aid for Scientific Research(C) 17540010, JSPS　2005-2007
   Grant-in-Aid for Scientific Research(C) 23540007, JSPS　2011-2014
7. An extension of Watanabe's theorem for the Isaacs-Horimoto-Watanabe corresponding blocks, M.E.Harris and S.Koshitani, Journal of Algebra 296 (2006), 96-109
8. Other important items to be stated
   - Joint work with M.E.Harris during 23 September-2 October 2005, in University of Illinois at Chicago and University of Chicago
   - Joint work with M.E.Harris during 7 March-24 March 2007, in University of Illinois at Chicago and University of Chicago

- Joint work with M.E.Harris during 26 May—2 June 2014, in University of Illinois at Chicago and University of Chicago

1. Blocks theory in representation theory of finite groups
2. Faculty of Science / Professor / Shigeo Koshitani
3. Germany / University of Jena / Burkhard Kuelshammer
4. 1995～
5. Block theory which was developed by R. Brauer (1901-1977) in representation theory of finite groups. A notion "groups" is essentially a way to describe a sort of "symmetries" abstractly. Representation theory is a kind of a way to describe groups in terms of martrices over fields. Here we study blocks of finite groups.
6. Grant-in-Aid for Scientific Research(C) 17540010, JSPS 2005-2007
   and the Mathematical Institute University of Jena Germany,
   Grant-in-Aid for Scientific Research(C) 20540008, JSPS 2008-2010
   Grant-in-Aid for Scientific Research(C) 23540007, JSPS 2011-2014
   Grant-in Aid for Scientific Research(C) 15K04776, JSPS 2015-2017
   Canada, Banff International Research Station
   DFG (Deutsche Forschungs Gemeinschaft Scientific Priority Program SPP 1388)
   DFG (Deutsche Forschungs Gemeinschaft Scientific Priority Program SPP 1489
   Oberwolfach Mathematical Institute
7. On Loewy lengths of blocks, S. Koshitani, B. Kuelshammer and B. Sambale, Mathematical Proceedings of the Cambridge Philosophical Society 156 (2014), 555—570.
8. Other important items to be stated
   - Joint work with B.Kuelshammer during 1 - 8 April 2006, in University of Jena, Germany
   - Joint work with B.Kuelshammer during 6 - 13 April 2009, In University of Jena, Germany
   - Joint work with B.Kuelshammer during 29 August - 8 September 2012, Chiba University, Hamamatsu, Japan
   - Joint work with B.Kuelshammer during 20 –23 December 2013, in University of Jena,Germany
   - Joint work with B. Kuelshammer, 17—22 March 2014, Canada Banff International Research Station
   - Joint work with B.Kuelshammer during 14 December - 20 December 2014, in University of Jena, Germany
   - Joint work with B.Kuelshammer during 19 July - 25 July 2015, in University of Jena, Germany
   - Joint work with B.Kuelshammer during 19 January – 26 January 2016, in University of Jena, Germany

1. Frobenius-Schur indicators theory in representation theory of finite groups
2. Faculty of Science / Professor / Shigeo Koshitani
3. Ireland / National University of Ireland Maynooth / John Murray
4. 2006～

5. Block theory which was developed by R. Brauer (1901-1977) in representation theory of finite groups. A notion "groups" is essentially a way to describe a sort of "symmetries" abstractly. Representation theory is a kind of a way to describe groups in terms of martrices over fields.Here we study Schur-Frobenius indicators in character theory of finite groups.
6. Grant-in-Aid for Scientific Research(C) 17540010,2005-2007, and National University of Ireland Maynooth, Grant-in-Aid for Scientific Research(C) 20540008, 2008-2010
7. In preparation
8. Other important items to be stated
   - Joint work with J.Murray during 8 - 16 April 2006, in National University of Ireland Maynooth, Ireland
   - Joint work with J.Murray during 18- 23 August 2008, in National University of Ireland Maynooth, Ireland
   - Joint work with J.Murray during 21- 25 June 2010, in EPFL, Switzerland
   - Joint work with J.Murray during 24-30 March, in Oberwolfach Mathematics Institute, Germany
   - Joint work with J.Murray during 25 August-6 September 2012, in Chiba University, Hamamatsu Japan
   - Joint work with J.Murray during 2-6 September 2013, in Manchester University, United Kingdom

1. Block theory in representation theory of finite groups
2. Faculty of Science / Professor / Shigeo Koshitani
3. Germany / Jena University / Juergen Mueller, F.Noeske
4. 2007～
5. Block theory which was developed by R. Brauer (1901-1977) in representation theory of finite groups. A notion "groups" is essentially a way to describe a sort of "symmetries" abstractly. Representation theory is a kind of a way to describe groups in terms of matrices over fields. Here we study Schur-Frobenius indicators in character theory of finite groups.
6. Grant-in-Aid for Scientific Research(C) 17540010, JSPS 2005-2007
   Grant-in-Aid for Scientific Research(C) 20540008, JSPS 2008-2010
   Grant-inAid for Scientific Research(C) 23540007, JSPS 2011-2014
   Grant-in Aid for Scientific Research(C) 15K04776, JSPS 2015—2017
   Canada Banff International Research Station
   DFG (Deutsche Forschungs Gemeinschaft Scientific Priority Program SPP 1388)
   DFG (Deutsche Forschungs Gemeinschaft Scientific Priority Program SPP 1489
   Jena University
7. Main result
   (1) Broue's abelian defect group conjecture holds for the Harada-Norton sporadic simple group HN, Shigeo Koshitani, Juergen Mueller, Journal of Algebra 324 (2010) 394-429
   (2) Broue's abelian defect group conjecture holds for the sporadic simple Conway group Co3,

Shigeo Koshitani, J.Mueller, F.Noeske, Journal of Algebra 348 (2011), 354-380

(3) Broue's abelian defect group conjecture holds for the double cover of the Higman-Sims sporadic simple group,

Shigeo Koshitani,J.Mueller,F.Noeske, Journal of Algebra 376 (2013), 152-173

(4) Broue's ableian defect group conjecture for the sporadic simple group J4 revisited,

Shigeo Koshitani,J.Mueller,F.Noeske, Journal of Algebra 398 (2014), 434-447

(5) Broue's abelian defect group conjecture and 3-decomposition numbers of the sporadic simple Conway group Co1, S. Koshitani, J. Mueller and F. Noeske, Journal of Pure and Applied Algebra 219 (2015), 142-160.

8. Other important items to be stated

- Joint work with J.Mueller and F.Noeske in RWTH Aachen University, Germany,

  during 28 March - 6 April, 19- 23 June, 9-16 December 2009, in RWTH Aachen University, Germany

  10-14 Nov 2010 , in RWTH Aachen University, Germany

  26 October-4 November 2011, 15-23 December 2011, in RWTH Aachen University, Germany

  31 March-5 April 2012, 7-9 December 2012 in RWTH Aachen University, Germany

  14 September-15 September 2013 in RWTH Aachen University, Germany
- Joint work with J. Mueller, 4 December-8 December 2013 in RWTH Aachen University, Germany.
- Joint work with J. Mueller, 17—22 March 2014, in Banff Institute Research Center
- Joint work with J. Mueller, 14—20 December 2014, in Jena University Germany
- Joint work with J. Mueller, 7—19 July 2015 in Jena University Germany
- Joint work with J. Mueller, 17—19 September 2015 in RWTH Aachen University Germany
- Joint work with J. Mueller, 19—26 January 2016, in Jena University Germany

1. Blocks of finite groups with abelian defect groups
2. Faculty of Science/Professor/Shigeo Koshitani
3. United Kingdom/University of Manchester/ Charles Eaton
4. 2011—
5. Research on blocks of finite groups, in particular on blocks with abelian defect groups
6. Grant-in Aid for Scientific Research(C) 23540007, JSPS 2011-2014

   Grant-in Aid for Scientific Research(C) 15K04776, JSPS 2015—2017

   University of Manchester, UK

   Canada Banff International Research Station

   Oberwolfach Mathematical Institute in Germany,
7. In preparation
8. Other important items to be stated

- Joint work with C. Eaton, during 17—18 March 2011, in Banff International Research Station

Canada

- Joint work with C. Eaton, during 10—14 February 2012, in Manchester University, UK
- Joint work with C. Eaton, during 2—6 September 2013, in Manchester University UK
- Joint work with C. Eaton, during 17—21 March 2014, Banff International Research Station Canada
- Joint work with C. Eaton, during 5—11 April 2015, Oberwolfach Mathematics Institute Germany

1. Reduction theory for McKay's conjecture and Alperin's conjecture
2. Faculty of Science/ Professor / Shigeo Koshitani
3. Germany/ Kaiserslautern Technical University/ Britta Spaeth
4. 2012—
5. Research on reduction theorems in order to apply them to McKay's conjecture and Alperin's conjecture in representation theory of finite groups
6. Grant-in-Aid for Scientific Research (C) 23540007, JSPS 2011—2014
   Grant-in Aid for Scientific Research(C) 15K04776, JSPS 2015—2017
   Banff International Research Station Canada
   DFG Scientific Priority Program SPP 1388
   Technical University of Kaiserslautern
   Oberwolfach Mathematical Institute in Germany,
7. Main result
   (1) S. Koshitani, B. Spaeth, Clifford theory of characters in induced blocks, S. Koshitani and B. Spaeth, Proceedings of the American Mathematical Society 143 (2015), 3687—3702
   (2) S. Koshitani, B. Spaeth, The inductive Alperin –Mckay condition for 2-blocks with cyclic effect groups, Archiv der Mathematik 106 (2016), 107—116,
   (3) S. Koshitani, B. Spaeth, The inductive Alperin-McKay and block wise Alperin weight conditions for blocks with cyclic defect groups, In press in Journal of Group Theory.
8. Othre important items to be stated
   - Joint work with B. Spaeth, during 17—18 March 2011, Canada Banff International Research Station
   - Joint work with B. Speth, during 1—18 October and 20—21 December 2012, Technical University of Kaiserslautern
   - Joint work with B. Speth, during 9—11 December 2013, Technical University of Kaiserslautern
   - Giving a talk on the joint work 7.above, during 17—22 March 2014, in the Banff International Research Station on Canada
   - Joint work with B. Spaeth, during 27 September—5 October 2014, Technical University of Kaiserslautern
   - Joint work with B. Spaeth, during 5—11 April 2015, Oberwolfach Mathematical Institute in Germany
   - Joint work with B. Spaeth, during 17—23 May 2015, Technical University of Kaiserslautern

1. Research on Endo-trivial modules of finite group algebras

2. Faculty of Science/ Professor/ Shigeo Koshitani

3. Technical University of Kaiserslautern/ Germany/ Caroline Lassueur

4. 2013—

5. Structure of the abelian groups of endo-trivial modules in finite group algebras

6. Grant-in-Aid for Scientific Research (C) 23540007, JSPS 2011—2014

   Grant-in Aid for Scientific Research(C) 15K04776, JSPS　2015—2017

   Banff International Research Station Canada

   DFG Scientific Priority Program SPP 1388

   Technical University of Kaiserslauter

   Oberwolfach Mathematical Institute in Germany,

7. Main result

   (1) S. Koshitani, C. Lassueur Endo-trivial modules for finite groups with Klein-four Sylow 2-subgroups, Manuscripta Mathematik 148 (2015), 265—282

   (2) S. Koshitani, C. Lassueur, Endo-trivial modules for finite groups with dihedral Sylow 2-subgroups, In press in Journal of Group Theory

8. Other important items to be stated

   - Joint work with C. Lassueur, during 2—15 March 2014, in Chiba Univeristy, and Kyoto University
   - Joint work with C. Lassueur, during 17—22 March 2014, in Banff Institute of Research Station Canada
   - Joint work with C. Lassueur, during 27 September—5 October 2014, in Technical University of Kaiserslautern
   - Joint work with C. Lassueur, during 6--16 September 2015,　in Technical University of Kaiserslautern

1. Glacial biological studies on glaciers in Tienshan Mountains in China.

2. Graduate School of Science / Professor / Nozomu Takeuchi

3. China / Tienshan Glaciological Station, Chinese Academy of Science / Director / Dr. Li Zhongqin

4. 2006～

5. This project aims to describe microbial community and its effect on surface albedo on glaciers of Tienshan Mountains in China.

6. Grants-in-Aid from the Ministry of Education, Culture, Sports, Science, and Technology of Japan

7. Main result

   - Nagatsuka, N., Takeuchi, N., Nakano, T., Shin, K., and Kokado, E. (2014). Geographical variations in Sr and Nd isotopic ratios of cryoconite on Asian glaciers. Environmental Research Letters, 9(4), 045007.
   - Segawa, T., Ishii, S., Ohte, N., Akiyoshi, A., Yamada, A., Maruyama, F., Li, Z., Hongoh, Y. and Takeuchi, N. (2014), The nitrogen cycle in cryoconites: naturally occurring nitrification-denitrification granules on a glacier. Environmental Microbiology. doi: 10.1111/1462-2920.12543
   - Takeuchi, N., Ishida, Y., Li, Z. (2011) Microscopic analyses of insoluble particles in an ice core of Ürümqi Glacier No. 1: quantification of mineral and organic particles. Journal of Earth Sciences, 22(4), 431-440.

Takeuchi, N., Nishiyama, H., Li, Z. (2010) Structure and formation process of cryoconite granules on Ürümqi glacier No. 1, Tien Shan, China. Annals of Glaciology, 51(56), 9-14.

- Nagatsuka, N., Takeuchi, N., Nakano, T., Kokado, E., Li, Z. (2010) Sr, Nd and Pb stable isotopes of surface dust on Ürümqi glacier No. 1 in western China. Annals of Glaciology, 51(56), 95-105.
- Ushida, K., Inoue, R., Segawa, T., Kohshima, S., Takeuchi, N., Fukui K., Li, Z., Kanda, H. (2009) Application of real-time PCR array to the multiple detection of antibiotic- resistant genes in glacier ice samples. The Journal of General and Applied Microbiology, 56, 43-52.
- Takeuchi, N., and Li, Z. (2008) Characteristics of surface dust on Ürümqi Glacier No. 1 in the Tien Shan Mountains, China. Arctic, Antarctic, and Alpine Research, 40(4), 744-750

8. Other important items to be stated

2007.6	Agreement concluded between Tienshan Glaciological Station and Chiba University.
2007.6.22-27	Collaborative investigation on Urumqi Glacier No.1, China
2007.7.29-8.6	Collaborative investigation on Urumqi Glacier No.1, China
2010.8.19-25	Collaborative investigation on Urumqi Glacier No.1, China
2011.2.28-3.2	Seminar in the institute (CRRERI) in Lanzhou, China.
2011.6.28-6.30	Seminar in the institute (CRRERI) in Lanzhou, China.
2011.8.2-8.7	Collaborative investigation on Urumqi Glacier No.1, China
2011.8.2-8.7	International Symposium of 50th anniversary of Tienshan Glaciological Station in Urumqi, China.
2012.8.23-8.30	Collaborative investigation on Urumqi Glacier No.1, China
2013.1	Agreement re-concluded between Tienshan Glaciological Station and Chiba University.
2013.2.28-3.2	Seminar in the institute (CRRERI) in Lanzhou, China.
2013.7.5-9.1	Collaborative investigation on Urumqi Glacier No.1, China
2014.1.10-3.30	A research scienctist in CREERI visited Chiba University.
2014.2.23-3.1	Seminar in the institute (CRRERI) in Lanzhou, China.
2014.3.28-4.1 6	Six research scientists in CREERI visited Chiba University
2014.5.20-25	Visiting to the institute (CRRERI) in Lanzhou, China.
2014.8.21-9.3	Collaborative investigation on Urumqi Glacier No.1, China
2015.8.21-9.2	Collaborative investigation on Urumqi Glacier No.1, China

1. Ecological studies of microbes and their effect of surface albedo on glaciers in Svalbard and Greenland. 2 3
2. Graduate School of Science / Professor / Nozomu Takeuchi
3. Partner abroad

   UK / Aberystwyth University, Centre of Glaciology / Dr. Tris Irvine-Fynn

   UK / Aberystwyth University, Biology / Dr. Arwyn Edwards

   UK / Bristol University / Dr. Alexandre M. Anesio

UK / University of Leeds / Dr. Liane Benning

4. 2011

5. This project aims to describe microbial activities on Arctic glaciers, in particularly, in Svalbard and Greenland, and quantify their effect on surface albedo on the glaciers.

6. Sasakawa Foundation (UK)

Royal Society (UK)

Natural Environment Research Council (UK)

Grants-in-Aid from the Ministry of Education, Culture, Sports, Science, and Technology of Japan

7. Main results

- Musilova, M., Tranter, M., Bamber, JL., Takeuchi, N., Anesio, AM. (2016). Experimental evidence that microbial activity lowers the albedo of glaciers. Geochemical Perspective Lettter, 2, 106-116
- Cook, J., Edwards, A., Takeuchi, N. and Irvine-Fynn, T., (2015). Cryoconite The dark biological secret of the cryosphere. Progress in Physical Geography, 40(1), 66-111. DOI:10.1177/0309133315616574

Takeuchi, N. (2012) Cryoconite and Darkning process of glaciers, Low temperature science, 70.

8. Other important items to be stated

2011.8.20-30	Collaborative investigation on Svalbard glaciers.
2012.3.25-4.11	Seminar and workshop at Chiba University with Dr. Alexandre M. Anesio
2012.12	Collaborative session on glacial ecology held in America Geophigical Union, Fall meeting.
2013.2.18-3.15	A PhD student of Bristol University stayed in Chiba University to conduct collaborative research.
2013.3	Agreement concluded between Geographical Department, Bristol University and Chiba University.
2013.3.24-4.2	Workshop on glacial ecology at Bristol University
2013.8.5-12	Collaborative investigation on Svalbard glaciers with Aberystwyth University.
2014.1.11-1.26	A PhD student of University of Leeds stayed in Chiba University to conduct collaborative research.
2014.1.22-1.26	Seminar and workshop at Chiba University with Dr. Liane Benning and Dr. Alexandre M. Anesio

1. Ecological studies on Alaska Glaciers

2. Graduate School of Science / Professor / Nozomu Takeuchi

3. USA / Alaska Pacific University / Prof. Roman Dial

4. 2006

5. This project aims to describe microbial activities on Alaska glaciers and quantify their effect on surface albedo on the glaciers.

6. Grants-in-Aid from the Ministry of Education, Culture, Sports, Science, and Technology of Japan

7. Main result

- Murakami, T., Segawa, T., Bodington, D., Dial, R., Takeuchi, N., Kohshima, S., and Hongoh, Y. (2015). Census of bacterial microbiota associated with the glacier ice worm Mesenchytraeus solifugus. FEMS Microbiology Ecology, DOI:10.1093/femsec/fiv003
- Takeuchi, N. (2013) Seasonal and altitudinal variations in snow algal communities on an Alaskan glacier (Gulkana glacier in the Alaska range).Environ. Res. Lett. 8 035002 doi:10.1088/1748-9326/8/3/035002
- Takeuchi, N. (2009) Temporal and spatial variations in spectral reflectance and characterisitics of surface dust on Gulkana Glacier, Alaska Range. Journal of Glaciology, 55(192), 701-709.
- Takeuchi, N., Dial, R., Kohshima, S., Segawa, T., Uetake J. (2006) Spatial distribution and abundance of red snow algae on the Harding Icefield, Alaska derived from a satellite image. Geophysical Research Letter, 33, L21502, doi:10.1029/2006GL027819.

8. Other important items to be stated

- 2008.8 Investigation on Harding Icefield, Alaska
- 2010.8 Investigation on Harding Icefield and Gulkana Glacier, Alaska
- 2011.8 Investigation on Harding Icefield and Byron Glacier, Alaska
- 2014.8 Investigation on Harding Icefield and Byron Glacier, Alaska
- 2015.8 Investigation on Harding Icefield and Gulkana Glacier, Alaska

1. Central Asia Deep Ice core Drilling project
2. Graduate School of Science / Professor / Nozomu Takeuchi
3. USA / University of Idaho / Prof. Vladimir Aizen
   USA / University of Main / Prof. Paul A. Mayewski
4. 2006
5. This project aims to reconstruct past climate change in Central Asia using ice cores drilled from glaciers and to project future environmental changes in global warming.
6. Research Institute for Humanity and Nature
   Grants-in-Aid from the Ministry of Education, Culture, Sports, Science, and Technology of Japan
   National Science Foundation, USA
   International Geological Correlation Programme, UNESCO
7. Main result

- Aizen, E. M., Aizen, V.B., Takeuchi, N., Mayewski, P.A., Grigolm, B.R., Joswiak, R.D., Nikitin, S.A., Fujita, K., Nakawo, M., Zapf, A., and Scheikowski, M. (2016). Abrupt and moderate climate changes in the mid-latitudes of Asia during the Holocene. Journal of Glaciology, doi:10.1017/jog.2016.34
- Grigholm, B., P.A. Mayewski, S. Kang, Y. Zhang, U. Morgenstern, M. Schwikowski, S. Kaspari, V. Aizen, E. Aizen, N. Takeuchi, K.A. Maasch, S. Birkel, M. Handley and S. Sneed (2015). 20th Century Dust Lows and the Weakening of the Westerly Winds over the Tibetan Plateau. Geophysical Research

Letters. DOI: 10.1002/2015GL063217

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8. Other important items to be stated

2007.8	Ice core drilling on Grigoriev ice cap, Kyrgyztan, Tienshan Mountains.
2008.12.12-12.16	Project meeting in San fransisco, USA
2009.8.4-9.19	Ice core drilling on Fedchenko Glacier, Tajikistanm Pamir.
2011.6.5-6.10	Project meeting at UCSB, Santa Barbara, USA.
2012.5.27-6.1	Project meeting at Dushanbe, Tajikistan.

1. Imaging of snow algae in snow samples using phase-contrast tomography
2. Graduate School of Science / Professor / Nozomu Takeuchi
3. Switzerland / WSL Inst. Snow & Avalanche Research SLF / Martin Schneebeli
   Switzerland / Federal Institute of Technology (ETH) / Lazzaro Anna
4. 2013
5. This project aims to observe micro-structure of snow grain habitat of snow algae using synchrotron tomography.
6. Grants-in-Aid from the Ministry of Education, Culture, Sports, Science, and Technology of Japan
7. none
8. Other important items to be stated

2013.3.6-8	Meeting at workshop in Akita prefecture, Japan to organize the project.
2013.8.25-29	Experiment of snow-grain micro-structure observation at Paul Scherrer Institute (PSI), Switzerland.

	2015.4.30 Meeting at ASSW, 2015 in Toyama. 2015.6 Meeting at IUGG in Prague, Czech.
1.	Elecromagnetic approach to monitor crustal activities such as earthquake and landslide and their modeling
2.	Graduate School of Science / Professor / Katsumi Hattori
3.	China / Peking Universtiy / Professor / Qinghua Huang China / University of Science and Technology of China / Researcher/ Hengxin Ren China / China Earthquake Administartion / Director / Xuhui Shen
4.	2004～
5.	Develop an Early Warning System for crustal activity such as large earthquakes and landslides using electromagnetic approach. And Clarify the mechanism on them.
6.	2007-2010 NiCT R&D promotion scheme funding international joint research. 2009-2013 JSTJapan(JST)-China(DOIC)-Korea(NRF) Cooperative Research Projects
7.	Main resuot ➢ Peng Han, **Katsumi Hattori**, Guangjing Xu, Ryo Ashida, Chieh-Hung Chen, Febty Febriani, Hiroki Yamaguchi,Further investigations of geomagnetic diurnal variations associated with the 2011 off the Pacific coast of Tohoku earthquake (Mw9.0), Journal of Asian Earth Sciences, , 114, 321-326, 2015. (doi:10.1016/j.jseaes.2015.02.022) ➢ Guangjing Xu, Peng Han, Qinghua Huang, **Katsumi Hattori**, Febty Febriani, Hiroki Yamaguchi, Anomalous behaviors of geomagnetic diurnal variations prior to the 2011 off the Pacific coast of Tohoku earthquake (Mw9.0) J. Asian Earth Sci., 77, 59-65, 2013. http://dx.doi.org/10.1016/j.jseaes.2013.08.011 ➢ **Hattori, K**., Han, P., Yoshino, C., Febriani, F., Yamaguchi, H., Chen, C.-H., Investigation of ULF Seismo-Magnetic Phenomena in Kanto, Japan During 2000-2010: Case Studies and Statistical Studies, Surveys in Geophysics, 34, 293-316, DOI 10.1007/s10712-012-9215-x, 2013 ➢ Hattori, K., Han, P., Huang, Q., Global variation of ULF geomagnetic fields and detection of anomalous changes at a certain observatory using reference data, Electrical Engineering in Japan (English translation of Denki Gakkai Ronbunshi), 182, No. 3, 9 -18, 2013. ➢ Hirano, T C. Yoshino, K. Hattori, and Q. Huang, Direction finding of ULF/ELF geomagnetic field data possibility associated with the 2004 Sumatra-Andaman earthquake, 2009 International Workshop on Validation of Earthquake Precursors by Satellite, Terrestrial and other Observations (VESTO).Case studies of the recent Asian events, P10,Chiba University, March 2009 ➢ Han, P., Hattori. K., Huang, Q., Hirano, T., Ishiguro, Y., Febriani, F., and Yoshino, C., Evaluation of ULF Electromagnetic Phenomena Associated with the 2000 Izu Islands Earthquake Swarm by Wavelet Transform Analysis, Natural Hazard and Earth System Sciences, 11, 965-970, 2011. (doi:10.5194/nhess-11-965-2011). ➢ Hattori, K., Han, P., and Huang, Q, Global variation of ULF geomagnetic fields and detection of anomalous changes at a certain observatory using reference data, IEEJ Transactions on Fundamentals

and Materials, 131, 698-704, 2011, (DOI:10.1541/ieejfms.131.698) (in Japanese)

8. Other important items to be stated

August 2004: After APRASC'04 meeting, Hattori visited Peking Univ. and made a seminar on Seismo-Electromagnetics

March 2005: After IWSE meeting at Chofu, Japan, Prof. Huang (Peking Univ.) came to Hattori Lab. to make scientific discussion. He went to one of our observatory at Boso Peninsula.

July, 2006: After WPGM Beijing, Hattori visited Peking University and made a seminar. He veisited China Earthquake Administration with Prof. Huang..

March 2008: Hattori invited Prof. Huang to IWSLEC-2 held at Sagamihara, Japan. Also he visited Hattori Lab. to discuss technicaland scientific matters at Chiba University after the meeting..

December 2008: Technical and Scientific discussion with Prof. Huang at AGU meeting, San Francisco, US.

March 2009: Hattori invited Prof. Huang to VESTO meeting held at Chiba, Japan. Also he visited Hattori Lab. to discuss technicaland scientific matters at Chiba University after the meeting. He visited Prof. Nonami during his stay in Chiba.

April 2009: Technical and Scientific discussion with Prof. Huang at EGU meeting, Vieena

May 2009: Technical and Scientific discussion with Prof. Huamg at JpGU meeting held at Chiba.

June 2009: Hattori visited Prof. Huang and made a seminar.

June 2009: Mr. Gomita, director of the foreign affair office at Chiba Univ. visited Prof. Huang and foreign affair office at Peking Univ.

October 2009: Mr. Han Peng, former Prof. Huang's graduated student, joined Hattori Lab. as a doctorial student. December

December 2009: Technical and Scientific discussion with Prof. Huang at AGU meeting, San Franscsco, US.

February-march 2010:

Hattori visited Prof. Huang to discuss scientific matters and make a seminar.

March 2010: Prof. Huang came toHattori Lab. to participate international workshop on landslide monitoring and discuss scientific matters.

May 2010: Prof. Huang came toHattori Lab. to participate international workshop on landslide monitoring and discuss scientific matters.

October-November 2010:

Prof. Hattori, Ms Yoshinp and Mr. Han visited Prof. Huang to discuss scientific matters and make a seminar a shor course on magnetic environment on Earth.

March 2011: Prof. Huang and his group came to Hattori Lab. to participate international workshop on landslide monitoring and discuss scientific matters.

April, 2011: Technical and Scientific discussion in the frame on JST China-Korea-Japan Project among Prof. Huang and Dr. Chae, at EGU meeting, Vienna, Austria

July, 2011: Int'l Symposium and Technical and Scientific discussion in the frame on JST China-Korea-Japan Project among Prof. Huang and Dr. Chae, at Daejon, Korea (Prof. Hattori and two graduate students from Chiba Univ., Prof. Huang and two graduate students from Peking Univ., Dr. Chae and many his colleagues)

September, 2011: Prof. Hattori visited Prof. Huang and have a technical and scientific discussion. Prof. Hattori also has a seminar at Peking Univ.

December, 2011: Technical and Scientific discussion in the frame on JST China-Korea-Japan Project among Prof. Huang and Dr. Chae, at AGU meeting, San Francisco, US. (Prof. Hattori and a graduate student from Chiba Univ., Prof. Huang and a graduate student from Peking Univ., Dr. Chae and two his colleagues)

October , 2012: Doctoral student, Han visitedPeking University and have a technical and scientific program.

December, 2011: Technical and Scientific discussion with Prof. Huang and disucussion on program in Jamuary-March, 2013. at AGU meeting, San Francisco, US.

January, 2013: Prof. Huang vistied Chiba Univ. and had a scientific and technical discussion.

March, 2013: Hattori and 2 graduate students (Han and Otsubo) and 1 undergraduate student (Yamazaki) visited Peking University and had ascientific program under short visit program on global human resource development.

May, 2013: Prof. Huang visited Chiba Univ. and had a scientific and technical discussion.

July-August, 2013: Doctoral researcher Dr. Han visited Peking University and have a technical and scientific program

October, 2013: Prof. Hattori visited Prof. Huang and have a technical and scientific discussion. Prof. Hattori also has visited a possible site for landslide monitoring

November, 2013: Prof. Huang vistied Chiba Univ. and had a scientific and technical discussion.

December 2013: Profs. Guo and Zhang at Nanyang Normal University visited Hattori lab. and had a technical and scientific discussion. They also visited Asahi station.

January-February, 2014:

Doctoral researcher Dr. Han visited Peking University and have a technical and scientific program.

July-August, 2014: Prof. Huang participated in the AOGS and IWEP meetings at Sapporo and had a technical and scientific discussion.。

August 2014 : Prof. Hattori visited china and had technical and scientific discussions with

researchers at Peking Polytechnic University and China Earthquake Administration.

October 2014:: Prof. Hattori and Dr. Han visited China and had technical and scientific discussions with Prof. Huang's group at Peking Univ. and Prof. Guo's group at Nanyang Normal Univ.

November, 2014: Prof. Hattori visited China Earthquake Administration and had technical and scientific discussions with Dr. Shen's group.

May 2015: Profs Huang (Peking Univ.), Guo (Nanyang Normal Univ.), Drs. Ren (USTC), Shen (CEA) participated in JpGU and IWEP2 meetings and had technical and scientific discussions.

September, 2015: Prof. Hattori visited China and had technical and scientific discussions with Dr. Shen's group (CEA).

October 2015: Prof. Hattori and Dr. Han visited USTC and had technical and scientific discussions with Dr. Ren.

1. On the study of electromagnetic phenomena associated crustal activity
2. Graduate School of Science / Professor / Katsumi Hattori
3. Russia / Institute of Physics of the Earth / Dr. Oleg Molchanov
   Russia / Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation(IZMIRAN) / Dr. Yuri Kopytenko
   Russia / Geophysical Service Kamchatka Department / Dr. Eviginii Gordeev
   Russia / Space Research Institute, Russian Academy of Sciences / Dr. Sergey Pulinets
   Ukraine / Lviv Center of Space Research / Dr. Varely Korepanov
4. 1998～
5. Recognizing the importance of ULF geomagnetic field changes among electromagnetic phenomena preceding large earthquakes, this project aims at researches on developments of sensors, observation, and methodology, clarification of physical mechanism, and establishing the monitoring and short-term prediction of crustal activity.
6. RIKEN (-2002)
   JSPS Grants-in Aid for Scientific Research(2001-2003)
   JSPS Grants-in Aid for Scientific Research(2004-2006)
7. Main result
   - Kopytenko, Y.A., Ismaguilov, V.S., **Hattori, K.,** Hayakawa, M Anomaly disturbances of the magnetic fields before the strong earthquake in Japan on March 11, 2011, Ann. Geophys. 55 (1), 101–107, doi:10.4401/ag-5260, 2012
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Ismaguilov, V.S., Kopytenko, Y. A., Hattori, K., and Hayakawa, M., Gradients and phase velocities of ULF g geomagnetic disturbances used to determine the source of an impending strong earthquake, Geomagnetism and Agronomy 46, 403-410, 2006.

- Y. Kopytenko, V. Ismaguilov, K. Hattori and M. Hayakawa, Determination of hearth position of a forthcoming strong EQ using gradients and phase velocities of ULF geomagnetic disturbances, Physics and Chemistry of the Earth, 31, 292-298, 2006.
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- Yu. A. Kopytenko, V. S. Ismaguilov, K. Hattori, and M. Hayakawa, Determination of hearth position of forthcoming strong EQ using gradients and phase velocities of ULF geomagnetic disturbances, Extended Abstracts of 2005 International Workshop on Seismo Electromagnetics, pp. 166-169, 15-17 March, 2005, Chofu, Tokyo.
- Kopytenko Yu.A., Ismaguilov V.S., Hattori K., Hayakawa M., Gradients and Phase Velocities of ULF magnetic disturbances (F=0.1-0.4Hz) before and during strong earthquakes in 2003 year at Bosso Peninsula (Japan), 2004 Asia-Pacific Radio Science Conference Proceedings, p. 545, August 24-27, 2004, (Qingdao, China).
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- Gotoh, K., Hayakawa, M., Smirnova, N., and Hattori, K., Fractal analysis of seismogenic ULF emissions, Physics and Chemistry of the Earth, 29, 419-424, 2004.
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- Hattori, K., Takahashi, I., Yoshino, C., Isezaki, N., Iwasaki, H., Harada, M., Kawabata, K., Kopytenko, E., Kopytenko, Y., Maltsev, P., Korepanov, V., Molchanov, O., Hayakawa, M., Noda, Y., Nagao, T., Uyeda, S., ULF geomagnetic field measurements in Japan and some recent results associated with Iwateken Nairiku Hokubu Earthquake in 1998, Physics and Chemistry of the Earth., 29, 481-494, 2004.
- Ismaguilov, V., Kopytenko, Y., Hattori, K., and Hayakawa, M., 2003: Variations of phase velocity and gradient values of ULF geomagnetic disturbances connected with the Izu strong earthquake, Natural Hazards and Earth System Sciences, 3, 211-215,2003.
- Kopytenko, Y., Ismaguilov, V., Molchanov, O., Kopytenko, E., Voronov, P., Hattori, K., Voronov, P., Hayakawa M., Zaitsev, D., Investigation of ULF magnetic disturbances in Japan during acive seismic

period, Journal of Atmospheric Electricity, 22, 3, 207-215, 2002.

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- Gorbatikov, A., Molchanov, O., Hayakawa, Uyeda, S., M., Hattori, K., Nagao, T., Tanaka, H., Nikolaev V., Maltsev, P., Acoustic emission possibly related to earthquakes, observed at Matsushiro, Japan and its implications, Seismo Electromagnetics: Lithosphere-Atmosphere-Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 1-10, Terrapub, 2002.
- Kopytenko, Y., Ismaguilov, V., Hattori, K., Voronov, P., Hayakawa M., Molchanov, O., Kopytenko, E., Zaitsev, D.. Monitoring of the ULF electromagnetic disturbances at the Station network before EQ in seismic zones of Izu and Chiba Peninsulas, Seismo-Electromagnetics: Lithosphere-Atmosphere-Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 11-18, Terrapub, 2002.
- Yagova, N., Yumoto, K., Pilipenko, V., Hattori, K., Nagao, T., Saita, K., Local variations of geomagnetic ULF noises and their relation to seismic activity, Seismo Electromagnetics: Lithosphere-Atmosphere-Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 45-48, Terrapub, 2002.
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8. Other important items to be stated

Concerning with this project, following workshops and symposium were held in Japan.

RIKEN/NASADA Workshop on Seismo-ULF emissions, December 1998, Tokyo.

RIKEN/NASADA Symposium on the Recent Aspects of Electromagnetic Variations Related with Earthquakes, December 1999, Wako.

International Workshop on Seismo Electromagnetics, 2000 of NASDA, September 2000, Tokyo.

September, 1998:	Set up the electromagnetic sensors at Paratunka of Kamchatka Peninsula.
November, 1998:	Visit to IZMIRAN in St. Petersburg and Institute of Physics of the Earth in Moscow to make technical and scientific discussions with Dr. Kopytenko and Dr. Molchanov, respectively.
September, 1999:	Visit to Kamchatka station for maintenance of observation system.
August, 2000:	Visit to Kamchatka station for maintenance of observation system.
November, 2001:	Mr. Pavel Maltsev(Lviv Center of Space Research, Ukraine) stayed at Chiba University for technical and scientific discussion.
July-August, 2002:	Dr. Vareli Ismaguilov and Andrei Radilov (IZMIRAN, Russia) stayed at Chiba University for technical and scientific discussion.
December, 2004:	Mr. Pavel Maltsev(Lviv Center of Space Research, Ukraine) stayed at Chiba University for technical and scientific discussion
March, 2005:	Dr. Yuri Kopytenko (IZMIRAN) and Dr. Oleg Molchanov came to Japan to make technical and scientific discussions.
March, 2007:	Dr. Oleg Molchanov(Institute of Physics of the Earth)came to Japan to make technical and scientific discussion (at the University of Electro-Communications)
November, 2007:	Technical and scientific discussion with Dr. Yuri Kopytenko (IZMIRAN) and Dr. Oleg Molchanov at Bandung, Indonesia.
March, 2008:	Technical and scientific discussion with Dr. Koerpanov (Lviv Center of Space Research, Ukraine) at Sagamihara, Japan
April 2009:	Technical and scientific discussion with Dr. Koerpanov(Lviv Center of Space Research, Ukraine) and Dr. Molchanov (Institute of Physics of the Earth) at Vienna, Austria
August 2010:	Dr. Vira Pronenko (Lviv Center of Space Research, Ukraine) come to Japan to make technical and scientific discussion and visit Matsushiro station to maintain the system.
January, 2014:	Prof. Hattori visited International Space Science Institute (ISSI), Bern, Switzerland, and had technical and scientific discussion with Drs. Ouzounov (Chanpman Univ., US), Liu (NCU, Taiwan), Tramutoli (Bascilicata Univ., Italy), and Pulinets (SRI, Russia).
May 2014:	Prof. Hattori and Prof. Kopytenko had a technical and scientific discussion on torsion magnetometer system and decided to develop LINUX base system.
June 2015:	Prof. Hattori participated in the ISSI meeting at Bern and had technical and scientific discussions with Dr. Pulinets on multi-instrument Space-Borne

	Observations and Validation of the Physical Model of the Lithosphere-Atmosphere-Ionosphere-Magnetosphere Coupling.
1.	Monitoring of Earthquake activity with use of electromagnetic approach in Taiwan,
2.	Graduate School of Science / Professor / Katsumi Hattori
3.	Taiwan National Central University / Professor / Jann-Yenq Liu Taiwan National Central University / Professor / Lung-ChiJ Tsai Taiwan National Chung Cheng University / Professor / Chiou-Fen Shieh Dahan Institute Technology / Professor / Hua-Hi Sheu Institute of Earth Sciences, Academia Sinica / Researcher / Chieh-Hung Chen➔ Taiwan National Chung Cheng University / Research Associate, from April, 2014.
4.	2001～
5.	The project aims at clarification of the physical mechanism of electromagnetic phenomena preceding earthquakes and realizing of monitoring and short-term prediction of large earthquake in Taiwan.
6.	RIKEN (2001), Interchange Association, Japan (2004) JSPS Grants-in Aid for Scientific Research C (2001-2003) JSPS Grants-in Aid for Scientific Research C (2004-2006) JSPS Grants-in Aid for Scientific Research B (2007-2009) NiCT R&D promotion scheme funding international joint research(2007-2010) Joint Research Program in Center for Environmental Remote Sensing, Chiba University (2015)
7.	Main result ➢ Shinji Hirooka, Katsumi Hattori, Jann-yenq Liu, Validation of three-dimensional ionospheric tomography over North-America region, Journal of Atmospheric Electricity, 36, 1-11, 2016. (in Japanese) ➢ Peng Han, **Katsumi Hattori**, Maiko Hirokawa, Jiancang Zhuang, Chieh-Hung Chen, Febty Febriani, Hiroki Yamaguchi, Chie Yoshino, Jann-Yenq Liu, and Shuji Yoshida, Statistical analysis of ULF seismo-magnetic phenomena at Kakioka, Japan, during 2001-2010, J Geophys. Res., SPA, 119, 4998–5011, doi:10.1002/2014JA019789., 2014 ➢ Peng Han, **Katsumi Hattori**, Guangjing Xu, Ryo Ashida, Chieh-Hung Chen, Febty Febriani, Hiroki Yamaguchi,Further investigations of geomagnetic diurnal variations associated with the 2011 off the Pacific coast of Tohoku earthquake (Mw9.0), Journal of Asian Earth Sciences, , 114, 321-326, 2015. (doi:10.1016/j.jseaes.2015.02.022) ➢ **Hattori, K**., Han, P., Yoshino, C., Febriani, F., Yamaguchi, H., Chen, C.-H., Investigation of ULF Seismo-Magnetic Phenomena in Kanto, Japan During 2000-2010: Case Studies and Statistical Studies, Surveys in Geophysics, 34, 293-316, DOI 10.1007/s10712-012-9215-x, 2013 ➢ C. H. Chen, H. L. Hsu, S. Wen, T. K. Yeh, F. Y. Chang, C. H. Wang, J. Y. Liu, Y. Y. Sun, **K. Hattori**, H. Y.

Yen, and P. Han, Evaluation of seismo-electric anomalies using magnetic data in Taiwan, Nat. Hazards Earth Syst. Sci., 13, 597–604, 2013 doi:10.5194/nhess-13-597-2013

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- Liu, J. Y., Chen, Y. I., C. H. Chen, Liu, C. Y., Chen, C. Y., Nishihashi, M., Li, J. Z., Xia, Y. Q., Oyama, K. I., Hattori, K., and Lin, C. H., Seismo-ionospheric Anomalies Observed before the 12 May 2008 Mw7.9 Wenchuan Earthquake, J. Geophys. Res., doi:10.1029 /2008JA013698, 2009.
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8. Other important items to be stated

Install electromagnetic sensor in Chia-Yi.(September, 2001)

Filed survey around Hualien (March, 2002)

Invited talk in the kick off meeting of project of National Central University entitled integrated Search for Taiwan Earthquake Precursors" (2002 International Workshop on Earthquake Precursor iSTEP) (June, 2002)

Install electromagnetic sensor in Hualien.(September, 2002)

Install electromagnetic sensor in Fuli (March, 2003)

Profs. Jann-Yenq Liu and Yi-Ben Tsai came to Chiba University and gave talks (December, 2003)

International workshop was organized at National Central University, Taiwan (March, 2004)

Install electromagnetic sensor in Donghua University (October, 2004)

Discussion with Prof. Liu at National Central University (December 2005)

Mr. Chieh-Hung Chen stayed at Chiba University for collabaration (March-April 2005)

Discussion with Prof. Liu at National Central University (June, 2005)

Discussion with Prof. Liu at National Central University (November, 2005)

Install meteorological equipment at Dong-Hua University (December, 2005)

International workshop on Earthquake Precursor was organized at National Central University, Taiwan (March, 2006)

Prof. Liu came to Chiba University to see the observation network for seismo-electromagnetic and to give a seminar. And we make technical and scientific discussions. (May, 2006)

Masahide Nishihashi who is a Ph. D student visited the Prof. Liu's laboratory at National Central University, Taiwan to have a collaboration on ionospheric disturbances associated with earthquakes (August-September, 2006)

System maintenance of stations at Taiwan (Chia-Yi, Hualien, NCU) (May, 2007)

System maintenance of stations at Hualien. (July 2007)

Prof. Liu came to Chiba University to give a talk and make technical and scientific discussions.(July, 2007)

System maintenance of stations at Hualien. (Auigust-September, 2007)

Technical and scientific discussion at Bandung, Indonesia with Prof. Liu. (November, 2007)

Technical and scientific discussion at Sagamihara, Japan with Profs. Liu and Tsai. (March, 2008)

Technical and scientific discussion at NCU, Chung-li, Taiwan with Prof. Liu. (June, 2008)

Preliminarily observation of beacon radio wave form FORMOSAT-3 satellite at Aso with Prof. Tsai's group (July, 2008)

Technical and scientific discussion at San Francisco, USA with Profs. Liu and Tsai. (August.,2008)

Mr. Simpei Kon (B4 student at Chiba Univ.) visited NCU, Taiwan to participate Ionosphere School organize by Prof. Tsai (October, 2008)

Prof. Tsai's group installed the antenna system to observe beacon radio wave form FORMOSAT-3 satellite at Aso (October-November, 2008)

International workshop (IWSLEC-2) at Tsukuba. Technical and scientific discussion with Profs. Liu (November, 2008)

Preliminarily field survey for beacon radio wave observation form FORMOSAT-3 satellite at Okinawa with Prof. Tsai(January 2009)

Fieldwork at Taiwan (maintenance of stations inTaiwan) (February, 2009)

International workshop (VESTO) at Chiba. Technical and scientific discussion with Profs. Liu (March, 2009)

Preliminarily observation of beacon radio wave observation form FORMOSAT-3 satellite at Sesoko and Cape Heto, Okinawa with Prof. Tsai (May 2009)

International workshop (IWSLEC-3) at Singapore. Technical and scientific discussion with Prof. Liu (June, 2009)

Prof. Tsai's group installed the antenna system to observe beacon radio wave form FORMOSAT-3 satellite at Sesoko, Okinawa (July, 2009)

Prof. Tsai's group visit Japan to perform maintenance of the antennas (September 2009)

International workshop for EQ prediction in Indonesia at Buki-Tinggi, Indonesia. Technical and scientific discussion with Prof. Liu (November, 2009)

June, 2010: Prof. Hattori and Ms. Yoshinp visit Taiwan to perform maintenance.

December, 2010: Technical and scientific discussion with Prof. Liu and his group at AGU meeting, US.

December, 2010: Prof. Hattori and Ms. Yoshinp visit Taiwan to perform maintenance.

March, 2011: Prof. Liu visit Chiba Univ. and make technical and scientific discussion

April, 2011: Technical and scientific discussion with Prof. Liu and his group at EGU meeting, Vienna.

August, 2011: Prof. Hattori visited NCU and had a technical and scientific discussion with Prof. Liu and his group.

August, 2011: Technical and scientific discussion with Prof. Liu and his group at USRI meeting, Istanbul, Turkey.

December, 2011: Technical and scientific discussion with Prof. Liu and his group at AGU meeting, San Francisco, US.

March, 2012: Dr. Chen visited Hattori Lab. and had a technical and scientific discussion

May, 2012: Dr. Chen visited Hattori Lab. And had a technical and scientific discussion.

December, 2012: Technical and scientific discussion and discussion on MoU with Prof. Liu and his group at AGU meeting, San Francisco, US.

December, 2012: Hattori visited NCU to sign up the MoU and had a scientific and technical discussion, and gave a talk on landslide.

January-February, 2013:

Hattori and doctrial student Hirooka visited Prof. Liu's Lab. under the shirt visit program for global human resource development propgram. (Hirooka stayed for 2 weeks)

April, 2013: Technical and scientific discussion and discussion on MoU with Prof. Liu and his group at EGU meeting, Vienna, Austrial

April, 2013: Prof. Hattori visited NCU and had a technical and scientific discussion with Prof. Liu and his group.

May, 2013: Dr. Chen at National Chung Chen University came to Hattori Lab. to have a technical and scientific discussions.

May, 2013: Prof. Liu at NCU came to Hattori Lab. to have a technical and scientific discussions.

July, 2013: Prof. Hattori visited NCU and had a technical and scientific discussion with Profs. Liu, Dong, and his group, gave a talk on landslide.

August, 2013: Prof. Hattori visited NCU and had a technical and scientific discussion with Prof. Liu and his group.

January, 2014: Prof. Hattori visited International Space Science Institute (ISSI), Bern, Switzerland, and had technical and scientific discussion with Drs. Ouzounov (Chanpman Univ., US), Liu (NCU, Taiwan), Tramutoli (Bascilicata Univ., Italy), and Pulinets (SRI, Russia).

July-August, 2014:

Prof. Liu participated in the AOGS and IWEP meetings at Sapporo and had a technical and scientific discussion.。

September, 2014: Prof. Hattori visited CCU, NSPO and NARL and had technical and scientific discussions.

December, 2014: Prof. Hattori had a technical and scientific discussion.with Prof. Liu at AGU meeting.

December, 2014: Dr. Ching-Hua Lo、Dr. T. Y. Chen、Dr. Guey-shin Chang, Mr. M.H. Shyu、Ms. C. L. Lee (NARL/NSPO) Prof. Jann-Yenq Liu (NCU) visited Chiba Univ. and had technical and scientific discussion and the meeting for joint research.

May 2015: Prof Liu (NCU) and Dr. Chen (CCU) participated in JpGU and IWEP2 meetings and had technical and scientific discussions.

June, 2015: We establish MoU between NARL and と Chiba University.

November-December 2015:

Prof. Liu participated in the workshop by CEReS and had a technical and scientific discussion with Hattori.

December, 2015: Prof. Hattori had a technical and scientific discussion with Prof. Liu at AGU meeting.

January 2016 : Prof. Liu visited Hattori Lab. and had technical and scientiofic discussion with Hattori..

1. Ground-based and satellite geophysical monitoring and modeling of seismotectonic structure
2. Graduate School of Science / Professor / Katsumi Hattori
3. Italy / Istituto di Metodologie per l'Analisi Ambientale, CNR C.da S.Loja / Prof. Vincenzo Lepenna

   Italy / Istituto di Metodologie per l'Analisi Ambientale, CNR C.da S.Loja / Research Scientist / Dr. Luciano Telesca

   Italy / Istituto di Metodologie per l'Analisi Ambientale, CNR C.da S.Loja / Research Scientist / Dr.Nicola Pergola

   Italy / Bascilicata University / Professor / Velerio Tramutoli

4. Italy / Bascilicata University /Researcher / Nicola Genzano
5. 2003～
6. the statistical analysis of geomagnetic and geoelectric signals recorded in seismic areas
7. 2003-2004 JSPS Bilateral collaboration project between Japan and Italy (PI: Prof. M. Hayakawa (The University of Electro-Communications))
8. 2006 Research Foundation for the Electrotechnology of Chubu (REFEC), Chubu Electric Power Co. Inc.
9. 2007 JSPS project on Bilateral Seminar between Japan and Italy (CNR) .
10. 2007 千葉大学国際会議助成金
11. 2007-2010 NiCT R&D promotion scheme funding international joint research.
12. Main result
    - Francesco Marchese, Teodosio Lacava, Nicola Pergola, **Katsumi Hattori**, Emilio Miraglia, Valerio Tramutoli, Inferring phases of thermal unrest at Mt. Asama (Japan) from infrared satellite observations, Journal of Volcanology and Geothermal Research, 237-238, 10-18, doi:10.1016/j.jvolgeores.2012.05.008, 2012
    - Hattori, K., and Telesca, L., Editors, Electromagnetics in Seismic and Volcanic Areas (Proceedings of Bilateral Seminar Italy-Japan, July 25-27, 2007), Yuubunsya Pub., pp. 226, 2008
    - Telesca, L., Lapenna, V., Macchiato, M., and Hattori, K., Investigating non-uniform scaling behavior in Ultra Low Frequency (ULF) earthquake-related geomagnetic signals, Earth and Planet. Sci. Lett., 268, 219-224, 2008.
    - L. Telesca and K. Hattori, Non-uniform scaling behavior in Ultra Low Frequency (ULF) earthquake-related geomagnetic signals,Physica A, 384, 522-528, 2007.
    - G. Colangelo, K .Hattori, V. Lapenna,L. Telesca, and C. Yoshino, Extraction of extreme events in geoelectrical signals; an application in a seismic area of Japan, Extended Abstracts of 2005 International Workshop on Seismo Electromagnetics, pp. 93-96, 15-17 March, 2005, Chofu, Tokyo.
    - Luciano Telesca, Gerardo Colangelo, Katsumi Hattori, Vincenzo Lapenna, Principal component analysis of geoelectrical signals measured in the seismically active area of Basilicata Region (southern Italy), Natural Hazards and Earth System Sciences, 4, 663-667, 2004
    - 服部克巳，吉野千恵，芹田亜矢，高橋一郎，Geraldo Colangelo, Luchiano Telesca, ULF 帯の電磁場データの主成分解析，電気学会研究会資料, EMT-04-101, p65-69, 2004 年 9 月
13. Other important items to be staed

    October-November, 2003: Visit to Istituto di Metodologie per l'Analisi Ambientale, CNR and discuss and analyze geoelectrical potential difference data recorded in seismic areas, southern Italy.

    June, 2004: Dr. Collangero at Istituto di Metodologie per l'Analisi Ambientale, CNR stayed at Chiba University and discuss and analyze geoelectrical potential difference data

	recorded in seismic areas, Japan.
March, 2005:	Discussion on future collaboration with Prof. Lapenna, Dr. Telesca, and Dr. Collangero in Japan when they came to attend meeting in Japan.
May, 2005:	Discussion on landslide study at EGU meeting, Vienna.
July, 2006:	Visit Istituto di Metodologie per l'Analisi Ambientale, CNR and give a talk at the institute. Technical and scientific discussion on seismo-electromagnetics and landslide.
July, 2006:	Dr. Telesca at Istituto di Metodologie per l'Analisi Ambientale, CNR stayed at Chiba University to discuss on fractal/multi-fractal analysis and analyze geomagnetic data recorded in seismic areas, Japan.
October-November, 2006:	Visit Istituto di Metodologie per l'Analisi Ambientale, CNR and set up the collaborative landslide monitoring station at Picerno, Potenza, in the southern Italy with CNR.
July, 2007:	Visit Istituto di Metodologie per l'Analisi Ambientale, CNR and give a seminar on seismo-elecromagnetics. Technical and Scientific discussion on landslide and seismo-electromagnetics have been done.
July, 2007:	JSPS bilateral seminar Japan-Italy on electromagnetic study in seismic and volcanic areas(July 25-27, 2007). Discussion on satellite data have been done.
April, 2008:	Visit Istituto di Metodologie per l'Analisi Ambientale, CNR and give a seminar on seismo-elecromagnetics. Technical and Scientific discussion on landslide and seismo-electromagnetics have been done.
November, 2008	Italian group visited to Japan to attend International Landslide Forum held at UN Univ., Tokyo. Technical and Scientific discussion on landslide and seismo-electromagnetics have been done.
April, 2009:	Technical and Scientific discussion on landslide and seismo-electromagnetics have been done at Vieena, Austria during EGU meeting.
December, 2010:	Technical and scientific discussion with Dr. Pergola and his group at AGU meeting, US.
December, 2011:	Technical and scientific discussion with Dr. Lapenna at AGU meeting, US.
August, 2012:	Technical and scientific discussion with Dr. Angela Pronne (Prof. Lapeena Group) at AOGS meeting, Singaor.
June, 2013:	Prof. Hattori visited Italy (Bascilicata University and IMAA, CNR) and had technical and scientific discussion with Profs. Lapenna, Tramutoli, and Dr. Pergola. Also Prof. Hattori gave a special seminar at Bascilicata Univ.
January, 2014:	Prof. Hattori visited International Space Science Institute (ISSI), Bern,

	Switzerland, and had technical and scientific discussion with Drs. Ouzounov (Chanpman Univ., US), Liu (NCU, Taiwan), Tramutoli (Bascilicata Univ., Italy), and Pulinets (SRI, Russia).
July-August, 2014:	Prof. Tramutoli participated in the AOGS and IWEP meetings at Sapporo and had a technical and scientific discussion.。
December, 2014:	Prof. Hattori participated in the AGU meeting and had a technical and scientific discussion with Prof. Tramutoli at AGU meeting.
April, 2015:	Establish MoU between University of Basilicata and Graduate School of Science, Chiba University.
June 2015:	Prof. Hattori participated in the ISSI meeting at Bern and had technical and scientific discussions with Prof. Tramutoli on multi-instrument Space-Borne Observations and Validation of the Physical Model of the Lithosphere-Atmosphere-Ionosphere-Magnetosphere Coupling.
November 2015:	Dr. Nicola Genzano came to Hattori Lab. as a post- doctoral fellow under JSPS program. He will stay there for 1 year.
December, 2015:	Prof. Hattori and Dr. Ham participated in the pre-AGU meeting by Chapman Univ. had a technical andscientific discussion with Prof. Tramutoli at AGU meeting.

1. Ground-based Monitoring of Seismo-Electromagnetic Signals in Indonesia
2. Graduate School of Science / Professor / Katsumi Hattori
3. Research Center for Geotechnology, Indonesian Institute of Science / Senior Researcher / Dr. Djedi Widarto
   Research Center for Geotechnology, Indonesian Institute of Science / Senior Researcher / Dr. Eddy Gaffar
   Research Center for Geotechnology, Indonesian Institute of Science / Senior Researcher / Dr. Adrin Tohari
   National Institute of Aeronautics and Space-LAPAN / Senior Researcher / Dr. Sarmoko Saroso
   Metrological Agency, Indonesia(BMKG / Director / Dr. Prih Harijadi)
   Indonesian Institute of Science / Senior Researcher /Febty Febriani
4. 2005～
5. The project aims at clarification of the physical mechanism of electromagnetic phenomena preceding earthquakes and realizing of monitoring and short-term prediction of large earthquake in Indonesia.
6. 2005-2007 JSPS Bilateral collaboration project between Japan and LIPI, Indonesia (PI: Dr K. Hattori (Chiba University)
   2007-2009 JSPS Grants-in Aid for Scientific Research B
   2007-2010 NiCT R&D promotion scheme funding international joint research.
   2009-2010 JSPS Japan-East Asia Network of Exchange for Students and Youths (JENESYS) Programme (PI Dr. K. Hattori)
7. Main result

- Armstrong Fransiskus Sompotan, Nanang T. Puspito, Endra Joelianto, **Katsumi Hattori**, Analysis of Ionospheric Precursor of Earthquake using GIM-TEC, Kriging and Neural Network, Asian Journal of Earth Sciences, 8, 32-44, 2015. (DOI:10.3923/ajes.2015.32.44)
- F. Febriani, P. Han, C. Yoshino, **K. Hattori***, B. Nudiyanto, N. Effendi, I. Maulana, Suhardjono, and E. Gaffar, Ultra Low Frequency (ULF) Electromagnetic Anomalies Associated with Large Earthquakes in Java Island, Indonesia by Using Wavelet Transform and Detrended Fluctuation Analysis, Natural Hazard and Earth System Sciences, 14, 789-798, 2014 (www.nat-hazards-earth-syst-sci.net/14/789/2014/doi:10.5194/nhess-14-789-2014)
- Febty Febriani, **Katsumi Hattori***, Djedi S. Widarto, Peng Han, Chie Yoshino, Boko, Nurdiyanto, Noor Effendi, Iwan Maulana, and Eddy Gaffar, Audio Frequency Magnetotelluric Imaging of The Cimandiri Fault, West Java, Indonesia, Journal of Geofisika, 14, 131-143, 2013. (Journal of Himpunan Ahli Geofisika Indonesia HAGI) (http://hub.hagi.or.id/wp-content/uploads/ember/downloads/geofisika-v14-no1-2013/ID_Vol_14_N1_2013_131-143.pdf)
- Peng Han, **Katsumi Hattori**, Maiko Hirokawa, Jiancang Zhuang, Chieh-Hung Chen, Febty Febriani, Hiroki Yamaguchi, Chie Yoshino, Jann-Yenq Liu, and Shuji Yoshida, Statistical analysis of ULF seismo-magnetic phenomena at Kakioka, Japan, during 2001-2010, J Geophys. Res., SPA, 119, 4998–5011, doi:10.1002/2014JA019789., 2014
- Saito, S., **Hattori, K.***, Kaida, D., Yoshino, C., Han, P., Febriani, F., Detection and reduction of precipitation effects in geoelectrical potential difference data, Electrical Engineering in Japan (English translation of Denki Gakkai Ronbunshi), 182, No. 3,1 -8, 2013.
- **Hattori, K**., Han, P., Yoshino, C., Febriani, F., Yamaguchi, H., Chen, C.-H., Investigation of ULF Seismo-Magnetic Phenomena in Kanto, Japan During 2000-2010: Case Studies and Statistical Studies, Surveys in Geophysics, 34, 293-316, DOI 10.1007/s10712-012-9215-x, 2013
- Guangjing Xu, Peng Han, Qinghua Huang, **Katsumi Hattori**, Febty Febriani, Hiroki Yamaguchi, Anomalous behaviors of geomagnetic diurnal variations prior to the 2011 off the Pacific coast of Tohoku earthquake (Mw9.0) J. Asian Earth Sci., 77, 59-65, 2013. http://dx.doi.org/10.1016/j.jseaes.2013.08.011
- Adrin Tohari, Khori Sugianti, **Katsumi Hattori**, Monitoring and Modelling of Rainfall-Induced Landslide in Volcanic Soil Slope, Landslide Science and Practice, edited by C. Margottini, P. Canuti, and K. Sassa, Vol. 2, 503-510, 2013. 10.1007/978-3-642-31445-2_66
- **Hattori, K**., Han, P., Yoshino, C., Febriani, F., Yamaguchi, H., Chen, C.-H., Investigation of ULF Seismo-Magnetic Phenomena in Kanto, Japan During 2000-2010: Case Studies and Statistical Studies, Surveys in Geophysics, 2012 (in press)
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- Singular Spectrum Analysis - An Attempt to Detect Train Noise -, Natural Hazard and Earth System Sciences, 11, 1863-1874, 2011. (doi:10.5194/nhess-11-1863-2011)
- Saito, S., Hattori, K., Kaida, D., Yoshino, C., Han, P., and Febriniani, F., Detection and reduction of precipitation effects in geoelectrical difference data, IEEJ Transactions on Fundmentals and Materials, 131, 738-743, 2011, (DOI:10.1541/ieejfms.131.738)(in Japanese)
- Yumoto, K., Ikemoto, S., Cardinal, M. G., Hayakawa, M., Hattori, K., Liu, J. Y., Saroso, S., Ruhimat, M., Husni, M., Widarto, D., Ramos, E., D. McNamara, R. E. Otadoy, G. Yumul, R. Ebora, and N. Servando, A new ULF wave analysis for Seismo-Electromagnetics using CPMN/MAGDAS data, Physics and Chemistry of the Earth, 34, 360-356, 2009.
- Widarto, D., Mogi, T., Tanaka, Y., Nagao, T., Hattori, K., and Uyeda, S., Co-seismic Geoelectrical Potential Changes Associated with the June 4, 2000's Earthquake (Mw 7.9) in Bengkulu, Indonesia, Physics and Chemistry of the Earth, 34, 373-379, 2009.
- Saroso, S., Hattori, K., Ishikawa, H., Ida, Y., Shirogane, R., Hayakawa, M., Yumoto, K., Shiokawa, K., and Nishihashi, M., ULF geomagnetic anomalous changes possibly associated with 2004-2005 Sumatra earthquakes, Physics and Chemistry of the Earth, 34, 343-349, 2009.
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- S. Saroso, J. Y. Liu, K. Hattori, and C. H. Chen, Ionospheric GPS TEC Anomalies and M>5.9 Earthquakes in Indonesia during 1993-2002, Terrestrial, Atmospheric and Oceanic Sciences, 2007 (accepted).
- K. Hattori, "Space and Lithosphere Environment Changes in Indonesia", Preparatory Meeting for the 7th Science Council of Asia (SCA) Conference, March 20, 2007, Science Council of Japan, Tokyo.
- K. Yumoto and K. Hattori, Environmental Changes in Space and Lithosphere in Indonesia, 21st Pacific Science Congress, no abstract, June 12-18, 2007, Okinawa Convention Center, Okinawa, Japan.
- M. Nishihashi, Y. Suzuki, K. Hattori, J-Y. Liu, D. Widarto, Analysis of GPS-TEC variation associated with large earthquakes using GAMIT, Abstract of Asia Oceania Geosciences Society 3rd Annual Meeting, CDROM, July 2006, Singapore..
- Katsumi Hattori, Ichiro Takahashi, Masashi Hayakawa, Nobuhiro Isezaki, Kiyohumi Yumoto, Toshiyasu Nagao, and Seiya Uyeda, RIKEN's Int'l Frontier Research on Earthquakes 1997-2002 and Recent Progress on ULF Geomagnetic Changes Associated with Crustal Activity, Mini-Workshop on Seismo Electromagnetic Precursors of Earthquakes: State of the Art and Research Progress, LIPI Campus, Bandung, Indonesia, September 5, 2005
- Djedi Widrto, T. Mogi, Y. Tanaka, T. Nagao, K. Hattori, JY. Liu, and S. Uyeda, Seismo-Electromagnetic

signatures possibly associated with the earthquakes in southern Sumatra, Indonesia, , Mini-Workshop on Seismo Electromagnetic Precursors of Earthquakes: State of the Art and Research Progress, LIPI Campus, Bandung, Indonesia, September 5, 2005

- Sarmoko Saroso1 , K. Hattori2, J. Y. Liu3, M. Hayakawa4, K. Shiokawa5, and K. Yumoto6, ULF Geomagnetic Anomaly and TEC Perturbation Related With the Aceh Earthquake of December 26, 2004, Mini-Workshop on Seismo Electromagnetic Precursors of Earthquakes: State of the Art and Research Progress, LIPI Campus, Bandung, Indonesia, September 5, 2005.

8. Other important items to be stated

September, 2005: Visit to LIPI and organize the mini-workshop on Seismo Electromagnetic Precursors of Earthquakes. Visit LIWA observatory, Sumatra Island

January-March, 2006:

Dr. Widarto and Mr. Hananto at LIPI and Dr. Saroso at stayed at Chiba University and discuss and analyze geoelectrical potential difference and geomagnetic data recorded in seismic areas, Japan.

March, 2006: Visit to Indonesia and install Electromagnetic sensor at LIWA station. Discussion on future collaboration with Drs. .Widarto and Saroso.

October, 2006: Vice Chairman of LIPI visited Chiba University and Hattori Laboratory.

November, 2006: Mini-workshop have been held at LAPAN, Bandung, Indonesia. Visit the candidate of a new site at PLRatu near Sukabumi, which belongs to BMG.

February-March, 2007:

Dr. Widarto and Mr. Dadan at LIPI and Dr. Saroso at stayed at Chiba University and discuss and analyze geoelectrical potential difference and geomagnetic data recorded in seismic areas, Japan.

March, 2007: Set up the geoelectromagnetic station at PLRatu, BMG station. But thee is a power trouble.

April, 2007: Visit PLRatu station to improve the power troubles.

September, 2007: Install sensors at the Kototabang near Padan, Sumatra Islands.

November, 2007: Organize international workshop on seismo-electromagnetic phenomena, 2007 (IWSEP2007), at Bandung, Indonesia. System maintenance at Kototabang station. Visit to see the candidate of landslide station and VLF subionopspheric monitoring station.

February-March, 2008:

Dr. Widarto and Mr. Dadan at LIPI and Dr. Saroso at stayed at Chiba University and discuss and analyze geoelectrical potential difference and geomagnetic data recorded in seismic areas, Japan.

March, 2008: Dupty Chairman of LIPI, Dr. Hery Harijono and Dr. Mastrijono visited the Dean of

	Graduate School of Science, Chiba University.
March, 2008:	Internatinal Workshop (IWSLEC2008) at Sagamihara, Japan. Drs. Widarto and Hery Hariyoono (LIPI) and Sarmoko (LAPAN), and Mastrjono (BMKG) joined it and made technical and scientific discussioms.
March, 2008:	Technical and scientific discussion at Jakarta and Bandung, Indonesia with BMKG and LIPI.
March, 2008:	Field survey of Kotabumi station, Sumatra and Technical and scientific discussion at Jakarta, Indoensia witj BMKG and LIPI.
May, 2008:	EMC test at Kotabumi station.
August, 2008:	Installation of Kotabumi station. Technical and scientific discussion at BMKG Jakarta.
October, 2008:	Maintenance of PLRatu station. Technical and scientific discussion at BMKG Jakarta
October, 2008:	Ms. Febti Febrinani participated in Hattori Lab. as a foreign research student supportd by INPEX foundation.
October-November, 2008:	Hattori visited bandung to participate in HAGI meeting. Maintenace of PLRatu station also has been performed.
November, 2008:	International workshop (IWSLEC-2) at Tsukuba. Dr. Sarmoko (LAPAN), Dr, Husni and Dr. Subarjo (BMKG) joined and made technical and scientific discussion.
February, 2009:	Dr. Widarto came to Lab. and made a seminar.
March, 2009:	Maintenance of KotabumiPL station. Technical and scientific discussion at BMKG Jakarta
March, 2009:	International workshop “VESTO”have been held at Chiba. Sunaryo (BMG) participated. Technical and scientific discussion has been done.
April, 2009:	Ms. Febti Febrinani joined Hattori Lab. as a master student supported byINPEX foundation.
June, 2009:	International workshop “IWSLEC-3” was held at Singapore. Dr. Prih Harijadi and Dr. Sunarjo participated in the meeting and made technical and scientific discussion.
July-August, 2009:	Fieldwork at PLRatu have been done: EM exploration for landslide and understand the underground structure.
October, 2009:	Dr. Widarto came to Lab. and made a seminar.
November 2009:	Partisipate the International workshop organized by BMKG at Buki-Tinnggi
December, 2009:	Dr. Gaffar visited Hattori Lab. and Technical and scientific discussion has been done

February, 2010:	Hattori visited LIPI、LAPAN、BMKG to make technical and scientific discussion.
June- July, 2010:	Adrin(LIPI), Khori(LIPI), Iwan(BMKG), Noor(BMKG), Boko(BMKG), and Andi(BMKG) come to Chiba Univ, for cooperation under the JSPS JENESYS program
August-September, 2010:	Prof. Hattori, Ms. Yoshno, and graduted students visit Indonesia for cooperative observation under the JSPS JENESYS program
November, 2010:	Dr. Bambamg (BMKG), Dr. Hendri (BMKG) visit Hattori lab. to make technical and scientific discussion.
November, 2010:	Ms. Yoshino and Mr. Yabe visit Indonesia and perform fieldworks at PLRatu station.
February, 2011:	Dr. Gaffar (LIPI) come to Chiba Univ. to make technical and scientific discussion.
March, 2011:	Dr. Adrin (LIPI) and Ms. Khori (LIPI), come to Chiba Univ. to make technical and scientific discussion.
November,2011:	Prof. Hattori, Ms. Yoshino, Mr. Otsubo (M1), and Mr. Ichikawa (M1) visited Indonesia and perform fieldworks at PLRatu station.
December, 2011:	Prof. Hattori and Ms. Yoshino visited Indonesia and perform fieldworks at PLRatu station.
February, 2012:	Dr. Gaffar (LIPI) come to Chiba Univ. to make technical and scientific discussion.
March, 2012:	Dr. Adrin (LIPI) and Ms. Khori(LIPI), come to Chiba Univ. to make technical and scientific discussion.
May, 2012:	Prof. Hattori, Ms. Yoshino, aand 1 graduate student Otsubo visited Indoensia and constructed solar battery system at kotabumi station. 00
February, 2013:	Prof. Hattori, Ms. Yoshino, aand 1 graduate student Han visited Indoensia to have scientific and technical discussions and have fieldworks at PL Ratu and Kotbumi stations (under short visit program (global human resource development)
May, 2013:	Drs. Fachrizal, Boko Nurdianto, and Suliyanti Pakpahan from BMKG visited Hattori Lab. and had a technical and scientific discussion.
March, 2014:	Dr. Han and Ms. Yoshino visited Indonesia and perform fieldworks and maintenance at PLRatu station and the Headquater of BMKG.

1. Project on Development of early warning system for landslide using EM method
2. Graduate School of Science / Professor / Katsumi Hattori
3. Korea / KIGAM / Senior Researcher Chae Byng-Gong
4. 2009～
5. Development of early warning system for landslide using EM method
6. JST China-Korea-Japan trilateral program(2009～2013)
7. None

8. Other important items to be stated

November , 2010: Prof. Hattori visit KIGAM to make technical and scientific discussion with Dr. Chae and his group. a nd participate in CKJ workshop held at Cheju, Korea

April, 2011: Technical and Scientific discussion in the frame on JST China-Korea-Japan Project among Prof. Huang and Dr. Chae, at EGU meeting, Vienna, Austria

July, 2011: Int'l Symposium and Technical and Scientific discussion in the frame on JST China-Korea-Japan Project among Prof. Huang and Dr. Chae, at Daejon, Korea (Prof. Hattori and two graduate students from Chiba Univ., Prof. Huang and two graduate students from Peking Univ., Dr. Chae and many his colleagues)

December, 2011: Technical and Scientific discussion in the frame on JST China-Korea-Japan Project among Prof. Huang and Dr. Chae, at AGU meeting, San Francisco, US. (Prof. Hattori and a graduate student from Chiba Univ., Prof. Huang and a graduate student from Peking Univ., Dr. Chae and two his colleagues)

1. A Multi-Sensor Approach on Atmosphericand Ionospheric Signals Associated with Major Earthquakes.
2. Graduate School of Science / Professor / Katsumi HATTORI
3. US / Chapman university / Associate Professor / Dimitar Ouzounov
4. 2007～
5. Study on short - term earthquake prediction using satellite and ground besed data / Lithosphere-Atmosphere-Ionsphere Coupling
6. 2007-2010 : NiCT R&D promotion scheme funding international joint research

   2013-2014 : JSPS, Grants in Aid for Scientific Research

   Joint Research Program in Center for Environmental Remote Sensing, Chiba University (2015)
7. Main result
   - Co-editing of special issue on Journal of Asian Earth Sciences Vol. 41(2011)
   - Ouzounov D. S.Pulinets, K.Hattori, M, Kafatos, P.Taylor (2011) "Atmospheric Signals Associated with Major Earthquakes. A Multi-Sensor Approach, in the book "Frontier of Earthquake short-term prediction study", M Hayakawa, (Ed), Japan, 510-531
   - Ouzounov, D; K.Hattori, J.Y. Liu, (2011) Validation of Earthquake Precursors-VESTO Preface, Journal of Asian Earth Sciences Volume: 41 Issue: 4-5 Pages: 369-370
   - Ouzounov D., S. Pulinets, K,.Hattori, M. Kafatos and P. Taylor (2011) Atmospheric Response to Fukushima Daiichi NPP (Japan) Accident Reviled by Satellite and Ground observations,(submitted) http://arxiv.org/abs/1107.0930
8. Other important items to be stated

   December, 2007: Scientific discussions at AGU, San fransisco, US

   December, 2008: Scientific discussions at AGU, San fransisco, US

   March 26-29, 2009:

Co-organaiz the International Workshop on Validation of Earthquake Precursors by Satellite, Terrestrial and other.

Observations (VESTO).Case studies of the recent Asian events at Chiba University.

December, 2009: Scientific discussions at AGU, San fransisco, US

December, 2010: Scientific discussions at AGU, San fransisco, US

December, 2011: Scientific discussions at AGU, San fransisco, US

September, 2012: Dr. Ouzounov visited Chiba University to give a talk and scientific discussion

October, 2012: Establish international working group GENET and start regular exchange of information on EQ-relate anomalies using mailing List..

December, 2012: Scientific discussions at AGU, San fransisco, US, Establish MoU at AGU fall meeting, 2012

April, 2013: Scientific discussions at EGU, Vienna, Austria

May, 2013: Dr. Ouzounov visited Hattori Lab. and gave two talks and have a technical and scientific discussion.

October-November, 2013:

Prof. Hattori and Ms. Tsutsumi (his Ms. student) visited Chapman University and gave a seminar and had a technical and scientific discussion. Ms. Tsutsu stayed the Ouzounov Lab. from Oct. 30 to Dec. 7 to analyze satellite data.

December, 2013: Prof. Hattori visited Chanpman Univ. and had a technical and scientific discussion.

January, 2014: Prof. Hattori visited International Space Science Institute (ISSI), Bern, Switzerland, and had technical and scientific discussion with Drs. Ouzounov (Chanpman Univ., US), Liu (NCU, Taiwan), Tramutoli (Bascilicata Univ., Italy), and Pulinets (SRI, Russia).

March, 2014: Dr. Ouzounov visited Hattori Lab. and had a technical and scientific discussion.

July-August, 2014:

Dr. Ouzounov participated in the AOGS and IWEP meetings at Sapporo and had a technical and scientific discussion

August, 2014: Dr. Ouzounov visited Hattori Lab. and had a technical and scientific discussion

December, 2014: Prof. Hattori participated in the AGU meeting and had a technical and scientific discussion with De. Ouzounov at AGU meeting.

May 2015 : Dr. ouzounov participated in the JpGU and IWEP2 meetings at Chiba and had a technical and scientific discussion.

June 2015 : Prof. Hattori participated in the ISSI meeting at Bern and had technical and scientific discussions with Dr. Ouzounov on multi-instrument Space-Borne Observations and Validation of the Physical Model of the Lithosphere-Atmosphere-Ionosphere-Magnetosphere Coupling.

	November-December 2015 : Dr. Ouzounov participated in the workshop by CEReS and had a technical and scientific discussion with Hattori. December, 2015: Prof. Hattori and Dr. Ham participated in the pre-AGU meeting by Chapman Univ. had a technical andscientific discussion with De. Ouzounov at AGU meeting. They also visited Dr. Tom Bleier at Quakefinder Inc. to have a technical and scientific discussion. January 2016 : Prof. Hattori participated in the UNISDR meeting on disaster prevention in Swiss and had a technical and scientific discussion.
1.	Study on Mathematical and Informatical Structure for LDPC codes
2.	Graduate School of Science / Associate Professor / Manabu HAGIWARA
3.	USA / University of Hawaii / James B. Nation
4.	2013～
5.	Study on modern coding theory from points of view of mathematics and informatiocs.
6.	2013-2015, KAKEN KIBAN(B).
7.	M. Hagiwara, J.B.Nation, Equivalency on SFA-LDPCs, Proc. of The 36th Symposium on Information Theory and its Application, 2013.
8.	June 2013, Lecture by J.B.Nation in Chiba University and Research Discussion. Sep.25-Oct.2, 2015, Organize an international workshop at University of Hawaii.
1.	Kanto Asperity Project
2.	Graduate School of Science/ Professor, / Toshinori Sato,
3.	Casey J. Moore, Univ. California, Santa Cruz, USA Daniel Curewitz, Syracuse U., USA
4.	2007~
5.	Kanto Asperity Project (KAP) is a proposal for IODP (Integrated Ocean Drilling Program). Our scientific goal is to understand characteristics of three different events (Taisho, Genroku, and slow slip), and to improve earthquake generation models using slow slip events. We propose a deep drilling program for obtaining fault materials and pore pressure data, and a long-term monitoring program for observing several cycles of slow slip events. The proposal for the long-term monitoring program has been passed at the rating of Excellent by IODP PEP (Proposal Evaluation Panel)(proposal #770). Now, we start observations of crustal deformation by ocean bottom pressure gauges.
6.	Grant-in-Aid for Scientific Research B from JSPS.
7.	Main result ➢ The proposal for the long-term monitoring program has been passed at the rating of Excellent by IODP PEP. This evaluation is about scientific issues. Now, state of our proposal is “holding bin”. ➢ T. Sato, H. Higuchi, T. Miyauchi, K. Endo, N. Tsumura, T. Ito, A. Noda, M. Matsu'ura, The source model

and recurrence interval of Genroku-type Kanto earthquakes estimated from paleo-shoreline data, Earth Planets Space, 68:17, DOI: 10.1186/s40623-016-0395-3, 2016.

8. The 3rd International Workshop on the Kanto Asperity Project was held at Chiba University in February, 2008.

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1. Geometric R-matrix, networks and cluster algebras
2. Faculty of Science/ Associate professor/ Rei Inoue
3. Minnesota University/ USA/ Pavlo Pylyavskyy
   Michigan University/ USA/ Thomas Lam
4. 2013—
5. The R-matrix is a notion related to a generalization of the symmetric group. We consider what called `geometric R-matrix' from the viewpoint of combinatorics as networks and cluster algebras, and study integrable structure or quantization.
6. Grant-in-Aid for Young Scientific Research (B) 22740111, JSPS 2010—2013
   Grant-in-Aid for Scientific Research (C) 26400037, JSPS 2014—2017
7. Rei Inoue, Thomas Lam, Pavlo Pylyavskyy, Toric networks, geometric R-matrices and generalized discrete Toda lattices
8. Other important items to be stated
   - Joint work with Thomas Lam and Pavlo Pylyavskyy,, during 16—23 February 2013, in Minnesota University
   - Joint work with Thomas Lam, during 1—4 August 2013, in Colorado State University
   - Joint work with Thomas Lam and Pavlo Pylyavskyy,, during 7—17 January 2016, in Minnesota University

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1. Understanding the mechanism of giant piezoelectricity on PbZrTiO3
2. Department of Physics, Graduate School of Science/ Assistant Professor／Hiroko Yokota
3. U.K.／University of Oxford／Prof. Mike Glaser, U. K.／Warwick University／Prof. Pam Thomas, China／Xi`an Jiaotong University／Dr. Nan Zhang
4. 2009～
5. It is well known that Pb(Zr,Ti)O3 exhibits a giant piezoelectric response around the morphotropic phase boundary (MPB). It has been considered that the origin of the large physical properties around MPB is due to the existence of low symmetry phase. We carried out precise neutron diffraction experiments and confirmed that there is no specific concentration which separates the symmetry and more than two phases coexist for whole concentration. The composition ratio continuously changes against the concentration. We are planning to clarify the crystal symmetry under the applied filed to understand the origin of the large physical response.
6. KAKENHI・Grant-in Aid for JSPS Fellow, KAKENHI・Grant-in Aid for Young Scientists (B), Research grant from The Mazda Foundation

7. Main result

(1) N. Zhang, H. Yokota, A. M. Glazer, Z. Ren, D. A. Keen, D. S. Keeble, P. A. Thomas, and Z. –G. Ye
"The Missing phase boundary in the phase diagram of PbZr1-xTixO3"
Nature Communications 5, 5231(2014).

(2) N. Zhang, H. Yokota, A. M. Glazer and P.A. Thomas
"The not so simple cubic structure of PbZr1-xTixO3 (PZT): complex local effects in perovskites"
Acta Crystallographica Section B: Structural Science 67, 461-466 (2011).

(3) N. Zhang, H. Yokota*, A. M. Glazer and P. A. Thomas
"Neutron powder diffraction refinement of PbZr1-xTixO3"
Acta Crystallographica Section B: Structural Science 67, 386-398 (2011).

(4) H. Yokota, N. Zhang, P. A. Thomas, and A. M. Glazer
"Crystal Structure Determinations of Zr Rich-PbZr1-xTixO3"
Ferroelectrics 414, 147-154 (2011).

(5) D. Phelan, X. Long, Y. Xie, Z. –G. Ye, A. M. Glazer, H. Yokota, P. A. Thomas, and P. M. Gehring
"Single Crystal Study of Competing Rhombohedral and Monoclinic Order in Lead Zirconate Titanate"
Physical Review Letters 105, 207601-1~4 (2010).

(6) H. Yokota, N. Zhang, A. E. Taylor, P. A. Thomas, and A. M. Glazer
"Crystal structure of the rhombohedral phase of PbZr1-xTixO3 ceramics at room temperature"
Physical Review B 80, 104109-1~12 (2009).

8. Other important items to be stated

(1) The American Ceramics Society 2015 Society Award, Spriggs Phase Equilibria Award (2015)

(2) 20th Annual Meeting of MRS-J Best paper award (2010)

(3) The 10th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity, Young scientist award (2010)

1. Fabrication and examination of multiferroic properties on hexagonal REFeO3 thin film
2. Department of Physics, Graduate School of Science/ Assistant Professor／Hiroko Yokota
3. France／Ecole Centrale Paris／Dr. Jean-Michel Kiat, Dr. Pierre-Eymeric Janolin
4. 2014~
5. Materials which possess more than two order parameters are known as multiferroics . Most of them exhibit their properties only at low temperature and it prevents to realize the application. To overcome this problem, we aimed to fabricate the new materials which show multiferroic properties at room temperature. For this purpose, we focus on hexagonal-stabilized REFeO3 thin film. Ferroelectricity was confirmed at room temperature and magnetic structure of Fe ion was determined.
6. KAKENHI・Grant-in Aid for Young Scientists (B), Yazaki Memorial Foundation for Science and Technology, Iketani Science and Technology Foundation
7. Main result

(1) Hiroko Yokota, Tomoya Nozue, Shin Nakamura, Hajime Hojo, Mamoru Fukunaga, Pierre-Eymeric

Janolin, Jean-Michel Kiat, and Akio Fuwa

"Ferroelectricity and weak ferromagnetism of hexagonal ErFeO3 thin films"

Physical Review B 92, 054101 (2015).

8. -

1. Experimental approach towards domain boundary engineering
2. Department of Physics, Graduate School of Science/ Assistant Professor／Hiroko Yokota
3. France／Ecole Centrale Paris／Dr. Jean-Michel Kiat, France／Paris Sud University／Dr. Raphael Haumont
4. 2013～
5. Domain walls which separate the regions with different orientation have become a focus of attention because of their exotic physical properties. We chose materials which does not show polar nature as a balk form and confirmed the polar nature appears at the domain boundary. The purpose of our study is to control its properties by the external stimulus for the further application.
6. KAKENHI・Grant-in Aid for Young Scientists (B), Shimadzu Science Foundation
7. Main result
   (1) H. Yokota, H. Usami, R. Haumont, P. Hicher, J. Kaneshiro, E. K. H. Salje, and Y. Uesu
   "Direct evidence of polar nature of ferroelastic twin boundaries in CaTiO3 obtained by second harmonic generation microscope"
   Physical Review B 89, 144109 (2014).
8. 31rd FMA conference Young Researcher Presentation Awards (2014)

1. Ordering of polar nature and critical phenomena in Quantum relaxor
2. Department of Physics, Graduate School of Science/ Assistant Professor／Hiroko Yokota
3. France／Ecole Centrale Paris／Dr. Jean-Michel Kiat, Dr. G. Geneste
4. 2005 ～
5. Both quantum paraelectrics and relaxor posse the common concept: frustration. We paid attention to this similarity and showedthat the substitution of ion induces the relaxor behavior on quantum paraelectrics.We clarified that around the tricritical point, a critical phenomana occur in this system.
6. KAKENHI・Grant-in Aid for JSPS Fellow,
7. Main result
   (1) G. Geneste, J-M. Kiat, H. Yokota, and Y. Uesu,
   "Dielectric relaxation in Li-doped KTaO3 studied by kinetic Monte Carlo"
   Physical Review B 83, 184202-1~5 (2011).
   (2) G. Geneste, J-M. Kiat, H.Yokota, Y. Uesu, F. Porcher
   "Polar clusters in impurity-doped quantum paraelectric K1-xLixTaO3"
   Physical Review B 81, 144112-1~10 (2010).
   (3) H. Yokota ,Y. Uesu, C. Malibert, and J. M. Kiat

"Second-harmonic generation and x-ray diffraction studies of the pretransitional region and polar phase in relaxor K(1-x)LixTaO3"

Physical Review B 75, 184113-1~8 (2007).

(4) Y. Uesu, H. Yokota, J. M. Kiat, and C. Malibert

"Is K(1-x)LixTaO3 a Real relaxor?"

Ferroelectrics 347, p37-p43 (2007).

8. Other important items to be stated

(1) 64th JPS annual meeting, Young Scientist Award of the Physical Society of Japan (2009)

(2) The Ceramics society of Japan, The 17th fall meeting, Best poster award (2005)

Graduate School of Medicine

1. Urinary creatinine project
2. Graduate School of Medicine / Professor / Yasushi Suwazono
3. Sweden / Karolinska Institutet, The Institute of Environmental Medicine, Unit of Metals and Health / Agneta Åkesson

   Sweden / Karolinska Institutet, The Institute of Environmental Medicine, Unit of Metals and Health / Marie Vahter
4. 2003～
5. We assessed how much urinary creatinine and urinary cadmium was affected by potential factors, such as age, weight and meat intake and to assess to what extent creatinine adjustment of urinary cadmium introduce errors in the dose estimate, comparing urinary cadmium adjusted to specific gravity.
6. Yoshida Scholarship Foundation
7. Main result

   (1) Suwazono Y, Åkesson A, Alfvén T, Kobayashi E, Nogawa K, Nakagawa H, Järup L, Vahter M. The effect of factors related to urinary creatinine excretion when evaluating creatinine adjusted urinary cadmium concentrations. 10th International Congress of Toxicology. Tampere Finl and. Toxicology and Applied Pharmacology, 197: 189, 2004.

   (2) Suwazono Y, Åkesson A, Alfvén T, Järup L, Vahter M. Creatinine versus specific gravity adjusted urinary cadmium concentrations. Biomarkers. 2005;10:117-126
8. None.

1. Benchmark dose estimation for Cadmium-induced health effects in humans
2. Graduate School of Medicine / Professor / Yasushi Suwazono
3. Sweden / Karolinska Institutet, The Institute of Environmental Medicine / Agneta Åkesson

   Sweden / Karolinska Institutet, The Institute of Environmental Medicine / Marie Vahter

   Sweden / Karolinska Institutet, The Institute of Environmental Medicine / Annette Engström
4. 2004～

5. We estimated the benchmark dose of urinary cadmium for cadmium-induced tubular, glomerular and other health effects in an environmentally exposed population, using the hybrid approach.
6. The Swedish Research Council/Medicine, Institute of Environmental Medicine, Yoshida Scholarship Foundation, Medical Faculty of Lund University, Karolinska Institutet, The National Swedish Environmental Protection Agency, The Swedish Foundation for Strategic and Environmental Research, The Swedish Society of Medicine, Primary Care, R&D, County Council of Skåne, The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, Swedish Council for Working Life and Social Research and the European Union.
7. Main result
   (1) Suwazono Y, Sand S, Vahter M, Filipsson AF, Skerfving S, Lidfeldt J, Åkesson A. Benchmark dose for cadmium-induced renal effects in humans. Environ Health Perspect. 2006 Jul;114(7):1072-6
   (2) Suwazono Y, Uetani M, Åkesson A. Estimation of benchmark dose for Cd-induced renal effects in humans. Reverse Brain Drain Project (RBD-NSTDA) Special Conference. Cadmium in Food and Human Health &Technologies for Environmental Restoration and Rehabilitation. Phitsanulok, Thailand, 2010.
   (3) Suwazono Y, Sand S, Vahter M, Skerfving S, Lidfeldt J, Åkesson A. Benchmark dose for cadmium-induced osteoporosis in women. Toxicol Lett. 2010 197:123-27.
   (4) Engström A, Michaëlsson K, Suwazono Y, Wolk A, Vahter M, Åkesson A. Long-term cadmium exposure and the association with bone mineral density and fractures in a population-based study among women. J Bone Miner Res. 2011(Mar) 26:486-95.
8. Reverse Brain Drain Project (RBD-NSTDA) Special Conference. Cadmium in Food and Human Health &Technologies for Environmental Restoration and Rehabilitation. Phitsanulok, Thailand, 2010..

1. Analysis of the expression and function of spermatogenic specific glycolytic enzyme.
   Analysis of human maternal-fetal placental transfer of chemicals
2. Graduate School of Medicine / Professor / Chisato Mori
3. USA / U.S. National Institute of Environmental Health Science, National Institutes of Health (NIH)
   USA / U.S. Division of Personalized Nutrition & Medicine, NCTR/FDA
4. 2007～
5. We have performed analysis for spermatogenesis-related genes. We are carrying out toxicogenomic analysis of endocrine disruptors on male reproductive organs. The purpose of this project is to accumulate the toxicological data internationally, and to develop a new risk evaluation method for chemicals. We have also investigated about the effects of human fetal exposure to chemicals and the mechanism of maternal-fetal placental transfer of chemicals.
6. Trust Account for Department of Bioenvironmental Medicine of Chiba University
7. Main result
   (1) Mori C, Nakamura N, Todaka E, Fujisaki T, Matsuno Y, Nakaoka H and Hanazato M Correlation

between human maternal-fetal placental transfer and molecular weight of PCB and dioxin congeners/isomers. Chemosphere, **114**: 262-267, 2014

(2) Miyaso H, Nakamura N, Matsuno Y, Kawashiro Y, Komiyama M, Mori C. Postnatal exposure to low-dose decabromodiphenyl ether adversely affects mouse testes by increasing thyrosine phosphorylation level of cortactin. J Toxicol Sci. 37(5):987-99, 2012;

(3) Mori C, Miyaso H, Nakamura N, Matsuno Y and Todaka E New point for evaluation of environmental pollutants including endocrine disrupting chemicals and polybrominated diphenyl ethers (PBDEs) on male reproductive system. Proceeding book of the 11th International symposium on Spermatology: 66-71, 2011.

(4) Nakamura N, Miranda-Vizuete A, Miki K, Mori C and Eddy EM. Cleavage of disulfide bonds in mouse spermatogenic cell-specific type 1 hexokinase isozyme is associated with increased hexokinase activity and initiation of sperm motility. Biology of Reproduction. 79:537-545,2008

(5) Nakamura N, Shibata H, O'Brien D A., Mori C and Eddy EM. Spermatogenic cell-specific type 1 hexokinase is predominant hexokinase in sperm. Molecular Reproduction and Development. 75:632-640,2008

8. For item 3 ; USA / U.S. National Institute of Environmental Health Science, National Institutes of Health (NIH)「Completion」

1. In vivo assessment of human axonal ion channel function
2. Department of Neurology, Graduate School of Medicine / Professor / Satoshi Kuwabara
3. London, UK / Sobell Department of Neurophysiology, Institute of Neurology / Prof. Hugh Bostock
   Australia / Brain and Mind Research Institute, University of Sydney / Prof. Matthew Kiernan
4. 2008～
5. Development of methods to assess human peripheral nerve ion channel function in vivo
6. Grant-in-Aid for Scientific Research C (2011-2013; 2014-2016)
7. Main result

(1) Shahrizaila N, Sobue G, Kuwabara S, Kim SH, Birks C, Fan DS, Bae JS, Hu CJ, Gourie-Devi M, Noto Y, Shibuya K, Goh KJ, Kaji R, Tsai CP, Cui L, Talman P, Henderson RD, Vucic S, Kiernan MC. Amyotrophic lateral sclerosis and motor neuron syndromes in Asia. J Neurol Neurosurg Psychiatry. 2016 Apr 19. pii: jnnp-2015-312751. doi: 10.1136/jnnp-2015-312751.

(2) Bae JS, Yuki N, Kuwabara S, Kim JK, Vucic S, Lin CS, Kiernan MC. Guillain-Barré syndrome in Asia. J Neurol Neurosurg Psychiatry. 2014 Aug;85(8):907-13.

(3) Fujimaki Y, Kanai K, Misawa S, Shibuya K, Isose S, Nasu S, Sekiguchi Y, Ohmori S, Noto Y, Kugio Y, Shimizu T, Matsubara S, Lin CS, Kuwabara S. Differences in excitability between median and superficial radial sensory axons. Clin Neurophysiol. 2012 Jul;123(7):1440-5.

8. None

1. Development of new electrodiagnostic criteria of Guillain-Barre syndrome

2. Department of Neurology, Graduate School of Medicine / Professor / Satoshi Kuwabara
3. Italy / Department of Neuroscience and Imaging / University “G. D’Annunzio” / Prof. A Uncini
4. 2008～
5. Development of new electrodiagnostic criteria of Guillain-Barre syndrome
6. The Health and Labour Sciences Research Grant on Intractable Diseases (Neuroimmunological Diseases) from the Ministry of Health, Labour and Welfare of Japan
7. Main result
   (1) Uncini A, Kuwabara S. Nodopathies of the peripheral nerve: an emerging concept. J Neurol Neurosurg Psychiatry 2015 Nov;86(11):1186-95.
   (2) Kuwabara S, Uncini A. Multiple mechanisms for distal axonal loss in Guillain-Barré syndrome. Clin Neurophysiol. 2013;124:821-2.
   (3) Uncini A, Kuwabara S. Reply to "Serial electrodiagnostic studies increase the diagnostic yield of axonal Guillain-Barré syndrome". Clin Neurophysiol. 2013;124:212-3.
   (4) Uncini A, Kuwabara S. Electrodiagnostic criteria for Guillain-Barrè syndrome: a critical revision
   (5) and the need for an update. Clin Neurophysiol. 2012;123:1487-95.
   (6) Yuki N, Kokubun N, Kuwabara S, Sekiguchi Y, Ito M, Odaka M, Hirata K, Notturno F, Uncini A. Guillain-Barré syndrome associated with normal or exaggerated tendon reflexes. J Neurol. 2012 Jun;259:1181-90.
   (7) Sekiguchi Y, Uncini A, Yuki N, Misawa S, Notturno F, Nasu S, Kanai K, Noto Y, Fujimaki Y, Shibuya K, Ohmori S, Sato Y, Kuwabara S. Antiganglioside antibodies are associated with axonal Guillain-Barré syndrome: a Japanese-Italian collaborative study. J Neurol Neurosurg Psychiatry. 2012;83:23-8.
8. None.

1. Development of therapeutic guideline of POEMS syndrome
2. Department of Neurology, Graduate School of Medicine / Professor / Satoshi Kuwabara
3. USA / Department of Hematology / Mayo Clinic / Prof. A Dispenzieri
4. 2006～
5. Development of therapeutic guideline of POEMS syndrome
6. The Health and Labour Sciences Research Grant on Intractable Diseases from the Ministry of Health, Labour and Welfare of Japan
7. Main result
   (1) Kuwabara S, Dispenzieri A, Arimura K, Misawa S, Nakaseko C. Treatment for POEMS (polyneuropathy, organomegaly, endocrinopathy, M-protein, and skin changes) syndrome. Cochrane Database Syst Rev. 2012;6:CD006828.
   (2) Kuwabara S, Dispenzieri A, Arimura K, Misawa S. Treatment for POEMS (polyneuropathy, organomegaly, endocrinopathy, M-protein, and skin changes) syndrome. Cochrane Database Syst Rev. 2008;4:CD006828.

8.	Award of the Japanese Society of Internal Medicine…etc.
1.	Role of Notch signaling in mouse cerebral cortical development
2.	Graduate School of Medicine / Associate Professor / Motoo Kitagawa
3.	USA / Memorial Sloan-Kettering Cancer Center / Song-Hai Shi, PhD
4.	2013～
5.	Importance of Notch signaling in nervous system has been well established. In this study, we focus on analyses of its roles in the cerebral cortical development using genetically modified mice.
6.	President discretion expense of Chiba University
7.	None
8.	None
1.	Genetic Analysis of Cystinuria Patients in Japan and Korea
2.	Department of Urology, Graduate School of Medicine / Assistant Professor / Shinichi Sakamoto
3.	Korea / Department of Pediatrics, Seoul National University Children's Hospital / Prof. Hae Il Cheong
4.	2012
5.	Study the similarity or difference in genetic mutations between Japanese and Korean Cystinuria Patients.
6.	None
7.	We have identified that Korean Cystinuria patients also possessed mutation(P482L) that we have previously thought specific for Japanese patients.
8.	None human axonal ion
1.	Role of chemokines in the T cell response to ocular toxoplasmosis
2.	Department of Infection and Host Defense, Graduate School of Medicine / Associate Professor / Kazumi Norose
3.	Department of Pathobiology, University of Pennsylvania / Professor / Christopher A. Hunter
4.	2008～
5.	Analysis of the roles of chemokines in the T cell response to ocular toxoplasmosis
6.	Talent promotion for establishing the new biological frontier to the infectious phenomenon, Grants-in-Aid for Scientific Research 20592071, from the Japanese Science Promotion Society.
7.	Main result (1) Norose K, Kikumura A, Luster AD, Hunter CA, Harris TH. CXCL10 is required to maintain T-cell populations and to control parasite replication during chronic ocular toxoplasmosis. Invest Ophthalmol Vis Sci. 2011 Jan 21;52(1):389-98. (2) Harris TH, Banigan EJ, Christian DA, Konradt C, Tait Wojno ED, Norose K, Wilson EH, John B, Weninger W, Luster AD, Liu AJ, Hunter CA. Generalized Lévy walks and the role of chemokines in migration of effector CD8+ T cells. Nature. 2012 Jun 28;486(7404):545-8.
8.	End
1.	Establishment of diagnostic methods and treatments for parasitic diseases,

2. Analysis of pathogenesis of parasitic diseases
3. Department of Infection and Host Defense, Graduate School of Medicine / Associate Professor / Kazumi Norose
   Department of Parasitology, Minia University, Egypt / Assistant Professor / Ekhlas Hamed Abdel-Hafeez and Usama S. Belal
4. 2011～
5. Establishment of more sensitive and lower cost diagnostic methods and therapy for parasitic diseases
   Analysis of pathogenesis of parasitic diseases
6. Grants-in-Aid for Scientific Research 26460505, from the Japanese Science Promotion Society.
7. Main result
   - Mohamed RM, Abdel-Hafeez EH, Belal US, Norose K, Aosai F. Human Cystic Echinococcosis in the Nalut District of Western Libya: A Clinico-epidemiological Study. Trop Med Health. 2014;42(4):177-84.
   - Abdel-Hafeez EH, Mohamed RM, Belal US, Abdel-Raheem EM, Naoi K, Norose K. Polymerase Chain Reaction: A Better Method for Diagnosing Chronic *Schistosoma mansoni* Infections. Trop Med Health 43(4):205-209, 2015.
   - Belal US, Norose K, Mohamed RM, Sekine S, Nukaga T, Ito K, Abdellatif MZ, Abdelgelil NH, Yano A. Quantitative assessment of the effects of sulfamethoxazole on Toxoplasma gondii loads in susceptible WT C57BL/6 mice as an immunocompetent host model. Parasitol Int 65(1):1-4, 2016.
8. None

1. Pathophysiological role of p38 mitogen-activated protein kinase
2. Graduate School of Medicine / Associate Professor / Yoshitoshi Kasuya
3. U.S.A / University of California San Diego, Faculty of Medicine, Department of Pharmacology / Prof. Michael Karin
4. 2002～
5. Mitogen-activated protein kinases (MAPK) family which transduces a variety of extracellular signals to the transcriptional machinery via a cascade of protein phosphorylation plays a crucial role in a variety of cell responses, i.e. growth, differentiation, transformation, survival and apoptosis. There are three genetically distinct MAPKs in mammals, consisting of extracellular signal-regulated kinase (Erk), c-Jun N-terminal kinase (JNK) and p38 MAPK. Among them, p38 MAPK activated with extracellular stress like cytokines, UV and osmolarity shock is thought to be a critical molecule in inflammation and vascular formation. To elucidate the pathophysiological role of p38 MAPK, we use p38 MAPK knockout mice.
6. The Cosmetology Research Foundation / The NISSAN Science Foundation / The Hamaguchi Foundation for the Advancement of Biochemistry / The Takeda Science Foundation for Visionary Research / Grant-in-aid for scientific research from the Ministry of Education, Science, Sports, and Culture of Japan
7. Main result
   (1) Takanami-Ohnishi Y, Amano S, Kimura S, Asada S, Utani A, Maruyama M,Osada H, Tsunoda H,

Irukayama-Tomobe Y, Goto K, Karin M, Sudo T, and Kasuya Y. : Essential role of p38 mitogen-activated protein kinase in contact hypersensitivity. J. Biol. Chem. 2002, 277, 37896-37903

(2) Sakurai K, Matsuo Y, Sudo T, Takuwa Y, Kimura S and Kasuya Y. Role of p38 mitogen-activated protein kinase in thrombosis. J. Receptor Signal Transduction 2004, 24, 283-296

(3) Matsuo Y, Amano S, Furuya M, Namiki K, Sakurai K, Nishiyama M, Sudo T, Tatsumi K, Kuriyama T, Kimura S, and Kasuya Y: Involvement of p38alpha mitgen-activayed protein kinase in lung metastasis of tumor cells. J. Biol. Chem. 2006, 281, 36767-36775

(4) Namiki K, Nakamura A, Furuya M, Mizuhashi S, Matsuo Y, Tokuhara N, Sudo T, Hama H, Kuwaki T, Yano S, Kimura S, and Kasuya Y: Involvement of p38α mitgen-activated protein kinase in kainate-induced seizure and neuronal cell damage. J Receptor Signal Transduct. 2007, 27, 99-111

(5) Kasuya Y, Hagihara M and Sudo T: p38 inhibitor. Folia Pharmacologica Japonica 2009, 133, 357-359

(6) Namiki K, Matsunaga H, Yoshioka K, Tanaka K, Murata K, Ishida J, Sakairi A, Kim J, Tokuhara N, Shibakawa N, Shimizu M, Wada Y, Tokunaga Y, Shigetomi M, Hagihara M, Kimura S, Sudo T, Fukamizu A, and Kasuya Y: Mechanism for p38alpha-mediated experimental autoimmune encephalomyelitis. J. Biol. Chem. 2012, 287, 24228-24238

(7) Kasuya Y: p38 inhibitor. Nippon Rinsho 2014, 72 (Special Issue 3), 525-529

(8) Amano H, Murata K, Matsunaga H, Tanaka K, Yoshioka K, Kobayashi T, Ishida J, Fukamizu A, Sugiyama F, Sudo T, Kimura S, Tatsumi K, and Kasuya Y: p38 mitogen-activated protein kinase accelerates emphysema in mouse model of chronic obstructive pulmonary disease. J Receptor Signal Transduct. Res. 2014 34, 299-306

(9) Kasuya Y: Trends in functions and inhibitors of p38. Folia Pharmacologica Japonica 2015, 145, 21-26

(10) Yoshioka K, Namiki K, Sudo T, Kasuya Y: p38α controls self–renewal and fate decision of neurosphere –forming cells in adult hippocampus. FEBS Open Bio 2015 in press. DOI: 10.1016/j.fob.2015.05.001

8. Other important items to be stated

(1) Invited speaker in the 55th Annual Assembly and Scientific Meeting of the Japan College of Rheumatology (at Kobe Portopia Hotel , 2011 July)

(2) Invited speaker in the 57th Annual Assembly and Scientific Meeting of the Japan College of Rheumatology (at Kyoto International Conference Center, 2013 April)

1. Development of novel diagnostic and treatment procedures for intractable cancers by *c-myc* gene transcriptional repressor, FBP-interacting repressor (FIR).
2. Department of Molecular Diagnosis & Division of Clinical Genetics and Proteomics, Graduate School of Medicine, Chiba University / Associate Professor / Kazuyuki Matsushita
3. USA / National Institute of Health / David Levens
4. Since 2000.
5. Adenovirus or Sendaivirus FIR expression induces apoptosis in cancers in vitro and in vivo as pre-clinical study. We are planning to apply FIR gene therapy to clinical trials near future.

6. Supported by Grants from Ministry of Education and Science of Japan
7. Development of novel diagnostic and treatment procedures for intractable cancers by home-brew gene therapy in Japan.
8. Chiba University Nanohana Prise (2006). UK-JAPAN Gene Therapy Synposium in 2007 at UK Embassy (Tokyo).

1. Therapeutic application of *c-myc* gene transcriptional repressor via its apoptotic function for cancer and malignant mesothelioma treatment
2. Department of Molecular Diagnosis & Division of Clinical Genetics and Proteomics, Graduate School of Medicine, Chiba University / Associate Professor / Kazuyuki Mats ushita
3. USA / National Institute of Health / David Levens
4. Since 2000.
5. Elevated expression of *c-myc* has been detected in a broad range of human cancers, indicating a key role for this oncogene in tumor development. Recently, an interaction between FIR (FBP Interacting Repressor) and TFIIH/p89/XPB helicase was found to repress *c-myc* transcription and so might be important for suppressing tumor formation. In this study, we showed that enforced expression of FIR induced apoptosis. Deletion of FIR's amino terminal repression domain rescued the cells from apoptosis, as did co-expression of c-Myc with FIR; thus repression of myc mediates FIR-driven apoptosis. Surprisingly, a splicing variant of FIR unable to repress c-myc nor to drive apoptosis was frequently discovered in human primary colorectal cancers, but not in the adjacent normal tissues. Coexpression of this splicing variant with repressor-competent FIR, not only abrogated c-Myc suppression but inhibited apoptosis. These results strongly suggest the expression of this splicing variant promotes tumor development by disabling FIR-repression to sustain high levels of c-Myc and oppose apoptosis in colorectal cancer.
6. 1) Supported by Grants from Ministry of Education and Science of Japan
   2) Supported by Grants from JST (Japan Science and Technology Agency)
7. References
   (1) Hoshino I, Matsubara H, Akutsu Y, Nishimori T, Yoneyama Y, Matsushita K, Ochiai T. Tumor suppressor Prdx1 is a prognostic factor in esophageal squamous cell carcinoma patients. ***Oncol Rep.*** 2007 Oct;18(4):867-71
   (2) Hoshino I, Matsubara H, Akutsu Y, Nishimori T, Yoneyama Y, Murakami K, Komatsu A, Sakata H, Matsushita K, Ochiai T.. Gene expression profiling induced by histone deacetylase inhibitor, FK228, in human esophageal squamous cancer cells. ***Oncol Rep.*** 2007 Sep;18(3):585-92.
   (3) Shimada H, Okazumi S, Matsubara H, Shiratori T, Akutsu Y, Nabeya Y, Tanizawa T, Matsushita K, Hayashi H, Isono K, Ochiai T. Long-term Results after Dissection of Positive Thoracic Lymph Nodes in Patients with Esophageal Squamous Cell Carcinoma. ***World J Surg.*** 2008 Feb;32(2):255-61. Epub 2007 Dec 7.

(4) Shimada H, Matsushita K, Tagawa M. Recent advances in esophageal cancer gene therapy. ***Ann Thorac Cardiovasc Surg.*** 2008 Feb;14(1):3-8.

(5) Seimiya M, Tomonaga T, Matsushita K, Sunaga M, Oh-ishi M, Kodera Y, Meda T, Takano S, Togawa A, Yoshitomi H, Otuka M, Yamamoto M, Nakano M, Miyazaki M, Nomura F. Identificaton of novel immunohistochemical markers for primary hepatocellular carcinoma; clathrin heavy chain and formiminotransferase cyclodeaminase. ***Hepatology.*** 2008 Aug;48(2):519-30.

(6) Hoshino I, Matsubara H, Akutsu Y, Nishimori T, Yoneyama Y, Murakami K, Sakata H, Matsushita K, Komatsu A, Brooks R, Ochiai T. Role of histone deacetylase inhibitor in adenovirus-mediated p53 gene therapy in esophageal cancer. ***Anticancer Res.*** 2008 Mar-Apr;28(2A):665-71.

(7) Hoshino I, Matsubara H, Komatsu A, Akutsu Y, Nishimori T, Yoneyama Y, Murakami K, Sakata H, Matsushita K, Miyazawa Y, Brooks R, Yoshida M, Ochiai T. Combined Effects of p53 Gene Therapy and Leptomycin B in Human Esophageal Squamous Cell Carcinoma. ***Oncology.*** 2008 Sep 11;75(1-2):113-119.

(8) Shimada H, Shiratori T, Takeda A, Matsushita K, Okazumi S, Akutsu Y, Matsubara H, Nomura F, Ochiai T. Perioperative Changes of Serum p53 Antibody Titer is a Predictor for Survival in Patients with Esophageal Squamous Cell Carcinoma. ***World J Surg.*** (2009) Feb;33(2):272-7.

(9) Matsushita K, Tomonaga T, Kajiwara T, Shimada H, Itoga S, Hiwasa T, Kubo S, Ochiai T, Matsubara H, Nomura F c-myc suppressor FBP-interacting repressor for cancer diagnosis and therapy. ***Frontiers in Bioscience*** (2009) 14, 3401-3408, January 1

(10) Hattori N, Oda S, Sadahiro T, Nakamura M, Abe R, Shinozaki K, Nomura F, Tomonaga T, Matsushita K, Kodera Y, Sogawa K, Satoh M, Hirasawa H. YKL-40 identified by proteomic analysis as a biomarker of sepsis. ***Shock.*** (2009) Feb 2. [Epub ahead of print]

(11) Kawahira H, Matsushita K, Shiratori T, Shimizu T, Nabeya Y, Hayashi H, Ochiai T, Matsubara H and Shimada H. Viral shedding after p53 adenoviral gene therapy in 10 cases of esophageal cancer. ***Cancer Science.*** 2010 Jan;101(1):289-91.

(12) Murakami K, Matsubara H, Hoshino I, Akutsu Y, Miyazawa Y, Matsushita K, Sakata H, Nishimori T, Usui A, Kano M, Nishino N, Yoshida M. CHAP31 Induces Apoptosis Only via the Intrinsic Pathway in Human Esophageal Cancer Cells. ***Oncology.*** 2010 Mar 6;78(1):62-74.

(13) Kitamura A, Matsushita K, Takiguchi Y, Shimada Hideaki, Tomonaga T, Matsubara H. Inou, M, Mamoru H, Sato Y, Levens D, Tatsumi K, Nomura F. Synergistic effect of non-transmissible Sendai virus vector encoding the c-myc suppressor FUSE-binding protein-interacting repressor plus cisplatin in treatment of malignant pleural mesothelioma. ***Cancer Science.*** 2011 July 7(102):1366-1373.

(14) Matsushita K, Kajiwara T, Tamura M, Satoh M, Tanaka N, Tomonaga T, Matsubara H, Shimada H, Yoshimoto R, Ito A, Kubo S, Natsume T, Levens D, Yoshida M, Nomura F. SAP155-mediated splicing of FUSE-binding protein-interacting repressor (FIR) serves as a molecular switch for c-myc gene expression. ***Mol Cancer Res.*** 2012 Jun;10(6):787-99. doi: 10.1158/1541-7786. MCR-11-0462. Epub 2012

Apr 11.

(15) Kajiwara T, Matsushita K, Itoga S, Tamura M, Tanaka N, Tomonaga T, Matsubara H, Shimada H, Habara Y, Matsuo M, Nomura F. SAP155-mediated c-myc suppressor far-upstream element-binding protein-interacting repressor splicing variants are activated in colon cancer tissues. ***Cancer Sci.*** 2013 Feb;104(2):149-56. doi: 10.1111/cas.12058. Epub 2012 Dec 4.

(16) Matsushita K, Tamura M, Tanaka N, Tomonaga T, Matsubara H, Shimada H, Levens D, He L, Liu J, Yoshida M, and Nomura F. Interactions between SAP155 and FUSE-binding protein-interacting repressor bridges c-Myc and P27Kip1 expression. ***Mol Cancer Res.*** 2013 Jul;11(7):689-98. doi: 10.1158/1541-7786.MCR-12-0673. Epub 2013 Apr 17.

(17) Rahmutulla B, Matsushita K, Satoh M, Seimiya M, Tsuchida S, Kubo S, Shimada H, Otsuka M, Miyazaki M, and Nomura F. Alternative splicing of FBP-interacting repressor coordinates c-Myc, P27Kip1/cyclinE and Ku86/XRCC5 expression as a molecular sensor for bleomycin-induced DNA damage pathway. ***Oncotarget*** 2013. December 21,

(18) Matsushita K, Shimada H, Ueda Y, Inoue M, Hasegawa M, Tomonaga T, Matsubara H, and Nomura F. Non-transmissible Sendai virus vector encoding c-myc suppressor FBP-interacting repressor for cancer therapy. ***World J of Gastroenterology.*** 2014. Jan 20th

(19) Tanaka N, Araki K, Mizokami D, Miyagawa Y, Yamashita T, Tomifuji M, Ueda Y, Inoue M, Hasegawa M, Matsushita K, Nomura F, Shimada H, Shiotani A. Sendai virus-mediated c-myc suppressor far-upstream element binding protein interacting repressor gene transfer suppresses head and neck squamous cell carcinoma. Gene Therapy. 2015;22:297-304.

(20) Mizokami D, Araki K, Tanaka N, Suzuki H, Tomifuji M, Yamashita T, Ueda Y, Shimada H, Matsushita K, Shiotani A. Gene therapy of c-myc suppressor FUSE-binding protein-interacting repressor by Sendai virus delivery prevents tracheal stenosis. Plos One. 2015;10:e0116279.

(21) Matsushita K, Kitamura K, Rahmutulla B,, Tanaka N, Ishige T, Satoh M, Hoshino T, Miyagi S, Mori T, Itoga S, Shimada H, Tomonaga T, Kito M, Nakajima-Takagi Y, Kubo S, Nakaseko C, Hatano M, Miki T, Matsuo M, Fukuyo M, Kaneda A, Iwama A and Nomura F. Haploinsufficiency of the c-myc transcriptional repressor FIR, as a dominant negative-alternative splicing model, promoted p53-dependent T-cell acute lymphoblastic leukemia progression by activating Notch1. Oncotarget. 2015;6:5102-17

8. So far, our group made presentation at twelve meetings.

1. Role of CD69 in immune responses
2. Graduate School of Medicine / Professor / Toshinori Nakayama
3. United States of America / University of Washington / Steven Ziegler
4. from April 2001 to date
5. We are investigating the role of CD69 in Asthma induction using CD69-deficient mice. We have found that CD69 molecules are essential for theinduction of asthma

6. Ministry of Education, Science, Sports, Culture and Technology of Japan(Grant in aid for Scientific Research B)
7. Miki, H. T., Hasegawa, A., Iwamura, C., Shinoda, K., Tofukuji, S., Watanabe, Y., Hosokawa, H., Motohashi, S., Hashimoto, K., Shirai, M., Yamashita, M., and Nakayama, T.: CD69 controls the pathogenesis of allergic airway inflammation. *J. Immunol.* 183:8203-8215 (2009).
8. None.

1. Crucial role of CD8$\alpha\ \alpha$ for T cell memory survive.
2. Graduate School of Medicine / Professor / Toshinori Nakayama
   RIKEN Center for Integrative Medical Sciences, Laboratory for Lymphocyte Differentiation / Research Scientist / Ryo Shinnakasu
3. USA / La Jolla Institute for Allergy & Immunology / Dr. Hilde Cheroutre
4. 2008～
5. A hallmark of immune T cell memory is that repeated infections with a pathogen are met with more rapid and enhanced protective immunity against that organism. On the other hand, Allergy responses are caused by abnormally immunoresponse for antigens which are non-pathogen originally.
   Effector memory T cells are located at various tissues and have a heightened and immediate effector function. By contrast, central memory T cells reside within lymphoid tissues and require proliferation and differentiation to become effector cells. It becomes clear from our past study gradually that CD8 [illegible] as key components for maintain the effector memory T cells and now I am starting the analysis from a molecule level about the mechanism
6. Ministry of Education, Science, Sports, Culture and Technology of Japan(Grant in aid for Scientific Research B)
7. Mucida, D., Husain, M. M., Muroi, S., van Wijk, F., Shinnakasu, R., Naoe, Y., Reis, S. B., Huang, Y., Lambolez, F., Docherty, M., Attinger, A., Shui, J.-W., Kim, G., Lena, J. C., Sakaguchi, S., Miyamoto, C., Wang, P., Atarashi, K., Park, Y., Nakayama, T., Honda, K., Ellmeier, W., Kronenberg, M., Taniuchi, I., and Cheroutre, H.: Transcriptional reprogramming of mature CD4+ helper T cells generates distinct MHC class II-restricted cytotoxic T lymphocytes. Nat. Immunol. 14(3): 281-289 (2013).
8. None

1. *In vivo* microenvironment in immunological memory
2. Graduate School of Medicine / Professor / Toshinori Nakayama
3. Germany / German Rheumatism Research Centre / Andreas Radbruch, Koji Tokoyoda
4. 2008～
5. Understanding immunological memory leads to developing a treatment of autoimmune disease and allergy by suppressing the harmful “memory” and of cancer and infectious disease by enhancing efficient “memory”. Especially, focusing on memory CD4 T cells which work as a key component in immunological memory, we have so far clarified the maintenance mechanism of memory CD4 T cells as a pioneer in the world. We are

now analyzing the molecular mechanisms for maintenance of memory CD4 T cells and for the secondary immune response in vivo, which is the most important reaction of immunological memory. We believe that clarifying the cellular and molecular mechanisms of memory CD4 T cells in vivo provides the cienunderstanding of immunological memory.

6. Ministry of Education, Science, Sports, Culture and Technology of Japan(Grant-in-Aid for Young Scientists (Start up))

7. Main result

(1) Tokoyoda K., Hauser, A.E., Nakayama, T., Radbruch, A. Organization of immunological memory by bone marrow stroma. Nat. Rev. Immunol. 10:193-200, 2010.

(2) Tokoyoda, K., Zehentmeier, S., Radbruch, A. Organisation and maintenance of immunological memory by stroma niches. Eur. J. Immunol. 39:2095-2099, 2009.

(3) Tokoyoda, K., Zehentmeier, S., Hegazy, A.N., Albrecht, I., Grün, J.R., Löhning, M., Radbruch, A. Professional memory CD4+ T lymphocytes preferentially reside and rest in the bone marrow. Immunity 30:721-730, 2009.

(4) Shinoda, K., Tokoyoda, K., Hanazawa, A., Hayashizaki, K., Zehentmeier, S., Hosokawa, H., Iwamura, C., Koseki, H., Tumes, J. D., Radbruch, A., and Nakayama, T.: Type II membrane protein CD69 regulates the formation of resting T-helper memory. Proc. Natl. Acad. Sci. USA 109:7409-7414 (2012)

(5) Hanazawa, A., Hayashizaki, K., Shinoda, K., Yagita, H., Okumura, K., Löhning, M., Hara, T., Tani-ichi, S., Ikuta, K., Eckes, B., Radbruch, A., Tokoyoda, K., and ***Nakayama, T.***: CD49b-dependent establishment of T helper cell memory. ***Immunol. Cell Biol.*** 91:524-531 (2013).

8. The award of the Post-doctorate Prize 2010 of the Robert-Koch Foundation (November 2010)
The 5th JSI Young Investigator Award (December 2010)

1. Regulation of Th2 cell function by TSLP
2. Graduate School of Medicine / Professor / Toshinori Nakayama
3. United States of America / University of Washington / Steven Ziegler
4. 2010～
5. We investigate a role for TSLP in the modulation of Th2 cell function by TSLP, and found that TSLP enhance Th2 cell function directly.
6. Ministry of Education, Science, Sports, Culture and Technology Japan, (G-COE)
7. Main result

(1) Kitajima, M., Ito, T., Tumes, J. D., Endo, Y., Onodera, A., Hashimoto, K., Motohashi, S., Yamashita, M., Nishimura, T., Ziegler, F. S., and Nakayama, T.: Memory type 2 helper T cells induce long-lasting anti-tumor immunity by activating natural killer cells. Cancer Res. 71:4790-4798 (2011).

(2) Masayuki Kitajima Hai-Chon Lee, Toshinori Nakayama and Steven F.Ziegler. TSLP enhances the function of helper type2 cells, EJI41:1862-1870 (2011)

8. None

1.	Role of GATA3 in the development of Innate Lymphoid cells
2.	Graduate School of Medicine / Professor / Toshinori Nakayama Graduate School of Medicine / Project Associate Professor / Ryoji Yagi
3.	United States of America / National Institutes of Health / Jinfang Zhu
4.	from 2013
5.	Transcription factor GATA3 is expressed in all of Innate Lymphoid cells. GATA3 is critical for the development of all IL-7Rα-expressing ILCs. Conditionally Gata3-deficient mice fail to develop lymph node structure. Genome-wide analysis indicates that GATA3 regulates Th2-cell-related genes in ILC2s.
6.	Ministry of Education, Culture, Sports, Science and Technology (Grant-in-Aid for Research Activity Start-up)
7.	Yagi, R., Zhong, C., Northrup, D. L., Yu, F., Bouladoux, N., Spencer, S., Hu, G., Barron, L., Sharma, S., ***Nakayama, T.***, Belkaid, Y., Zhao, K., and Zhu, J.: The transcription factor GATA3 is critical for the development of all IL-7R□expressing innate lymphoid cells. ***Immunity*** 40(3): 378-388 (2014).
8.	None
1.	Role of ROG in immune response
2.	Graduate School of Medicine / Professor / Toshinori Nakayama
3.	United States of America / Memorial Sloan-Kettering Cancer Center/ Joseph C. Sun
4.	From April 2014 to date
5.	We are investigating the role of ROG in NK cells during viral infection.
6.	Ministry of Education, Science, Sports, Culture and Technology of Japan (Grant in aid for Scientific Research S) 、CREST
7.	Beaulieu, A. M., Zawislak, C. L., Nakayama, T., and Sun, J. C.: The transcription factor Zbtb32 controls the proliferative burst of virus-specific natural killer cells responding to infection. *Nat. Immunol.* 15(6):546-553 (2014).
8.	None
1.	Role of different STATs in CD4 T cells
2.	Graduate School of Medicine / Professor / Toshinori Nakayama Graduate School of Medicine / Adjunct Associate Professor / Kiyoshi Hirahara
3.	United States of America / National Institutes of Health / John J. O' Shea
4.	From April 2014 to date
5.	Interleukin-6 (IL-6) and IL-27 signal through a shared receptor subunit and employ the same downstream STAT transcription proteins, but yet are ascribed unique and overlapping functions. To evaluate the specificity and redundancy for these cytokines, we quantified their global transcriptomic changes and determined the relative contributions of STAT1 and STAT3 using genetic models and chromatin immunoprecipitation-sequencing (ChIP-seq) approaches.
6.	Ministry of Education, Science, Sports, Culture and Technology of Japan (Grant in aid for Scientific Research S) CREST

	Ministry of Education, Science, Sports, Culture and Technology of Japan (Grant in aid for Research Activity Start-up)
7.	Hirahara K, Onodera A, Villario AV, Bonelli M, Sciumè G, Laurence A, Sun HW, Brooks RS, Vahedi G, Shih HY, Gtierrez-Cruz G, Iwata S, Suzuki R, Mikami Y, Okamoto Y, Nakayama T, Holland S, Hunter CA, Kanno Y, and O'Shea JJ.: Asymmetric action of STAT transcription factors drive transcriptional outputs and cytokine specificity. Immunity (2015) in press
8.	Hirahara K, Nakayama T, Hollnad S, Hunter C, Kanno Y, O'Shea JJ. Asymmetry of STAT action in driving IL-27 and IL-6 transcriptional outputs and cytokine specificity. Keystone Symposia Mechanisms of Pro-Inflammatory Diseases(Z4) 4/19-24 2015. Olympic Valley, CA. (O/P)
1.	Role of Ezh2 in NKT-dependent immune responses
2.	Graduate School of Medicine / Professor / Toshinori Nakayama
3.	Australia / South Australian Health and Medical Research Institute / Damon Tumes
4.	from April 2015 to date
5.	We are investigating the role of Ezh2 in NKT cell dependent immune responses using Ezh2-deficient mice. We have found that Ezh2 molecule is crucial for the certain immune responses.
6.	Ministry of Education, Science, Sports, Culture and Technology of Japan(Grant in aid for Scientific Research S), AMED-CREST
7.	Now we are preparing the manuscript for submission.
8.	None.
1.	Mechanism that minimizes lineage fate errors during MHC-I positive selection in the thymus
2.	Graduate School of Medicine / Professor / Toshinori Nakayama
3.	Graduate School of Medicine / Associate Professor / Motoko Y. Kimura
4.	United States of America / National Institutes of Health / Alfred Singer
5.	From January 2014 to date
6.	MHC-I dependent positive selection gives rise to CD8+ T cells, whereas MHC-II dependent positive selection gives rise to CD4+ T cells, the event called "lineage choice". Lineage choice in the thymus is almost error-free and we have studied the mechanism of error-free linage choice.
7.	Ministry of Education, Science, Sports, Culture and Technology of Japan
8.	(Grant in aid for Scientific Research S, Scientific Research C, Research Activity Start-up)
9.	In preparation for submission
10.	None
1.	MicroRNA expression in HBV infection
2.	Department of Medicine, Graduate School of Medicine / Associate Prof. / Tatsuo Kanda
3.	Arup Banerjee PhD, Research Scientist D, Vaccine and Infectious Disease Research Center (VIDR), Translational Health Science and Technology Institute (THSTI), Haryana, India
4.	2011～

5. None
6. KANAE FOUNDATION FOR THE PROMOTION OF MEDICAL SCIENCE
7. Sarkar N, Panigrahi R, Pal A, Biswas A, Singh SP, Kar SK, Bandopadhyay M, Das D, Saha D, Kanda T, Sugiyama M, Chakrabarti S, Banerjee A, Chakravarty R. Expression of microRNA-155 correlates positively with the expression of Toll-like receptor 7 and modulates hepatitis B virus via C/EBP-β in hepatocytes. J Viral Hepat. 2015 Feb 26. doi: 10.1111/jvh.12390. [Epub ahead of print]

   Jiang X, Kanda T, Wu S, Nakamura M, Miyamura T, Nakamoto S, Banerjee A, Yokosuka O. Regulation of microRNA by hepatitis B virus infection and their possible association with control of innate immunity. World J Gastroenterol. 2014 Jun 21;20(23):7197-206. doi: 10.3748/wjg.v20.i23.7197. Review.
8. None

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1. MicroRNA expression in HBV infection
2. Department of Medicine, Graduate School of Medicine / Associate Prof. / Tatsuo Kanda
3. Runu Chakravarty, PhD, Professor, ICMR Virus Unit, Kolkata, ID & BG Hospital Campus, Kolkata, India
4. 2011～
5. None
6. None
7. Sarkar N, Panigrahi R, Pal A, Biswas A, Singh SP, Kar SK, Bandopadhyay M, Das D, Saha D, Kanda T, Sugiyama M, Chakrabarti S, Banerjee A, Chakravarty R. Expression of microRNA-155 correlates positively with the expression of Toll-like receptor 7 and modulates hepatitis B virus via C/EBP-β in hepatocytes. J Viral Hepat. 2015 Feb 26. doi: 10.1111/jvh.12390. [Epub ahead of print]

   Jiang X, Kanda T, Wu S, Nakamura M, Miyamura T, Nakamoto S, Banerjee A, Yokosuka O. Regulation of microRNA by hepatitis B virus infection and their possible association with control of innate immunity. World J Gastroenterol. 2014 Jun 21;20(23):7197-206. doi: 10.3748/wjg.v20.i23.7197. Review.
8. None

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1. Hepatitis A virus infection and severe liver diseases
2. Chiba University, Graduate School of Medicine/Associate Professor/Tatsuo Kanda, M.D.
3. Korea/ Seoul National University Bundang Hospital/Prof. Sook-Hyang Jeong
4. 2008-
5. Hepatitis A virus infection and severe liver diseases
6. Japan Agency for Medical Research and Development (AMED)
7. Main result
   (1) Kanda T, Jeong SH, Imazeki F, Fujiwara K, Yokosuka O. Analysis of 5' nontranslated region of hepatitis A viral RNA genotype I from South Korea: comparison with disease severities. PLoS One. 2010 Dec 28;5(12):e15139. doi: 10.1371/journal.pone.0015139.

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1. Hepatitis B virus infection and microRNAs
2. Chiba University, Graduate School of Medicine/Associate Professor/Tatsuo Kanda, M.D.

3. India/ Vaccine and Infectious Disease Research Center and Translational Health Science and Technology Institute/Arup Banerjee, PhD
4. 2008-
5. The roles of microRNAs in hepatitis B virus infection
6. KANAE FOUNDATION FOR THE PROMOTION OF MEDICAL SCIENCE
7. Main result
   (1) Jiang X, Kanda T, Wu S, Nakamura M, Miyamura T, Nakamoto S, Banerjee A, Yokosuka O. Regulation of microRNA by hepatitis B virus infection and their possible association with control of innate immunity. World J Gastroenterol. 2014 Jun 21;20(23):7197-206. doi: 10.3748/wjg.v20.i23.7197.
   (2) Sarkar N, Panigrahi R, Pal A, Biswas A, Singh SP, Kar SK, Bandopadhyay M, Das D, Saha D, Kanda T, Sugiyama M, Chakrabarti S, Banerjee A, Chakravarty R. Expression of microRNA-155 correlates positively with the expression of Toll-like receptor 7 and modulates hepatitis B virus via C/EBP-β in hepatocytes. J Viral Hepat. 2015 Oct;22(10):817-27. doi: 10.1111/jvh.12390.

1. Development of bronchofiberscopy equipped with endo-bronchial ultrasound (EBUS) and individualized treatments for patients with lung cancer using a needle aspiration sample by EBUS
2. Department of General Thoracic Surgery / Professor / Ichiro Yoshino
3. Canada / Toronto General Hospital, University of Toronto / Kazuhiro Yasufuku
4. 2010
5. EBUS is a novel diagnostic tool for mediastinal and hilar diseases even in outpatient clinic. In this study, the quality of ultrasound image is upgraded, and it is investigated whether the new device improve the diagnostic accuracy of metastatic node in lung cancer patients. Furthermore, micro samples obtained by the biopsy under the new EBUS are subjected to biomarker analysis in aim for establishment of individualized strategy of lung cancer.
6. Self-funding
7. Main result
   (1) Nakajima T, Yasufuku K. How I do it - Optimal methodology for multi-directional analysis of EBUS-TBNA samples. J Thorac Oncol. 2011; 6: 203-6.
   (2) Yasufuku K, Nakajima T, Fujiwara T, Yoshino I, Keshavjee S. Utility of EBUS-TBNA in the diagnosis of mediastinal masses of unknown etiology. Ann Thorac Surg. 2011; 91: 831-6.
   (3) Nakajima T, Yasufuku K. The Techniques of Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration. Innovations: Technology & Techniques in Cardiothoracic & Vascular Surgery. 2011; 6: 57-64.
   (4) Nakajima T, Yasufuku K, Suzuki M, Hiroshima K, Nakatani Y, Fujisawa T, Yoshino I. Thymidylate synthase, dihydropyrimidine dehydrogenase, thymidone phosphorylase, orotate phosphoribosyltransferase mRNA expression in lung cancer metastatic lymph node samples obtained

by endobronchial ultrasound-guided transbronchial needle aspiration – A pilot study. Clin Lung Cancer. 2011; 12: 293-7.

(5) Nakajima T, Anayama T, Waddell TK, Keshavjee S, Yoshino I, Yasufuku K. Extraction of RNA using fine needle aspiration samples stored in different conditions – a pilot study. J Bronchol Intervent Pulmonol. 2011;18:218 - 22.

(6) Nakajima T, Anayama T, Koike T, Waddell T, Keshavjee S, Kimura H, Yoshino I, Yasufuku K. Simultaneous isolation of total RNA, DNA, and protein using samples obtained by EBUS-TBNA. J Bronchol Intervent Pulmonol. 2011;18:301–5

(7) Nakajima T, Yasufuku K, Nakagawara A, Kimura H, Yoshino I. Multi-gene mutation analysis of metastatic lymph nodes in non-small cell lung cancer diagnosed by EBUS-TBNA. Chest. 2011; 140: 1319-24.

(8) Nakajima T, Anayama T, Shingyoji M, Kimura H, Yoshino I, Yasufuku K. Vascular image patterns of lymph nodes for the prediction of metastatic disease during EBUS-TBNA for mediastinal staging of lung cancer. J Thorac Oncol. 2012; 7: 1009-14

(9) Nakajima T, Anayama T, Koike T, Shingyoji M, Castle L, Kimura H, Yoshino I, Yasufuku K. Endobronchial ultrasound Doppler image features correlate with mRNA expression of HIF1-α and VEGF-C in patients with non-small cell lung cancer. J Thorac Oncol. 2012; 7: 1661-7.

(10) Nakajima T, Zamel R, Anayama T, Kimura H, Yoshino I, Keshavjee S, Yasufuku K. RNA microarray analysis from lymph node samples obtained by EBUS-TBNA. Ann Thorac Surg. 2012 2012; 94: 2097-101.

(11) Nakajima T, Yasufuku K, Saegusa F, Fujiwara T, Sakairi Y, Hiroshima K, Nakatani Y, Yoshino I. Rapid on-site cytological evaluation during EBUS-TBNA for nodal staging in patients with lung cancer. Ann Thorac Surg. 2013;95:1695-9.

(12) Nakajima T, Yasufuku K, Yoshino I. Current status and perspective of EBUS-TBNA. Gen Thorac Cardiovasc Surg. 2013;61:390-6.

(13) Yasufuku K, Nakajima T, Waddell T, Keshavjee S, Yoshino I. Endobronchial ultrasound-guided transbronchial needle aspiration for differentiating N0 versus N1 lung cancer. Ann Thorac Surg. 2013;96:1756-60.

(14) Nakajima T, Yasufuku K, Sakairi Y, Shibuya K, Yoshida S, Yoshino I. Successful treatment of lung cancer by multimodal endobronchial interventions. Respiration. 2014;88(2):144-7

(15) Wada H, Hirohashi K, Nakajima T, Anayama T, Kato T, Grindlay A, McConnell J, Yoshino I, Yasufuku K. Assessment of the new thin convex probe endobronchial ultrasound bronchoscope and the dedicated aspiration needle: a preliminary study in the porcine lung. J Bronchology Interv Pulmonol. 2015 Jan;22(1):20-7.

(16) Wada H, Anayama T, Hirohashi K, Nakajima T, Kato T, Waddell TK, Keshavjee S, Yoshino I, Yasufuku K.

Thoracoscopic ultrasonography for localization of subcentimetre lung nodules. Eur J Cardiothorac Surg. 2015, in press.

8. Other important items to be stated

(1) Young Investigator Award, CHEST 2010 Vancouver (American College of Chest Physician), 2010

(2) 2012 American Thoracic Society Travel Award Grant (Granted by Clinical Problems Committee), 2012

(3) 2nd Canadian Thoracic Society (CTS) poster competition award, 2012

(4) 日本呼吸器内視鏡学会池田賞（日本呼吸器内視鏡学会), 2012

(5) Outstanding Abstract Award by the interventional chest/diagnostic procedure network, CHEST 2012 Atlanta (American College of Chest Physician), 2012

(6) Young Investigator Award. AATS 2014, Toronto (American Association for Thoracic Surgery).

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1. Overcome of rejection reaction in transplanted lung by immunomodulation
2. Department of General Thoracic Surgery / Professor / Ichiro Yoshino
3. Suizerland / ZurichUniversity /Professor/Walter Wedar
4. 2015
5. To control rejection reaction against transplanted lung, co-stimulatory signal via CD26 was blocked by using monocle antibody in murine fully allogeneic combination model, and promising results were obtained. Further investigation is planned for large animal models, and aimed for clinical trials.
6. Self-funding
7. Main result

(1) Yamada Y, et al. CD26 costimulatory blockade improves lung allograft rejection and is associated with enhanced interleukin-10 expression. J Heart Lung Transplant 2016; 35:508-517.

8. Other important items to be stated

(1) Yamada Y. The outstanding abstract in Thoracic Surgery Society in Swizerland 2015.

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1. The technical assistance of national tuberculosis prevalence survey in Mongolia.
2. Department of Respirology, Graduate School of Medicine, Dr. Yasunori Ichimura.
3. World Health Organization (WHO) headquarter (HQ): (Geneva, Switzerland), WHO Mongolia country office: (Ulaanbaatar, Mongolia), Mongolia Ministry of Health (MOH): (Ulaanbaatar, Mongolia), the National Centre for Communicable Diseases (NCCD): (Ulaanbaatar, Mongolia)
4. 2012～
5. Summary of this project: Main targets of this project are as follows:

(1) To provide technical support for preparation and capacity building of TB prevalence survey

(2) To provide technical support in conducting survey for TB prevalence survey

(3) To support technical working group in reviewing, revising and incorporating any comments provided by the Steering Committee to survey procedures.

The main impact targets for global TB control, set within the MDGs and by the Stop TB Partnership, are to ensure that the TB incidence rate is falling by 2015, and that TB prevalence (the number of cases

of TB in the population at a given point in time) and death rates are halved by 2015 compared with their level in 1990. Achieving the impact targets set for 2015 is now the focus of national and international efforts to control TB.

TB is remaining one of the pressing issues of public health problems in Mongolia. Mongolia is one of the 7 countries with high TB burden among 37 countries of the Western Pacific Region and in our country, TB is considered as 6th leading cause for population mortality and the disease is number one cause of mortality due to communicable diseases.

The prevalence of TB is not declining considerably although the country has been achieving better TB detection, improvement in treatment outcome and shortness of treatment duration as a result of introduction of DOTS since 1994.

In 2011, the Government of Mongolia has approved a "National program for combating Communicable diseases" and the action plan for implementation of this program includes for conducting "Survey for determining TB prevalence among the population" as to find ways for improving the implementation of the program.

WHO has supported Mongolian national tuberculosis prevalence survey through dispatch of technical consultants. According to the operational feasibility including huge country area and severe winter season, this survey schedule is divided into two phases as following; Phase 1, the survey in the major cities such as Ulaanbaatar, the capital city of Mongolia; Phase 2, the survey in the rural areas. For the targets mentioned above, I have provided technical assistance in establishment of protocol, SOPs, survey planning as WHO consultant. I joined the pilot survey in October 2013, and supported the beginning of actual survey in cluster 1, 2 in April 2014, and visited there for monitoring and evaluation in the midway of Phase 1 survey. After the completion of the survey operation in December 2014, I and Dr. Farid, the Indonesian statistician, reviewed and analyzed the survey results and reported it to the vice minister of health and sports in Mongolia. Phase 2 survey will be started in the beginning of June 2015, therefore I will continue to advise on and support the survey.

6. The Grant for Dispatch of Student Abroad of Chiba University. 2013
   WHO-HQ Global TB Programme (GTB)、 The Tuberculosis Technical Assistance Mechanism (TBTEAM)
7. Paper : co-author
   PROTOCOL OF THE SURVEY TO DETERMINE TB PREVALENCE AMONG POPULATION OF MONGOLIA (Ulaanbaatar, Mongolia, 2014)
   TB PREVALENCE SURVEY AMONG POPULATION OF MONGOLIA: "STANDARD OPERATION GUIDELINE" (Ulaanbaatar, Mongolia, 2014)
8. I conducted CXR training for CXR reader/technicians at NCCD in April 2014

1. The technical support for the establishment of chest X-ray (CXR) guideline for the tuberculosis diagnosis in Mongolia.
2. Department of Respirology, Graduate School of Medicine, Dr. Yasunori Ichimura.

3. Mongolia Ministry of Health (MOH): (Ulaanbaatar, Mongolia), the National Centre for Communicable Diseases (NCCD): (Ulaanbaatar, Mongolia) , the Mongolian Radiological Society

4. 2015～

5. Summary of this project: Main targets of this project are as follows:

   (1) To provide technical support for the establishment of CXR guideline for the tuberculosis diagnosis in Mongolia

   (2) To provide technical support for the analysis of CXR images of smear positive-/ bacteriological positive-cases in Phase 1 of Mongolia nationwide tuberculosis prevalence survey

   The Government of Mongolia has conducted the nationwide tuberculosis prevalence survey since 2012 under the strong support from WHO-HQ, WHO-CO and the Global Fund to Fight AIDS, Tuberculosis and Malaria. According to the operational feasibility including huge country area and severe winter season, this survey schedule is divided into two phases as following; Phase 1, the survey in the major cities such as Ulaanbaatar, the capital city of Mongolia; Phase 2, the survey in the rural areas. The screening method was the combination of symptom and CXR, followeing the WHO task force guideline. They already completed Phase 1 survey by the beginning of December 2014, and plan to start Phase 2 survey in June 2015. Phase 1 survey detected 142 bacteriological cases in total (44 smear positive cases, 98 smear-negative culture-positive cases). The Chest Radiology Unit was established under the Mongolian Radiological Society in 2015, and they focus on the establishment CXR guideline based on the CXR images obtained in Phase 1 survey. I will continue to support the analysis of the CXR images of detected tuberculosis cases and the establishment of CXR guideline for the tuberculosis diagnosis in Mongolia in collaboration with NCCD and MOH in Mongolia.

6. undecided

7. Paper : co-author

   PROTOCOL OF THE SURVEY TO DETERMINE TB PREVALENCE AMONG POPULATION OF MONGOLIA (Ulaanbaatar, Mongolia, 2014)

   TB PREVALENCE SURVEY AMONG POPULATION OF MONGOLIA: "STANDARD OPERATION GUIDELINE" (Ulaanbaatar, Mongolia, 2014)

8. CXR training for CXR reader/technicians at NCCD in April 2014

   Review meeting for CXR images of tuberculosis detected cases in Phase 1 of Mongolia nationwide tuberculosis prevalence survey

1. The Technical Exchange Project with the National Tuberculosis Program staffs at the National Center for Communicable Diseases of Mongolia.

2. Department of Respirology/Department of Control and Treatment of Infectious Diseases, Graduate School of Medicine, Dr. Yasunori Ichimura.

3. Mongolia Ministry of Health and Sports (MOHS): (Ulaanbaatar, Mongolia), the National Centre for Communicable Diseases (NCCD): (Ulaanbaatar, Mongolia)

4. 2015～

5. Summary of this project: Main targets of this project are as follows:

   (1) To provide technical support for the establishment of CXR guideline for the tuberculosis diagnosis in Mongolia

   (2) To provide technical support for the analysis of CXR images of smear positive-/ bacteriological positive-cases in Phase 1 of Mongolia nationwide tuberculosis prevalence survey

   In Mongolia, tuberculosis is still a social problem, and tuberculosis control is one of the focused issues for the Ministry of Health and Sports of Mongolia. NCCD is the national infection control center under MOHS, has a plan to create the new national anti-Tuberculosis strategy for next five years from 2016 to 2020, for the new Sustainable Development Goals (SDGs). DOTS strategy has already been implemented since 1994, and Global Fund and WHO has assisted TB control in Mongolia with financial and technical support. Considering the current situation in Mongolia with the stable tuberculosis notification in these ten years, the current strategy has a limitation to control and eliminate tuberculosis from the community. Therefore, the introduction of new technologies is mostly encouraged for the new strategies. This project aims to learn the present state of high technology in Japan, which includes the establishment of tuberculosis surveillance system, and to utilize this knowledge for future strategies in Mongolia.

6. The Japan Science and Technology Agency／Japan-Asia Youth Exchange Program in Science" (SAKURA Exchange Program in Science)

7. Paper : co-author

   PROTOCOL OF THE SURVEY TO DETERMINE TB PREVALENCE AMONG POPULATION OF MONGOLIA (Ulaanbaatar, Mongolia, 2014)

   TB PREVALENCE SURVEY AMONG POPULATION OF MONGOLIA: "STANDARD OPERATION GUIDELINE" (Ulaanbaatar, Mongolia, 2014)

8. CXR training for CXR reader/technicians at NCCD in April 2014

   Review meeting for CXR images of tuberculosis detected cases in Phase 1 of Mongolia nationwide tuberculosis prevalence survey

Center for Forensic Mental Health

1. Biological marker of bipolar disorders
2. Center for Forensic Mental Health / Professor / Kenji Hashimoto
3. Sweden / Department of Psychiatry, Gothenburg University /Professor / Hans Agren, Professor / Mikael Landen and Professor / Keiko Funa, Karolinska Institute/ Prof. Mikael Landen
4. 2009～
5. We will study the development of biological markers in bipolar disorders.
6. KAKENHI, etc
7. Main result

- Södersten, K., Pålsson, E., Beneroso, K.L.F., Ishima, T., Landén, M., Funa, K., Hashimoto, K., and Ågren, H. (2014) Abnormality in serum levels of mature brain-derived neurotrophic factor (BDNF) and its precursor proBDNF in mood-stabilizing patients with bipolar disorder: A study from two independent sets. J. Affect. Dis. 160, 1-9.
- Pålsson, E., Jakobsson, J., Södersten, K., Fujita, Y., Sellgren, C., Ekman, C.J., Ågren, H., Hashimoto, K., and Landén, M. (2015) Markers of glutamate signaling in cerebrospinal fluid and serum from patients with bipolar disorder and healthy controls. Eur. Neuropsychopharmacol.25, 133-140.
- Yoshimi, N., Futamura, T., Kakumoto, K., Salehi, A.M., Sellgren, C., Holmén-Larsson, J., Jakobsson, J., Pålsson, E., Landén, M., and Hashimoto, K. (2015) Blood metabolomics identifies abnormalities in the citric acid, urea cycle, and amino acid metabolim in bipolar disorder. BBA Clinical 5, 151-158.
- Yoshimi, N., Futamura, T., Bergen, S.E., Iwayama, Y., Ishima, T., Sellgren, C., Ekman, C.J., Jakobsson, J., Pålsson, E., Kakumoto, K., Ohgi, Y., Yoshikawa, T., Landén, M., and Hashimoto, K. (2016) Cerebrospinal fluid metabolomics identifies a key role of isocitrate dehydrogenase in bipolar disorder: Evidence in support of mitochondrial dysfunction hypothesis. Mol. Psychiatry in press.

8. None

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1. Basic and clinical research in major depression.
2. Center for Forensic Mental Health/ Professor / Kenji Hashimoto
3. China / Department of Psychiatry ,The First Hospital, College of Medicine, Xi'an Jiaotong University / Professor / Chengge Gao
4. 2011～
5. In this study, we 1) research the relationship between cognitive function and biomarkers in Chinese major depressive disorder; 2) develop novel therapies of major depression in animal model.
6. Scholarship Donation etc.
7. Main result
   (1) Ma XC, Jiang D, Jiang WH, Wang F, Jia M, Wu, J., Hashimoto K, Dang YH, Gao CG. (2011) Social isolation-induced aggression potentiates anxiety and depressive-like behaviors in male mice subjected to unpredictable chronic mild stress. PLoS One 6 (6): e2095.
   (2) Ma XC, Dang YH, Jia M, Ma R, Wang F, Wu J, Gao GG, Hashimoto K (2013) Long-lasting antidepressant action of ketamine, but not glycogen synthase kinase-3 inhibitor SB216763, in the chronic mild stress model of mice. PLoS One 8 (2): e56053.
   (3) Zhong, N., Jiang H., Wu, J., Chen, H., Lin, S., Zhao, Y., Du, J., Ma, X.C., Chen, C., Gao, C., Hashimoto, K., and Zhao, M. (2013) Reliability and validity of the CogState battery Chinese language version in schizophrenia. PLoS ONE 8, e74258.
8. None

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1. Research on cognitive function and biomarkers in psychiatric disorders.
2. Center for Forensic Mental Health / Professor / Kenji Hashimoto

3. China / Department of Psychiatry, The First Hospital, College of Medicine, Xi'an Jiaotong University / Professor / Chengge Gao, Shanghai Mental Health Center, Shanghai Jiaotong University / Professor / Min Zhao
4. 2011～
5. We study the evaluation of reliability and validity in Chinese psychiatric disorders using Cogstate Schizophrenia Battery.
6. Scholarship Donation etc.
7. Main result
   - Zhong, N., Jiang H., Wu, J., Chen, H., Lin, S., Zhao, Y., Du, J., Ma, X.C., Chen, C., Gao, C., Hashimoto, K., and Zhao, M. (2013) Reliability and validity of the CogState battery Chinese language version in schizophrenia. PLoS ONE 8, e74258.
   - Chen, C., Jiang, W., Zhong, N., Wu, J., Jiang, H., Du, J., Li, Y., Ma, X.C., Zhao, M., Hashimoto, K., and Gao, C. (2014) Impaired processing speed and attention in first-episode drug naive schizophrenia with deficit syndrome. Schizophrenia Res. 159, 478-484.
   - Zhong, N., Jiang, H., Du, J., Zhao, Y., Sun, H., Xu, D., Li, C., Zhuang, W., Li, X., Hashimoto, K., and Zhao, M. (2016) The cognitive impairments and psychological wellbeing of methamphetamine dependent patients compared with healthy controls. Prog. Neuropsychopharmacol. Biol. Psychiatry in press.
8. None

1. Role of glutamatergic system in psychiatric diseases
2. Center for Forensic Mental Health / Professor / Kenji Hashimoto
3. Israel / Department of Psychiatry, Hebrew University / Professor / Uriel Heresco-Levy
4. 2012～
5. We discussed the role of glutamatergic markers for psychistric disorders.
6. KAKENHI、Scholarship Donation etc
7. Main result
   - Ermilov, M., Gelfin, E., Levin, R., Lichtenberg, P., Hashimoto, K., Javitt, D.C., and Heresco-Levy, U. (2013) A pilot cdouble-blind comparison of D-serine and high-dose olanzapine in treatment-resistant patients with schizophrenia. Schizophrenia Res.150, 604-605.
   - Levin, R., Abarbanel, A., Edelman, S., Durrant, A.R., Hashimoto, K., Javitt, D.C., and Heresco-Levy, U. (2015) Behavioral and cognitive effects of the N-methyl-D-aspartate receptor co-agonist D-serine in healthy humans. J. Psychiatry Res. 61, 188-195.
8. None

1. Pathophysiology of psychiatric diseases
2. Center for Forensic Mental Health / Professor / Kenji Hashimoto
3. Turkey / Department of Psychiatry, Namik Kemal University / Associate Professor / Yakup Albayrak

4. 2012～

5. We reported the papers on the pathophysiology and case reports of psychiatric disorders..

6. None

7. Main result

(1) Albayrak, Y., and Hashimoto, K. (2012) Beneficial effects of sigma-1 agonist fluvoxamine for tardive dyskinesia in patienst with post-psychotic depression: report of five cases. Primary Care Companion for CNS Disorders 14, 6.

(2) Ünsal, C., Albayrak, Y., Albayrak, N., Kuloğlu, M., Hashimoto, K. (2013) Reduced serum paraoxonase 1 (PON1) activity in patients with schizophrenia treated with olanzapine, but not quetiapine. Neuropsychiatrc Disease Treatment 9, 1545-1552.

(3) Albayrak, Y., and Hashimoto, K. (2013) Beneficial effects of sigma-1 agonist fluvoxamine for tardive dyskinesia and tardive akathisia in patients with schizophrenia: report of three cases. Psychiatry Investigation 10, 417-420.

(4) Akyol, E.S., Albayrak, Y., Beyazyüz, M., Aksoy, N., Kuloglu, M., and Hashimoto, K. (2015) Decreased serum levels of brain-derived neurotrophic factor in schizophrenic patients with deficit syndrome. Neuropsychiatr. Dis. Treatment 11, 865-872.

(5) Albayrak, Y., and Hashimoto, K. (2014) Chapter 13: Clinical implications of fluvoxamine and fluoxetine with sigma-1 receptor chaperone activity in the treatment of neuropsychiatric disorders. In: Fluoxetine: Pharmacology, Mechanisms of Action and Potential Side Effects. Edited by Pinna G., Nova Publishers, New York, pp. 279-293, 2015.

(6) Beyazyuz, M., Küfeciler, T., Bulut, L., Ünsal, C., Albayrak, Y., Baykal, S., Kuloglu, M., and Hashimoto, K. (2016) Increased serum levels of apoptosis in deficit-syndrome schizophrenia patients: A preliminary study. Neuropsychaitric Dis. Treatment in press.

8. None

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1. Biomarkers for elderly depression

2. Center for Forensic Mental Health / Professor / Kenji Hashimoto

3. USA / Nathan Kline Smith Institute, NY / Professor / Nunzio Pomara

4. 2014～

5. We have been developing the novel biomarkers for elderly depression.

6. KAKENHI、Scholarship Donation etc

7. Hashimoto, K., Bruno, D., Nierenberg, J., Marmar, C.R., Zetterberg, H., Blonnow, K., and Pomara, N. (2016) Abnormality in glutamine-glutamate cycle in the cerebrospinal fluid of cognitively intact elderly individuals with major depressive disorder: 3-year follow-up study. Transl. Psychiatry 6, e744.

8. None

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1. Mechanisms of ketamine's antidepressant effects

2. Center for Forensic Mental Health / Professor / Kenji Hashimoto

3. China/ / Department of Anesthesiology, Nanjing University / Professor / Jian-Jun Yang
4. 2014～
5. We discussed the mechanisms of ketamine's antidepressant effects.
6. KAKENHI、Scholarship Donation etc
7. Main result
   - Yang, J.J., Wang, N., Yang, C., Shi, J.Y., Yu, H.Y., and Hashimoto, K. (2015) Serum interleukin-6 is a predictive biomarker for ketamine's antidepressant effect in treatment-resistant patients with major depression. Biol. Psychiatry 77, e19-e20.
   - Liu, W.X., Wang, J., Xu, N., Xie, Z.M., Zhang, G.F., Jia, M., Zhou, Z.Q., Hashimoto, K., and Yang, J.J. (2016) Regulation of glutamate transporter via BDNF-TrkB signaling plays a role in the anti-apoptotic and antidepressant effects of ketamine in chronic unpredictable stress model of depression. Psychopharmacology 233, 405-415.
   - Sun, H.L., Zhou, Z.Q., Zhang, G.F., Yang, C., Wang, X.M., Shen, J.C., Hashimoto, K., and Yang, J.J. (2016) Hippocampal p11 plays a role in the sustained antidepressant effect of ketamine in the chronic unpredictable mild stress model. Transl. Psychiatry 6, e741.
8. None

1. Role of soluble epoxide hydrolase in psychiatric disorders
2. Center for Forensic Mental Health / Professor / Kenji Hashimoto
3. USA/UC Davis, CA/ Professor /Bruce Hammock
4. 2014～
5. We discussed the role of sEH in psychiatric disorders
6. KAKENHI、Scholarship Donation etc
7. R en, Q., Ma, M., Ishima, T., Morisseau, C., Yang, J., Wagner, K., Zhang, J.C., Yang, C., Yao, W., Dong, C., Han, M., Hammock, B.D., and Hashimoto, K. (2016) Gene deficiency and pharmacological inhibition of soluble epoxide hydrolase confers resilience to repeated social defeat stress. Proc. Natl. Acad. Sci. USA 113, E1944-E1952.
8. None

1. A study on risk assessment of the sex offender -Using the physiological tools-.
2. Center for Forensic Mental Health / Assistant Professor / Aika Tomoto
3. NY, USA / Columbia University College of Physicians &Surgeons / Associate Clinical Professor of Psychiatry, Richard Krueger, M.D.
4. From 2012
5. We will study the risk assessment of psychological tool (PPG and Reaction time) in sex offenders
6. SYAKAI ANZEN ZAIDAN
7. Publication：none
8. None

Graduate School of Pharmaceutical Sciences

1. Regulation of sulfur assimilation and secondary metabolisms in higher plants
2. Graduate School of Pharmaceutical Sciences / Professor / Kazuki Saito
3. Germany / Max Planck Institute / Rainer Hoefgen, Alisdair R. Fernie,Takayuki Tohge, Mutsumi Watanabe
4. 2009～
5. In this project, we are investigating the cellular and molecular regulation of sulfur transport, assimilation, and metabolism, and flavonoid biosynthesis in plants.
6. Grant-in-Aids for Scientific Research on Innovative Areas from the Ministry of Education, Science, Sport, Culture and Technology, Japan
7. Kazuki Saito, Keiko Yonekura-Sakakibara, Ryo Nakabayashi, Yasuhiro Higashi, Mami Yamazaki, Takayuki Tohge, Alisdair R. Fernie: The flavonoid biosynthetic pathway in Arabidopsis: Structural and genetic diversity. Phant Physiology & Biochemistry. 72, 21-34(2013)
8. None

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1. Regulation of sulfur assimilation in higher plants
2. Graduate School of Pharmaceutical Sciences / Professor / Kazuki Saito
3. Germany / University of Cologne / Stanislav Kopriva
4. 2009～
5. In this project, we are investigating the cellular and molecular regulation of sulfur transport, assimilation, and metabolism in plants.
6. Grant-in-Aids for Scientific Research on Innovative Areas from the Ministry of Education, Science, Sport, Culture and Technology, Japan.
7. Main result
   (1) Sarah G. Mugford, Naoko Yoshimoto, Michael Reichelt, Markus Wirtz, Lionel Hill, Sam T. Mugford, Yoshimi Nakazato, Masaaki Noji, Hideki Takahashi, Robert Kramell, Tamara Gigolashvili, Ulf-Ingo Flügge, Claus Wasternack, Jonathan Gershenzon, Rüdiger Hell, Kazuki Saito, Stanislav Kopriva: Disruption of adenosine-5′-phosphosulfate kinase in *Arabidopsis* reduces levels of sulfated secondary metabolites. *Plant Cell*, 21, 910–927 (2009)
   (2) Cintia G. Kawashima, Colette A. Matthewman, Siqi Huang, Bok-Rye Lee, Naoko Yoshimoto, Anna Koprivova, Ignacio Rubio-Somoza, Marco Todesco, Tina Rathjen, Kazuki Saito, Hideki Takahashi, Tamas Dalmay, Stanislav Kopriva: Interplay of SLIM1 and miR395 in the regulation of sulfate assimilation in Arabidopsis. *Plant J.*, 66, 863–876 (2011)
8. None

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1. Study on self-resistance of secondary metabolites
2. Graduate School of Pharmaceutical Sciences / Professor / Kazuki Saito
3. Thailand / Faculty of Sciences, Chulalongkorn University / Associate Professor Supaart Sirikantaramas

4. 2014～ 5. In this project, we are investigating the molecular mechanism of self-resistance to toxic plant secondary metabolites in producing plants. 6. Grant-in-Aids for Scientific Research on Innovative Areas from the Ministry of Education, Science, Sport, Culture and Technology, Japan 7. Supaart Sirikantaramas, Arthitaya Meeprasert, Thanyada Rungrotmongkol, Hideyoshi Fuji, Tyuji Hoshino, Hiroshi Sudo, Mami Yamazaki, and Kazuki Saito: Structural insight of DNA topoisomerases I from camptothecin-producing plants revealed by molecular dynamics simulations. *Phytochemistry*, 113, 50-56 (2015) 8. None
1. Study on Thai Medicinal plants 2. Graduate School of Pharmaceutical Sciences / Associate Professor / Mami Yamazaki 3. Thailand / Faculty of Pharmaceutical Sciences, Chulalongkorn University / Associate Professor Suchada Sukrong 4. 2007～ 5. In this project, we are screening medicinal plants producing compounds exhibiting specific bioactivity. 6. Grant-in-Aids for Scientific Research (C) from the Ministry of Education, Science, Sport, Culture and Technology, Japan etc. 7. Varalee Viraporn, Mami Yamazaki, Kazuki Saito, Jessada Denduangboripant, Kongkanda Chayamarit, Taksina Chuanasa and Suchada Sukrong: Correlation of camptothecin-producing ability and phylogenetic relationship in the genus Ophiorrhiza. Planta medica. 77, 759-64 (2011) 8. None
1. Molecular evolution of lysine –derived alkaloid biosynthesis 2. Graduate School of Pharmaceutical Sciences / Associate Professor / Mami Yamazaki 3. Thailand / Faculty of Pharmaceutical Sciences, Mahidol University /Somnuk Bunsupa 4. 2015～ 5. Molecular evolution of specialized metabolism is studied. 6. Grant-in-Aids for Scientific Research (C) from the Ministry of Education, Science, Sport, Culture and Technology, Japan etc. 7. None 8. None
1. Metabolomics: Advancing the Scientific Promise to Better Understand Plant Specialized Metabolism for a Low-Carbon Society 2. Graduate School of Pharmaceutical Sciences / Associate professor / Mami Yamazaki 3. United States of America / The Samuel Roberts Noble Foundation / Professor / Lloyd Sumner, United States of America / North Texas University / Professor / Richard Dixon, United States of America / Iowa State

University / Professor / Basil Nikolau

4. 2011～

5. Metabolomics is a revolutionary systems biology tool for understanding plant metabolism and elucidating gene function, however, its full scientific promise has not yet been realized due to multiple technical challenges. To address these issues, a synergistic international team of plant metabolomics was constructed and technical development will be enforced to understand carbon sequestration and allocation in relationship to energy and a low carbon society.

6. Strategic Japanese-US Joint Research Program JST-NSF

   Research Field: Metabolomics for a low carbon society

   Grant-in-Aids for Scientific Research on Innovative Areas from the Ministry of Education, Science, Sport, Culture and Technology, Japan

7. By integration of metabolomics and transcriptomics, genes and metaboliteswere annotated in several mutant Arabidopsis plants expressing heterogenous reguratory genes.

   Lloyd W. Sumner, Zhentian Lei, Basil J. Nikolau and Kazuki Saito: Modern plant metabolomics: Advanced natural product gene discoveries, improved technologies, and future prospects. *Natural Products Reports,* **32**, 212 - 229 (2015) DOI: 10.1039/c4np00072b

8. JST-NSF Metabolomics Workshop, June 27 (2014), Tsuruoka, Japan.

1. Examination of the roles of prostanoids and their receptors on cancer cells

2. Graduate School of Pharmaceutical Sciences / associate professor / Hiromichi Fujino

3. United States of America / The University of Arizona / Professor, John W. Regan

4. 2005～

5. Elucidating the mechanisms of prostanoids and their receptors signaling(s) on cellular malignancy and/or cellular development in cancer cells will be able to help estimating the molecular target(s) for novel anti-cancer therapeutics.

6. Partially from the Grants-in-Aids for Scientific Research (C).

7. Main result

   (1) Cellular density-dependent down-regulation of EP4 prostanoid receptors via the up-regulation of hypoxia-inducible factor-1α in HCA-7 human colon cancer cells. Otake S, Yoshida K, Seira N, Sanchez CM, Regan JW, Fujino H, Murayama T. Pharmacol Res Perspect. 2015;3:e00083.

   (2) A novel indole compound, AWT-489, inhibits prostaglandin D2-induced CD55 expression by acting on DP prostanoid receptors as an antagonist in LS174T human colon cancer cells. Oyama S, Fujino H, Yamazaki R, Okura I, Regan JW, Awata A, Arai T, Murayama T. Arch Biochem Biophys. 2014;541:21-9.

   (3) Induction of cyclooxygenase-2 expression by prostaglandin E2 stimulation of the prostanoid EP4 receptor via coupling to Gαi and transactivation of the epidermal growth factor receptor in HCA-7 human colon cancer cells. Yoshida K, Fujino H, Otake S, Seira N, Regan JW, Murayama T. Eur J Pharmacol. 2013;718:408-17.

(4) Prostaglandin E_2 regulates cellular migration via induction of vascular endothelial growth factor receptor-1 in HCA-7 human colon cancer cells. Fujino H, Toyomura K, Chen XB, Regan JW, Murayama T. Biochem Pharmacol. 2011;81:379-87.

(5) Assessment of constitutive activity in E-type prostanoid receptors. Fujino H, Murayama T, Regan JW. Methods Enzymol. 2010;484:95-107.

8. The Pharmaceutical Society of Japan Award for Divisional Scientific Promotions (4B), Kobe, Japan 2015. 3. 25

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1. Mechanisms of substrate recognition by AAA+ proteases, ClpXP and Lon
2. Graduate School of Pharmaceutical Sciences / Associate professor / Akiko Takaya
3. Canada, University of Toronto / Professor / Walid Houry
4. ４．2005～
5. Biochemical approaches and bioinformatics to reveal the mechanism of recognition of novel substrates proteins for AAA+ proteases, ClpXP and Lon.
6. Grants-in-Aids from the Ministry of Education, Science, Sport, Culture and Technology, Japan
7. Main result

(1) Takaya A., Kubota Y., Isogai E., Yamamoto T. Degradation of the HilC and HilD regulator proteins by ATP-dependent Lon protease leads to downregulation of Salmonella pathogenicity island 1 gene expression. Mol. Microbiol. 55: 839-852. (2005)

(2) Takaya A., Matsui M., Tomoyasu T., Kaya M., Yamamoto T. The DnaK chaperone machinery converts the native FlhD2C2 hetero-tetramer into a functional transcriptional regulator of flagellar regulon expression in Salmonella. Mol. Microbiol. 59:1327-1340 (2006)

8. 2008, The 91st Japanese Society for Microbiology General Meeting Kanto Branch

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1. Molecular mechanisms of Salmonella Pathogenesis
2. Graduate School of Pharmaceutical Sciences / Associate professor / Akiko Takaya
3. UK / Imperial college London / Professor / David Holden
4. 2008～
5. Molecular mechanisms of *Salmonella*-host interaction are studied.
6. Grants-in-Aids from the Ministry of Education, Science, Sport, Culture and Technology, Japan
7. Main result

(1) Takaya A., Suzuki A., Kikuchi Y, Eguchi M., Isogai E., Tomoyasu T., Yamamoto T. Depression of Salmonella pathogenicity island 1genes within macrophages leads to rapid apoptosis via capase-1-and caspase-3-dependent pathways. Cell. Microbiol. 7:79-90 (2005)

(2) Matsui M., Takaya A., Yamamoto T. σ32-mediated negative regulation of *Salmonella* pathogenicity island 1 expression. J. Bacteriol. 190:6636-6645 (2008)

(3) Kitagawa R., Takaya A., Ohya M., Mizunoe Y., Takade A., Yoshida S., Isogai E., Yamamoto T. Biogenesis of *Salmonella enterica serovar* Typhimurium membrane vesicles provoked by induction of

pagC. J. Bacteriol. 192:5645-5656 (2010)

8. 2011, Japanese Society for Microbiology Award

1. Chemical studies on indole alkaloids from Rubiaceous plants growing in Yunnan Province, China.
2. Graduate School of Pharmaceutical Sciences / Professor / Hiromitsu Takayama
3. China / Kumming Medical College / Professor / Rongping Zhang
4. 2006～
5. Isolation, structure elucidation and biological evaluation of indole alkaloids from Kopsia plant (Rubiaceae) growing in Yunnan Province, China.
6. Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science, The Uehara Memorial Foundation.
7. Main result
   (1) Y. Wu, M. Kitajima, N. Kogure, R. Zhang, H. Takayama : Two Novel Indole Alkaloids, Kopsiyunnanines A and B, from a Yunnan Kopsia. Tetrahedron Lett., 49, 5935-5938 and 6596 (2008).
   (2) Rhazinilam and Quebrachamine Derivatives from Yunnan Kopsia arborea. Y. Wu, M. Suehiro, M. Kitajima, T. Matsuzaki, S. Hashimoto, M. Nagaoka, R. Zhang, and H. Takayama. J. Nat. Prod., 72, 204-209 (2009).
   (3) Kopsiyunnanines F and Isocondylocarpines: New Tubotaiwine-type Alkaloids from Yunnan Kopsia arborea. Y. Wu, M. Kitajima, N. Kogure, Y. Wang, R. Zhang, and H. Takayama. J. Nat. Med., 63, 283-289 (2009).
   (4) Two New Aspidosperma Indole Alkaloids from Yunnan *Kopsia arborea.* Y. Wu, M. Kitajima, N. Kogure, Y. Wang, R. Zhang, and H. Takayama. *Chem. Pharm. Bull.*, **58**, 961-963 (2010).
   (5) Chemical Conversion of Strychnine into Kopsiyunnanine-I, a New Hexacyclic Indole Alkaloid from Yunnan *Kopsia arborea*. N. Kogure, Y. Suzuki, Y. Wu, M. Kitajima, R. Zhang, and H. Takayama. *Tetrahedron Lett.*, **53** (48), 6523-6526 (2012).
8. None

1. Chemical studies on the alkaloidal constituents in the Pandanus plants (Pandanaceae) native to the tropical area.
2. Graduate School of Pharmaceutical Sciences / Professor / Hiromitsu Takayama
3. Philippines / Santo Tomas University / Professor / Maribel G. Nonato
4. 2000～
5. Isolation, structure elucidation, synthetic study, and pharmacological investigation of the alkaloidal constituents in the *Pandanus plants* (Pandanaceae) native to the tropical area. Isolation of secondary metabolites of endophytic fungus isolated from *Pandanus species*.
6. None
7. Main result
   (1) Isolation and Structure Elucidation of Two New Alkaloids, Pandamarilactonine-C and -D, from

Pandanus *amaryllifolius* and Revision of Relative Stereochemsitry of Pandamarilactonine-A and -B by Total Synthesis. H. Takayama, T. Ichikawa, M. Kitajima, M. G. Nonato, and N. Aimi. *Chem. Pharm. Bull.*, 50, 1303-1304 (2002)

(2) Isolation and Total Syntheses of Two New Alkaloids, Dubiusamines-A and-B, from *Pandanus dubius*. M. A. Tan, M. Kitajima, N. Kogure, M. G. Nonato, and H. Takayama. *Tetrahedron*, **66**, 3353-3359 (2010).

(3) New Pyrrolidine Alkaloids from the Roots of *Pandanus amaryllifolius*. M. A. Tan, M. Kitajima, N. Kogure, M. G. Nonato, and H. Takayama. *Tetrahedron Lett.,* **51**, 4143-4146 (2010).

(4) Isolation of Pandamarilactonine-H from the Roots of Pandanus *amaryllifolius* and Synthesis of epi-Pandamarilactonine-H. M. A. Tan, M. Kitajima, N. Kogure, M. G. Nonato, and H. Takayama. *J. Nat. Prod.*, **73**, 1453-1455 (2010).

(5) Total Synthesis of Dubiusamine C, A Plausible Minor Alkaloid in *Pandanus dubius*. M. A. Tan, N. Kogure, M. Kitajima, and H. Takayama. *Phillippine* Sci. Lett., **4,** 98-102 (2011).

(6) Bioactive Metabolites of Diaporthe Sp. P133, an Endophytic Fungus Isolated from *Pandanus amaryllifolius*. M. E. Bungihan, M. A. Tan, M. Kitajima, N. Kogure, S. G. Frazblau, T. E. E. dela Cruz, H. Takayama, and M. G. Nonato. *J. Nat. Med.*, **65,** 606-609 (2011).

(7) Secondary Metabolites from *Pandanus simplex*. M. A. Tan, M. G. Nonato, M. Kitajima, N. Kogure, and H. Takayama. *Biochem. Syst. Ecol.*, **40**, 4-5 (2012).

(8) A New Macrolide isolated from the Endophytic Fungus *Colletotrichum* sp. M. E. Bungihan, M. A. Tan, H. Takayama, T. E. E. dela Crus, and M. G. Nonato: *Phillippine Sci. Lett.*, **6** (1), 57-73 (2013).

8. None

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1. Chemical studies on indole alkaloids from *Ophiorrhiza plants* (Rubiaceae).
2. Graduate School of Pharmaceutical Sciences / Professor / Hiromitsu Takayama
3. Thailand / Faculty of Pharmacy, Chiang Mai University / Professor / Dammrong Santiarworn
4. 2013～
5. Isolation and structure elucidation of indole alkaloids from *Ophiorrhiza pltans* (Rubiaceae).
6. Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science
7. Main result

(1) ß-Carboline-type Indole Alkaloid Glycosides from *Ophiorrhiza trichocarpon*. M. Kitajima, S. Ohara, N. Kogure, D. Santiarworn, and H. Takayama. *Tetrahedron*, **69** (45), 9451-9456 (2013).

8. None

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1. Chemical studies on the constituents in the rubiaceous plants endemic to the Philippines.
2. Graduate School of Pharmaceutical Sciences / Professor / Hiromitsu Takayama
3. Philippines / College of Science, Santo Tomas University / Assistant Professor / Mario A. Tan
4. 2013
5. Isolation and structure elucidation of the constituents in the endemic Philippine rubiaceous plants.

6. JASSO Follow-up Reseach Fellowship

7. Main result

(1) Isolation and Identification of Vomifoliol from Two Endemic Philippine Rubiaceae Species, *Psychotria gitingensis* and *Villaria odorata*. M. A. Tan, J. A. Eusebio, R. A. P. Villacorta, N. Kogure, H. Takayama, and G. Jonathan D. Alejandro. *Asia-Pac. J. Sci. Math. Eng.*, **1** (1), 1-3 (2013).

(2) Chemotaxonomic Relevance of the Constituents from the Leaves of *Rothmannia merrillii*. M. A. Tan, C. N. L. Concepcion, G. J. D. Alejandro, and H. Takayama *J. Chem. Pharm. Res.*, 6 (6), 779-781 (2014).

(3) Chemical Constituents from *Psychotria cadigensis* and Their Chemotaxonomic Relevance. M. A. Tan, G. F. M. Panghulan, M. M. Uy, and H. Takayama. *Am. J. Ess. Oils Nat. Prod.*, 1 (4), 18-19 (2014).

(4) Iridoids and a Norsesquiterpenoid from the Leaves of *Villaria odorata*. M. A. Tan, R. A. U. Villacorta, G. J. D. Alejandro, and H. Takayama. Nat. Prod. *Commun.*, 9 (9), 1229-1230 (2014).

8. None

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1. Chemical studies on indole alkaloids from Thai Rubiaceous plants.

2. Graduate School of Pharmaceutical Sciences / Professor / Hiromitsu Takayama

3. Thailand / Faculty of Pharmacy, Chulalongkorn University / Professor / Sumphan Wongseripipatana

4. 2014～

5. Isolation, structure elucidation and biological evaluation of indole alkaloids from *Kopsia* plant (Rubiaceae) growing in Thailand.

6. Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science

7. Main result

(1) Indole alkaloids from *Kopsia jasminiflora*. M. Kitajima, M. Anbe, N. Kogure, S. Wongseripipatana, and H. Takayama. *Tetrahedron*, 70 (47), 9099-9106 (2014).

8. None

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1. Studies on the cellular toxicology of mitragynine, alkaloid of *Mitragyna speciosa.*

2. Graduate School of Pharmaceutical Sciences / Professor / Hiromitsu Takayama

3. U. K. / Imperial College London / Professor / Nigel J. Gooderham

4. 2015

5. Cellular toxicological studies of mitragynine, the dominant alkaloid of the narcotic-like herb, *Mitragyna speciosa.*

6. None

7. Main result

(1) The Cellular Toxicology of Mitragynine, the Dominant Alkaloid of the Narcotic-like Herb, *Mitragyna speciosa* Korth. N. A. Saidin, E. Holmes, H. Takayama, and N. J. Gooderham. *Toxicol. Res. (Cambridge, U. K.),* **4** (5), 1173-1183 (2015).

8. None

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1. Development of a new 99mTc radiopharmaceutical for sentinel lymph node identification.

2. Graduate School of Pharmaceutical Sciences / Professor / Yasushi Arano

3. Greece / Institute of Radioisotopes and Radiodiagnostic Products, NCSR Demokritos

4. 2007 ～

5. The development of a new 99mTc-radiopharmaceutical useful for identification of sentinel lymph node.

6. 2007 – 2011: International Atomic Energy Agency

   2012 ～ : None

7. Main result

   (1) New 99mTc(CO)3 Mannosylated Dextran Bearing D-Derivatized Cysteine Chelator for Sentinel Lymph Node Detection. Pirmettis, I., Arano, Y., Tsotakos, T., Yamaguchi, A., Uehara, T., Morais, M. Correia, J.D.G., Santos, I., Martins, M., Pereira, S., Triantis, C., Kyprianidou, P., Pelecanou, M., Papadopoulos, M.

   Mol. Pharmaceutics 9, 1681-1692, 2012.

   (2) Injection Site Radioactivity of 99mTc-Labeled Mannosylated Dextran for Sentinel Lymph Node Mapping.

   Yamaguchi, A., Hanaoka, H., Pirmettis, I., Uehara, T., Tsushima, Y., Papadopoulos, M., Arano, Y.

   Mol. Pharmaceutics 12, 514-519, 2015.

8. None

1. Functions of the trophinin and its related gene products

2. Graduate School of Pharmaceutical Sciences / Professor / Naoto Yamaguchi

3. The United States of America / Sanford-Burnham Medical Research Institute / Professor Michiko N. Fukuda

4. 2005～

5. Study of the structure, localization, and signal transduction of trophinin and magphinin, which are cell adhesion molecules involved in embryo implantation.

6. Grants-in-aid for Scientific Research from the Japanese Ministry of Education, Culture, Sports, Science and Technology; Takeda Science Foundation; National Institutes of Health Grant; US Army prostate cancer IDEA Grant, etc.

7. Main result

   (1) Aoyama J, Nakayama Y, Sugiyama D, Saburi S, Nadano D, Fukuda MN, and Yamaguchi N: Apical cell adhesion molecule, trophinin, localizes to the nuclear envelope. FEBS Lett, 579: 6326-6332 (2005).

   (2) Sugihara K, Sugiyama D, Byrne J, Wolf DP, Lowitz KP, Kobayashi Y, Kabir-Salmani M, Nadano D, Aoki D, Nozawa S, Nakayama J, Mustelin T, Ruoslahti E, Yamaguchi N, and Fukuda MN: Trophoblast cell activation by trophinin ligation is implicated in human embryo implantation. Proc Natl Acad Sci USA, 104: 3799-3804 (2007).

   (3) Aoyama J, Akazawa Y, Kasahara K, Higashiyama Y, Kikuchi I, Fukumoto Y, Saburi S, Nakayama Y, Fukuda MN, and Yamaguchi N: Nuclear localization of magphinins, alternative splicing products of the human trophinin gene. J Cell Biochem, 103: 765-777 (2008).

(4) Yuki R, Aoyama K, Kubota S, Yamaguchi N, Kubota S, Hasegawa H, Morii M, Huang X, Liu K, Williams R, Fukuda MN, and Yamaguchi N: Overexpression of Zinc-finger protein 777 (ZNF777) inhibits proliferation at low cell density through down-regulation of FAM129A. J Cell Biochem, 116: 954-968 (2015).

8. None

1. Functional analysis of ATF and JDP2
2. Graduate School of Pharmaceutical Sciences / Professor / Naoto Yamaguchi
3. Taiwan / Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University / Professor Kazunari K. Yokoyama
4. 2009～
5. Study of signal transduction through and Activating Transcription Factor (ATF) and Jun Dimerization Protein 2 (JDP2)
6. Grants-in-aid for Scientific Research from the Japanese Ministry of Education, Culture, Sports, Science and Technology; National Science Councils in Taiwan; National Health Research Institutes in Taiwan; Kaohsiung Medical University Research Foundation, etc.
7. Main result

(1) Nakade K, Pan J, Yamasaki T, Noguchi M, Masuzaki S, Kishikawa S, Murata T, Zhu ZW, Chen XY, Hasegawa H, Yamaguchi N, Tsai EM, Lee JN, and Yokoyama KK: Role of histone chaperone JDP2 in replicative senescence. Curr Top Biochem Res, 11: 75-97 (2009).

(2) Pan J, Nakade K, Huang YC, Zhu ZW, Masuzaki S, Hasegawa H, Murata T, Yoshiki A, Yamaguchi N, Lee CH, Yang WC, Tsai EM, Obata Y, and Yokoyama KK: Suppression of cell-cycle progression by Jun dimerization protein-2 (JDP2) involves downregulation of cyclin-A2. Oncogene, 29: 6245-6256, 2010.

(3) Huang YC, Hasegawa H, Wang SW, Ku CC, Lin YC, Chiou SS, Hou MF, Wu DC, Tsai EM, Saito S, Yamaguchi N, and Yokoyama KK: Jun dimerization protein 2 controls senescence and differentiation via regulating histone modification. J Biomed Biotechnol, 2011: 569034 (2011).

(4) Chiou SS, Wang SSW, Wu DC, Lin YC, Kao LP, Kuo KK, Wu CC, Chai CY, Lin CLS, Lee CY, Liao YM, Wuputra K, Yang YH, Wang SW, Ku CC, Nakamura Y, Saito S, Hasegawa H, Yamaguchi N, Miyoshi H, Lin CS, Eckner R, and Yokoyama KK: Control of oxidative stress and generation of induced pluripotent stem cell-like cells by Jun Dimerization Protein 2. Cancers, 5: 959-984 (2013).

(5) Tanigawa S, Lee CH, Lin CS, Ku CC, Hasegawa H, Qin S, Kawahara A, Korenori Y, Miyamori K, Noguchi M, Lee LH, Lin YC, Steve Lin CL, Nakamura Y, Jin C, Yamaguchi N, Eckner R, Hou DX, and Yokoyama KK: Jun dimerization protein 2 is a critical component of the Nrf2/MafK complex regulating the response to ROS homeostasis. Cell Death Dis, 4: e921 (2013).

(6) Hasegawa H, Ishibashi K, Kubota S, Yamaguchi C, Yuki R, Nakajo H, Eckner R, Yamaguchi N, Yokoyama KK, and Yamaguchi N: Cdk1-mediated phosphorylation of human ATF7 at Thr-51 and Thr-53 promotes cell-cycle progression into M phase. *PLoS One*, 9: e116048 (2014).

(7) Ku CC, Hasegawa H, Lin CS, Tsai MH, Wuputra K, Eckner R, Yamaguchi N, and Yokoyama KK: Control of the cell cycle and mitosis by phosphorylated activating transcription factor 2 and its homologue 7. *J Nat Sci,* 1: e74 (2015).

8. None

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1. Analysis of apoptotic activities of the extract from *Moringa oleifera* leaves on human colon cancer cells
2. Graduate School of Pharmaceutical Sciences / Professor / Naoto Yamaguchi
3. Thailand / Faculty of Pharmacy, Silpakorn University / Professor / Perayot Pamonsinlapatham, Auayporn Apirakaramwong
4. 2014～
5. Investigation of the anti-proliferative activity present in the methanol extract from M. *oleifera* leaves toward human HCT116 colon cancer cells
6. Grants from the Excellent International Student Scholarship between Chiba University and Silpakorn University, the Thailand Research Fund (TRF)
7. Main result

   (1) Tragulpakseerojn J, Yuki R, Honda T, Morii M, Apirakaramwong A, Yamaguchi N, Pamonsinlapatham P, and Yamaguchi N: Apoptotic activities of the extract from *Moringa oleifera* leaves on human HCT116 colon cancer cells. *Fund Toxicol Sci*, 1: 143-149 (2014).

8. Ms Jintana Tragulpakseerojn, a Silpakorn University graduate student, was selected in the Double Degree Program between the Graduate School of Pharmaceutical Sciences, Chiba University and the Faculty of Pharmacy, Silpakorn University, and conducted research in Graduate School of Pharmaceutical Sciences, Chiba University in 2014.

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1. Artificial oxygen carrier with cobalt-substituted myoglobin.
2. Graduate School of Pharmaceutical Sciences／Professor／Saburo Neya
3. USA／Department of Biophysics, Medical School, University of Pennsylvania／Professor Takashi Yonetani
4. 2014
5. Development of artificial oxygen carrier with the myoglobin containing cobalt heme group.
6. Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science.
7. Saburo Neya, Takashi Yonetani, Akira T. Kawaguchi: Usefulness of Myoglobin Containing Cobalt Heme Cofactor in Designing a Myoglobin-Based Artificial Oxygen Carrier. Artificial Organs 38, 715-719 (2015).
8. Not available

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1. Mechanism for antimony toxicity in mammalian cells
2. Graduate School of Pharmaceutical Sciences / Professor / Yasumitsu Ogra
3. Chile／Faculty of Chemistry, Valparaiso Pontifical University of Catholic／Associate Professor Waldo Emerzon Quiroz Venegas
4. 2015～
5. We evaluate the toxicity of inorganic antimony compounds by advanced hyphenated techniques and

molecular biology.

6. Grant for Ph.D. candidates from Chilean Ministry of Education
7. None
8. None

1. Speciation of trace elements in food by mass spectrometry
2. Graduate School of Pharmaceutical Sciences / Professor / Yasumitsu Ogra
3. Spain / Faculty of Chemistry, Complutense University of Madrid / Professor Yolanda Madrid Albarran
4. 2015～
5. We evaluate the effects of trace elements in foods, food additives and food containers in terms of toxicology and nutritional chemistry.
6. Invitation Fellowship for Research in Japan (Short-term), JSPS
7. None
8. None

1. Investigation of chemical species of antimony in environmental water in Eastern and Mid-Southern China
2. Graduate School of Pharmaceutical Sciences / Professor / Yasumitsu Ogra
3. China / School of Medicine and Public Health, Zhejian University / Professor Hua Naranmandura
4. 2015～
5. We intend to clarify the relationship between the chemical species and toxicological effects of antimony compounds in environmental water in the antimony mining area of China.
6. Grant-in-Aid for Scientific Research (B), MEXT and JSPS
7. None
8. None

School of Nursing

1. Cross-Cultural Research : A Comparison of the Quality of Teaching-Learning Process in Japan and China; Focusing on Nursing Lectures
2. Naomi Funashima / Chiba University, Graduate School of Nursing / Professor
3. Zao Qui-li / Herbin Medical University, School of Nursing / China
4. 2007～
5. Japanese and Chinese nurses have deepened mutual understanding for many years. To deepen further cultural exchanges, each nursing faculty in Japan and China has to know each current status of educational activities and its features.

   So, the purpose of this research project is to explore the similarities and differences in the quality of the teaching-learning process of nursing lectures in Japan and China, toward enriching nursing faculty development by both countries' collaboration.

   The progress of the research project is following procedure. The Scale for Evaluating Nursing Lectures,

Japanese original version (ENL-J) was developed to measure the quality of the teaching-learning process of nursing lectures by Graduate School of Nursing, Chiba University. At first, The Scale for Evaluating Nursing Lectures, Chinese version (ENL-C) was developed by using the back-translation technique and had well established validity and reliability. The second, we clarified the quality of teaching-learning process in Japan. The third, we clarified the quality of teaching-learning process in China. The fourth, we compared the quality of teaching-learning process in Japan and China, and clarified the similarities and differences.

Now, we are exploring the factors related to each quality of teaching-learning process in Japan and China. Furthermore, we will conduct another qualitative research for the development of Scale for Evaluating Nursing Lectures, Chinese original version. An ENL-C was addressed in a specialized book which Zao Qui-li published in China.

6. Nothing
7. Main result
   - Zhao Qiu-Li : Development of Teachers' Lecture Performance Assessment Scale in Chinese Version. 1st Chinese-Japanese-Korean Academic Exchange Conference on Nursing, Beijing, 2009.
   - Kameoka T., Funashima N., Zao Qui-li, Yang Shufen, Nomoto Y., Miura H., Nakayama T., Hattori M., Xie Da-min, and Liu Wei-wei : A Comparison of Quality of Teaching-Learning Process in Japan and China; Focusing on Nursing Lectures. 1st Chinese-Japanese-Korean Academic Exchange Conference on Nursing, Beijing, 2009.
   - Zao Qui-li, Yang Shufen, Funashima N., Nomoto Y. et al : Development of Teachers' Lecture Performance Assessment Scale in Chinese Version, Chinese Nursing Management, 10(4), 46-48, 2010.
   - Kameoka T., Funashima N., Zao Qui-li, Yang Shufen, Liu WeiWei, Ma JinFeng, Nomoto Y., Nakayama T., Hattori M.: Comparison of the Quality of the Teaching-Learning Process in Lecthres of Basic Nursing Education in Japan and China. The Journal of Nursing Studies National College of Nursing, Japan, 10(1), 2011.

1. Cross-Cultural Research : A Comparison of Role Model Behaviors of Nursing Faculty in Japan and China, Toward Enriching Development of Nursing Faculty
2. Naomi Funashima / Chiba University, Graduate School of Nursing / Professor
3. Zao Qui-li / Herbin Medical University, School of Nursing / China
4. 2007～
5. Japanese and Chinese nurses have deepened mutual understanding for many years. To deepen further cultural exchanges, each nursing faculty in Japan and China has to know each current status of educational activities and its features.

   So, the purpose of this research project is to explore the similarities and differences between role model behaviors of nursing faculty in Japan and China, toward enriching nursing faculty development by both countries' collaboration.

   The focus of this research project is role model behaviors of nursing faculty. It was defined as behaviors

which reflect the attitude of nursing professionals to perform various functions, students observe their faculty's teaching activities and their nursing practice, and sympathize and identify with them as their ideal status.

Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty, Japanese original version (RMBNF-J) was developed to measure the quality of the role model behaviors of nursing faculty by Graduate School of Nursing, Chiba University. At first, Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty, Chinese version (RMBNF-C) was developed by using the back-translation technique and had well established validity, reliability and equality with RMBNF-J. In The second, we clarified the current status of role model behaviors of nursing faculty in BSN programs in China, compared the quality of role model behaviors of nursing faculty between China and Japan, and clarified the similarities and differences. In addition, we had a presentation about this research at the nursing congress in China, and an original article appeared in an academic journal in China. An RMBNF-C was addressed in a specialized book which Zao Qui-li published in China.

Now, the nursing faculty in the United States and Thailand has participated in our research project, so we will compare the role model behaviors of nursing faculty in four countries. Furthermore, the nursing faculty in Colombia and Panama will participate in our research.

6. Nothing

7. Main result

- Funashima N., Sadahiro W., Kameoka T.,and Suzuki M.: Development of Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty－Based on the Qualitative Research Findings－. Journal of School of Nursing, Chiba University, 24, 2003.
- Hongo K., Funashima N., and Sugimori M. : Role Model Behaviors of Nurse Faculty and Their Association to Their Attributes in Japan. 37th Biennial Convention Sigma Theta Tau International Honor Society of Nursing, Toronto, 2003.
- Zhao Qiu-Li, Funashima N., Kameoka T., Nomoto Y., Nakayama T. et al: Development of Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty, Chinese Version. 7th Chinese Higher Nursing Education Congress, 2010.
- Zhao Qiu-Li et al: Role Model Behaviors for Nursing Faculty in Sahaliyan ula, China. Journal of Nursing Administration in China, 2010
- Zhao Qiu-Le, Yang Shu-Fen, Funashima N., Kameoka T., Xie Da—Ming, Huang Fei-Fei, Nomoto Y, Nakayama T : Chinesization and Evaluation of Self-Evaluation Scale on Role Modes Behaviors for Nursing Faculty. Nurs J Chin PLA, 28(5A), 1-4, 2011.
- Kameoka T., Funashima N., Gorzka P., Hongo K., Yamashita., Nakayama T., Hattori M. : Role Model Behaviors of Nursing Faculty in Japan and the United State. Journal of Japanese Society of Nursing Science for National Health Services, 12(1), 1－7, 2013.

1. Cross-Cultural Research : A Comparison of Role Model Behaviors of Nursing Faculty in Japan and Thailand,

Toward Enriching Development of Nursing Faculty

2. Naomi Funashima, Chiba University, Graduate School of Nursing, Professor

3. Areewan K. Chiang Mai University, Thailand

4. 2009～

5. To deepen cultural exchange between Japan and Thailand, each nursing faculty in both countries has to know each current status of educational activities and its features.

So, the purpose of this research project is to explore the similarities and differences between role model behaviors of nursing faculty in Japan and Thailand, toward enriching nursing faculty development by both countries' collaboration.

The focus of this research project is role model behaviors of nursing faculty. It was defined as behaviors which reflect the attitude of nursing professionals to perform various functions, students observe their faculty's teaching activities and their nursing practice, and sympathize and identify with them as their ideal status.

Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty, Japanese original version (RMBNF-J) was developed to measure the quality of the role model behaviors of nursing faculty by Graduate School of Nursing, Chiba University. Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty, Thai version (RMBNF-T) is being developed by using the back-translation technique, and had well established validity, reliability and equality with RMBNF-J. The second, we clarified the current status of role model behaviors of nursing faculty in BSN programs in Thailand. The third, we clarified the similarities and differences through comparison of the quality of role model behaviors of nursing faculty between Thailand and Japan, an original article appeared in an academic journal overseas.

Now, we are preparing to develop a Chinese Original Version "Self-Evaluation Scale on Role Model Behaviors of Nursing Faculty".

6. Nothing

7. Main result

- Funashima N., Sadahiro W., Kameoka T.,and Suzuki M.: Development of Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty－Based on the Qualitative Research Findings－.Journal of School of Nursing, Chiba University, 24, 2003.
- Hongo K., Funashima N., and Sugimori M. : Role Model Behaviors of Nurse Faculty and Their Association to Their Attributes in Japan. 37th Biennial Convention Sigma Theta Tau International Honor Society of Nursing, Toronto, 2003.
- Klunklin,A., Funashima,N., Kameoka,T., Nomoto,Y., Nakayama,T.: Role Model Behaviors of Nursing Faculty Members in Thailand. Nursing and Health Sciences, 13, 84-87, 2011.
- Kameoka T., Funashima N., Areewan K., Nomoto Y., Nakayama T., Piyawan S., Nongkran V. : Comparison of Role Model Behaviors of Nursing Faculty in Thailand and Japan. International Conference Interprofessional Partnership: Improvement for Global Health Outcomes, 172, 2012.

1. Development of an Original Chinese Version “Scale for Evaluating Nursing Lectures” and “Self-Evaluation Scale on Role Model Behaviors of Nursing Faculty” : Toward Enriching Development of Nursing Faculty
2. Naomi Funashima / Chiba University, Graduate School of Nursing / Professor
3. Zao Qui-li / Herbin Medical University, School of Nursing / China
4. 2009～
5. Japanese and Chinese nurses have deepened mutual understanding for many years. To deepen further cultural exchanges, each nursing faculty in Japan and China has to know each current status of educational activities and its features.

   So, the purpose of this research project is to develop two scales for evaluating “The Scale for Evaluating Nursing Lectures”, Chinese original version (ENL-C), and “Self-Evaluation Scale on Role Model Behaviors of Nursing Faculty”, Chinese original version.

   The Scale for Evaluating Nursing Lectures, Japanese original version (ENL-J) was developed to measure the quality of the teaching-learning process of nursing lectures by graduate school of nursing, Chiba University. At first, to reveal the evaluation point by students about the quality of the teaching-learning process of nursing lectures in China, data were collected from nursing students in China and were translated into Japanese. The second, the data were analyzed inductively. In the result, criteria which nursing students evaluate the teaching-learning process of nursing lectures were identified. The third, the items of the scale were made based on qualitative and inductive research findings. An ENL-C had 36 items with a 5-point Likert scale. Content validity of the scale was established by a panel of experts. The forth, it was confirmed that the ENL-C had high internal consistency, construct validity and criterion-related validity through analyzing the data of a survey about 6 lectures which Chinese nursing faculty give. Now, we are preparing to submit an original article in an academic journal overseas.

   To develop the Self-Evaluation Scale on Role Model Behaviors for Nursing Faculty, Chinese original version has been developed to measure the quality of the role model behaviors of nursing faculty in China, our project, at first, has collected data from students in China. From now on, through analyses, we will clarify student’s perception of their faculty’s role model behaviors in China, and develop the scale on the result of the qualitative research, well established validity and reliability.
6. Nothing

1. Continuing Education in Nursing for Patient Safety; Offering Continuing Education Programs Which Japanese and Chinese Nurses Plan in Cooperation to Ensure Patient Safety
2. Naomi Funashima / Chiba University, Graduate School of Nursing / Professor
3. Zao Qui-li / Herbin Medical University, School of Nursing / China
4. 2015～
5. Recently medical malpractice occurs frequently. Healthcare professionals in all countries need to prevent medical malpractice and to ensure patients safety. Japanese and Chinese hospital nurses will be able to plan educational programs for patient safety in cooperation through calling upon a great amount of expertise. The

outcome of the research project lead to resolve common issues about patient safety facing both countries and to reduce medical malpractice.

So, the purpose of this research project is to clarify the common issues and inherent issues for Japanese and Chinese hospital nurses about patient safety to plan the educational programs reflect features of the issues in both countries.

The progress of the research project is following procedure. A Self-Evaluation Scale of Patient Safety Behavior for Ward Nurses, Japanese original version (SPSBW-J) was developed to measure the quality of the patient safety behavior by Graduate School of Nursing, Chiba University. At first, The Self-Evaluation Scale of Patient Safety Behavior for Ward Nurses, Chinese version (SPSBW-C), was developed by using the back-translation technique with cooperation from Chinese hospital nurses. To utilize the SPSBW-J for Japanese nurses in nursing practice widely, the scale was published in Japanese books in 2015.

Next, we clarified current status of the quality of the patient safety behavior of Japanese hospital nurses and shared it among co-researchers. Now, we will conduct a survey of about eight-hundred Chinese nurses by using the SPSBW-C to clarify current status of the quality of the patient safety behavior of Chinese hospital nurses.

6. Nothing
7. Main result
   - Funashima N.: A Collection of Scales to Utilize in Nursing Practice and Education, third ed., IGAKU-SHOIN Ltd, 2015.
   - Funashima N.: Planning, Conducting and Evaluating of In-service Education Programs, second ed., IGAKU-SHOIN Ltd, 2015.

1. An examination of home care team activities that enable elderly living alone or with dementia to live in a familiar community.
2. Graduate School of Nursing / Professor / Sayuri Suwa
3. Finland / Seinäjoki University of Applied Sciences / Helli Kitinoja
4. 2013～
5. The purpose of this study is to clarify the state of activities conducted by home care teams that enable elderly to live in a familiar community with a focus on elderly with dementia and elderly living alone, whose numbers are expected to increase in Japan in the future. Specifically, we explore circumstances in Finland regarding matters such as family support, pharmacotherapy for elderly with dementia, and difficulties in performance of daily living activities to gain suggestions for home care and dementia care in Japan.
6. Grants-in-Aid for Scientific Research (Scientific Research(B)), Grants-in-Aid for Scientific Research (Grant-in-Aid for Young Scientists(B))
7. Main result
   (1) Sayuri Suwa, Mayuko Tsujimura, Atsuko Shimamura, Helli Kitinoja, Jaakko Kontturi, Minori Tokui, Ayano Inuyama: Providing assistance in drug administration to elderly with dementia and their

families in Finland and the UK. Journal of Graduate School of Nursing, Chiba University, 38, 1-10, 2016.

(2) Mayuko Tsujimura, Sayuri Suwa, Atsuko Shimamura, Tomoko Iwasaki: Coping with elderly with dementia in Finnish communities: Based on interviews with experts on elderly care that utilized fictional cases. Journal of Graduate School of Nursing, Chiba University, 36, 11-19, 2014.

(3) Mayuko Tsujimura, Sayuri Suwa, Atsuko Shimamura: Home care team activities supporting elderly living alone in Finland. Proceedings of the 34th Academic Conference of Japan Academy of Nursing Science, 352, 2014.

(4) Sayuri Suwa, Mayuko Tsujimura, Atsuko Shimamura: Providing assistance in drug administration to elderly with dementia and their families in Finland. Proceedings of the 34th Academic Conference of Japan Academy of Nursing Science, 561, 2014.

8. Not available

Graduate School of Engineering

1. Symbiosis Building of PLUS50
2. Graduate School of Engineering / Professor / Hideki Kobayashi, Assistant Professor / Jung Ji-Young
3. Korea / Korea Institute of Construction Technology / Ph.D. Kim, Soo-Am
4. 2007～
5. The legal system and policies of open building
6. R&D program (Korea Institute of Construction Technology)
7. We are preparing the first joint paper.
8. None

1. Molecular Design of New Electron Donating Polymer
2. Graduate School of Engineering / Associate Professor / Yuji Sasanuma
3. United Kingdom / Imperial College (Department of Chemistry) / Dr. Joachim H. G. Steinke and Dr. Robert V. Law
4. From 2002
5. Intramolecular and intermolecular interactions of polyethers, polysulfides, and polyamines, which have been recently attracted attention to because of their applications to polymer electrolytes and gene delivery polymers, have been revealed and investigated. On the basis of the information thus obtained, molecular design of electron donating polymers has been attempted.
6. The Grand-in-Aid for Scientific Research(c) (No. 14655003)
   The Asahi Glass Foundation
7. Main result
   ① Yuji Sasanuma, Satoshi Hattori, Shinichi Imazu, Tomoyoshi Kaizuka, Takayuki Iijima, Misa Sawanobori, Muhammand A. Azam, Robert V. Law, and Joachim H. G. Steinke : Intramolecular and

Intermolecular Hydrogen Bonds Found in Poly(ethylene imine) and Its Model Compounds, IUPAC Polymer Conference on the Mission and Challenges of Polymer Science and Technology (Kyoto), 44PA-018, 2002年12月4日.

② Yuji Sasanuma： Intramolecular Interactions of Polyethers and Polysulfides, Investigated by NMR, Ab Initio Molecular Orbital Calculations, and Rotational Isomeric State Scheme: An Advanced Analysis of NMR Data, *Annual Reports on NMR Spectroscopy*, Vol. 49, (G. A. Webb Ed.), Academic Press (Elsevier Science), New York; Chapter 5 ， 2003年5月.

③ Yuji Sasanuma, Satoshi Hattori, Shinichi Imazu, Satoshi Ikeda, Tomoyoshi Kaizuka, Takayuki Iijima, Misa Sawanobori, Muhammad A. Azam, Robert V. Law, and Joachim H. G. Steinke, "Conformational Analysis of Poly(ethylene imine) and Its Model Compounds: Rotational and Inversional Isomerizations and Intramolecular and Intermolecular Hydrogen Bonds", *Macromolecules*, 37, 9169-9183 (2004).

*There are some publications and oral presentations in Japanese (not shown here).

8. None

1. Preparation and characterization of nano materials
2. Graduate School of Engineering / Associate Professor / Nobuyuki ICHIKUNI
3. France / CEA-Grenoble / Dr. Hanako Okuno
4. From 2013
5. Nano materials have been attracted due to its novel properties such as nanosize effect. Since nano-technology is an originally multidisciplinary field, the collaboration work will be required. Development of novel nano materials will be discussed in this collaboration especially for the synthesis and structural analysis.
6. The Grant-in-Aid for Scientific Research (C) (No. 23560928) , The Grant-in-Aid for Scientific Research (C) (No. 26420784)
7. Main result

(1) XAFS and HAADF STEM combined characterization for size regulated Ni nanocluster catalyst and its unique size dependence for water gas shift reaction, Hirotake Kitagawa, Nobuyuki Ichikuni, Hanako Okuno Takayoshi Hara, Shogo Shimazu, Appl. Catal. A:General, DOI:10.1016/j.apcata.2014.03.031.

(2) Oxygen pretreatment temperature effect of cobalt oxide nanocluster catalyst on CO oxidation reaction activity, Toshiki FUJII, Nobuyuki ICHIKUNI, Hanako OKUNO, Yasutaka INOUE, Kiyotaka NAKAJIMA, Michikazu HARA, Takayoshi HARA, Shogo SHIMAZU, The 94th Annual Meeting of CSJ (2H3-42) (Nagoya, Japan), 2014.3.28.

(3) Dependency of surface Co chemical state of Co oxide nanocluster on the oxidation reaction, Toshiki FUJII, Nobuyuki ICHIKUNI, Hanako OKUNO, Yasutaka INOUE, Kiyotaka NAKAJIMA, Michikazu HARA, Takayoshi HARA, Shogo SHIMAZU, 114th CATSJ Meeting (2G10) (Hiroshima, Japan), 2014.9.26.

(4) Structural investigation of supported Co oxide nanocluster catalyst using XAFS and XPS, Nobuyuki

Ichikuni, Toshiki Fujii, Hanako Okuno, Yasunori Inoue, Kiyotaka Nakajima, Michikazu Hara, Takayoshi Hara, Shogo Shimazu, Pacifichem2015 (PHYS377) (Honolulu, USA), 2015.12.16

8. None

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1. Connection behaviour, robustness and modeling of structures in fire
2. Graduate School of Engineering / Associate Professor / Takeo Hirashima
3. U.K. / The University of Sheffield / Ian Burgess
4. Oct. 2010 to present
5. Discussion on connection behaviour, robustness and modeling of structures in fire.
6. None
7. Main result
   (1) Takeo Hirashima, Mariati Taib, Bernice Wong and Ian Burgess, The behaviour of steel beams with moment-resisting beam-splice connections in fire, Proceedings of 7th International Conference on Structures in Fire, Jun. 2012
   (2) Mariati Taib, Ian Burgess and Takeo Hirashima, A component-based model for moment-resisting beam-splice connections with high-strength bolts at elevated temperature, Proceedings of 7th International Conference on Structures in Fire, Jun. 2012
8. None

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1. Asia VLF Observation Network: AVON Project
2. Graduate School of Engineering／Assistant Professor／Hiroyo Ohya
3. Taiwan／National Cheng Kung University／Dr. Alfred B. Chen
   Tailand／Chulalongkorn University／Prof. Thanawat Jarupongsaku
   Indonesia／LAPAN／Mr. Timbul Manik
   Philippines／PAGASA and University of Philippines／Dr. Esperanza Cayanan
   Vietnam／AMO／Prof. Hiep Hoang Gia
4. 2007 to present
5. In this project, we first installed a VLF(3-30 kHz)/LF(30-300 kHz) observation network in Southeast Asia to investigate the D/E region ionosphere and lightning locations. This project is an international joint research of 6 countries, and an useful ground observation network to reveal a long-term variations in the lower ionosphere at low-mid latitudes.
6. The Grant-in-Aid for Scientific Research (B) (No. 25302005)
7. Reflection height of daytime tweek atmospherics during the solar eclipse of 22 July 2009, Ohya, H., F. Tsuchiya, H. Nakata, K. Shiokawa, Y. Miyoshi, K. Yamashita, and Y. Takahashi, J. Geophysical Research, 117, doi:10.1029/2012JA018151, 2012.
8. None

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1. Development of high sensitive process tomography
2. Graduate School of Engineering / Professor /Masahiro TAKEI

3. Viet Nam / Hanoi University of Science and Technology / Dr. TRINH　Quang Duc
   Indonesia/Bandung Institute of Technology/Prof. DEDDY Kurniadi
   Malaysia/National University of Malaysia/Prof. MOHD SOBRI Takriff
   Malaysia/ University Technology Malaysia/ Dr. Maziah binti Mohamad
4. 2015～
5. Vietnam, Malaysia, Indonesian university students who want to enter the graduate school of engineering Chiba University are encouraged to study the tomography technology that is indispensable to the field of mechanical, medical and energy equipment design in order to make the opportunity of studying the highest technology in Japan for the excellent international students.
6. JST Japan-Asia Youth Exchange Program in Science
7. None
8. Other important items to be stated
   - The bilateral research collaboration with Dr. TRINH Quang Duc, Hanoi University of Science and Technology was accepted by JSPS 2015 Bilateral program (MOST).
   - Mr.Ahmad Azahari Bin Hamzah of Malaysian National University which participated in this project entered in the doctoral course of graduate school engineering graduate course Chiba University in April, 2016.

1. Thrombus visualization measurement in blood flow by process tomography
2. Graduate School of Engineering / Professor /Masahiro TAKEI
3. UK / The University of Manchester / Prof. YANG Wuqiang
4. 2015～
5. A highly precise electric circuit, inverse problem, elucidation algorithm were developed in the blood flow by using process tomography (PT) method for the purpose of improvement of clot precision detection.
6. JSPS Invitation Fellowship for Research in Japan(Short –Team)
7. None
8. Prof.Yang gave a lecture entitled “Electrical Capacitance Tomography & Industrial Applications” and provided an opportunity to understand tomography to the students and the lecturer.

1. Real-time Visualization of Particle Behaviors in a Swing Circulating Fluidized Bed
2. Graduate School of Engineering / Professor /Masahiro TAKEI
3. China / Xi`an University of Technology / Dr. Zhao Tong
4. From 2013
5. We studied a highly precise measurement of tow phase flow for the purpose of the use promotion of shipping exhaust heat exchange system contributing to energy saving, the environmental conservation of the ship by paying attention to a circulation fluidized bed, and clarifying influence of the two phase flow movement.
6. JSPS Postdoctoral Fellowship for Foreign Researchers
7. Main result

(1) Tong Zhao, Jiafeng Yao, Kai Liu, and Masahiro Takei, Investigation of particle inertial migration in high particle concentration suspension flow by multi-electrodes sensing (MES) and Eulerian-Lagrangian simulation in a square microchannel, Biomicrofluidics, AIP, Vol. 10, pp.204120 [DOI:10.1063/1.4946012] (2016)

(2) T.Zhao, Y.Nakamura, H.Murata and M.Takei, The effect of rolling amplitude and period on particle distribution behavior in a rolling circulating fluidized bed, Powder Technology, Elsevier, Vol. 294, pp.484-492 [DOI:10.1016/j.powtec.2016.03.018] (2016)

(3) T.Zhao, T.Eda, S.Achyut, J.Haruta, M.Nishio and M.Takei, Investigation of Pulsing Flow Regime Transition and Pulse Characteristics in Trickle-bed Reactor by Electrical Resistance Tomography, Chemical Engineering Science, Elsevier, Vol. 130, No.7 pp.8-17,[DOI:10.1016/j.ces.2015.03.010](2015)

(4) T.Zhao, Z.Wang ,M.Takei, K.Liu and Y.Cui, Investigation of the Dispersion Behavior of Inertial Particles within Accelerated Domain, Journal of Applied Fluid Mechanics, Vol.8, No.1, pp.103-112, 2015

(5) T.Zhao, K.Liu, H.Murata, K.Harumi, M.Takei, Investigation of Bed-to-wall Heat Transfer Characteristics in a Rolling Circulating Fluidized Bed, Powder Technology, Powder Technology, Elsevier, Vol. 269, pp 46-54, [DOI:10.1016/j.powtec.2014.08.068] (2014)

(6) Z.Wang, T.Zhao, K.Liu, M.Takei, Euler-Lagrange simulation of the fine particle discharge rate under accelerated air ventilation circumstances, Japanese Journal of Multipurpose Flow, Vol.28, No.3 pp 355-365 (2014)

(7) T. Zhao, K. Liu, and M. Takei, Experimental and numerical investigation of particle distribution behaviors in a rolling circulating fluidized bed, Powder Technology, Elsevier, Vol. 258 pp 38-48 (2014)

8. We concluded the sister relationship agreement between Xi'an science and technology university, department of engineering in July, 2014.

1. Reconstruction of unsteady and three-dimensional density field by background oriented schlieren (BOS) technique
2. Graduate School of Engineering / Associate Professor / Masanori Ota
3. France / French-German Research Institute of Saint-Louis (ISL) / Dr. Friedrich Leopold
4. 2015 ~
5. Reconstruction of density field by Background Oriented Schlieren (BOS) technique and its application to various experiments.
6. Japan Society for the Promotion of Science (JSPS) bilateral joint research projects (SAKURA program)
7.
8.

Graduate School of Advanced Integration Science

1. Electronic structure of organic semiconductor interfaces

2. Graduate School of Advanced Integration Science / Research fellow / Nobuo Ueno

3. China / Department of Physics and Materials Science, City University of Hong Kong / Prof. S. T. Lee
   China / Functional Nano & Soft Materials Laboratory (FUNSOM), Soochow University / Prof. J.Tang

4. From Oct.2005

5. Electronic structure of functional organic thin films are studied by using high resolution ultraviolet photoelectron spectroscopy.

6. Century COE program and Global COE Program and Grant-in-Aid for Scientific Research (A) etc.

7. Main result

   (1) Jin-Peng Yang, Yan Xiao, Yan-Hong Deng, Steffen Duhm, Nobuo Ueno, Shuit-Tong Lee, Yan-Qing Li, and Jian-Xin Tang, Electric-field-assisted charge generation and separation process in transition metal oxide-based interconnectors for tandem organic light-emitting diodes, Adv. Func. Mater. 22, 600-608 (2012).

   (2) Ai-Li Shi, Yan-Qing Li, Zai-Quan Xu, Fu-Zhou Sun, Jian Li, Xiao-Bo Shi, Huai-Xin Wei, Shuit-Tong Lee, Satoshi Kera, Nobuo Ueno, and Jian-Xin Tang, Inverted polymer solar cells integrated with small molecular electron collection layer, Org. Electron. 14, 1844–1851 (2013).

8. None

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1. Electron spectroscopic investigation of electronic structure in low-dimensional organic semiconductor thin films

2. Graduate School of Advanced Integration Science / Research fellow / Nobuo Ueno

3. Indian Institute of Technology (IIT@Madras) / Prof. A. Patnaik

4. 2002～

5. Low-dimensional electronic states in organic semiconductor thin films and local electronic structure at molecule-electrode contact are studied.

6. JSPS Invitation fellowship program for research in Japan (long term), 21 Century COE program etc.

7. Main result

   (1) Archita Patnaik, Hiroyuki Setoyama and Nobuo Ueno, Surface / Interface Electronic Structure in C60 Anchored Aminothiolate Self-Assembled Monolayer: An Approach to Molecular Electronics
   J. Chem. Phys. 120(13), 6214-6221 (2004), Selected to Virtual Journal of Nanoscale Science & Technology 9(12),(2004).

   (2) Archita Patnaik, Koji K. Okudaira, Satoshi Kera, Hiroyuki Setoyama, Kazuhiko Mase and Nobuo Ueno, Polarized near-edge x-ray-absorption fine structure spectroscopy of C60-functionalized 11-amino-1-undecane thiol self-assembled monolayer:Molecular orientation and Evidence for C60 aggregationm J. Chem. Phys. 122, 154703-9(2005). Selectedto Virtual Journal of Nanoscale Science & Technology 11(17), (2005).

8. None

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1. High-resolution UPS studies on electronic states of oriented molecular films

2. G-COE, Graduate School of Advanced Integration Science / Research fellow / Nobuo Ueno
3. Sweden / Linkoeping University / Prof. William E. Salaneck
   Sweden / Linkoeping University / Dr. Rainer Friedlein
   USA / Georgia Institute of Technology / Prof. G-L. Bredas
4. Continued from 2003
5. Band dispersion of angle-resolved UPS based on quantitative analysis of the UPS intensity.
6. Grant-in-Aid for Creative Scientific Research of JSPS, 21 Century COE program, Grant-in-Aid for Scientific Research (A) and Global COE Program, research grant.
7. Main result
   (1) H. Yamane, S. Nagamatsu, H. Fukagawa, S. Kera, R. Friedlein, K.K. Okudaira, and N. Ueno, Hole-vibration coupling of the highest occupied state in pentacene thin films, Phys. Rev. B 72, 153412-1-4 (2005). Selected for Virt. J. Nano. Sci. & Tech., 12(20) 2005 and Virt. J. Ultrafast Sci., 4(11) 2005.
   (2) H. Yamane, S. Nagamatsu, H. Fukagawa, S. Kera, K.K. Okudaira, N. Ueno and R. Friedlein, Hole-vibration coupling in the uppermost valence band photoemission of pentacene monolayer on graphite, Mol. Cryst. Liq. Crys. 455, 235-240 (2006).
8. "The 6th Japan-Sweden Workshop on Advanced Spectroscopy of Organic Materials for Electronic Applications"(ASOMEA-VI) ,23-26, November 2011, Kaga-Onsen, Ishikawa.

1. Interface electronic states of single-molecular devices and organic devices
2. G-COE, Graduate School of Advanced Integration Science / Research fellow / Nobuo Ueno
3. Israel / Weizmann Inst. Science / Prof. David Cahen
   USA / Princeton University / Antoine Kahn
   Germany / Universität Würzburg / Prof. E. Umbach and Prof. A. Schoell
4. Continued from Nov. 2005
5. Electronic structure of the molecule-metal link in a single molecular device is studied.
6. Grant-in-Aid for Creative Scientific Research of JSPS,21st Century COE program, Grant-in-Aid for Scientific Research (A) and Global COE Program, research grant, etc.
7. Main result
   (1) F. Amy, C. K. Chan, W. Zhao, J. Hyung, M. Ono, T. Sueyoshi, S. Kera, G. Nesher, A. Salomon, L. Segev, O. Seitz, H. Shpaisman, A. Schoell, M. Haeming, T. Bo1cking, D. Cahen, L. Kronik, N. Ueno, E. Umbach, and A. Kahn, Radiation damage to alkyl chain monolayers on semiconductor substrates investigated by electron spectroscopy, J. Phys. Chem. B. 110, 21826-21832 (2006).
   (2) Hagay Shpaisman, Oliver Seitz, Omer Yaffe, Katy Roodenko, Luc Scheres, Han Zuilhof, Yves J. Chabal, Tomoki Sueyoshi, Satoshi Kera, Nobuo Ueno, Ayelet Vilan and David Cahen, Structure Matters: Correlating temperature dependent electrical transport through alkyl monolayers with vibrational and photoelectron spectroscopies, Chemical Science (RSC), 3(3), 851-862 (2012).

8. “Workshop on the Nature of Gap States in Organic Devices”, 18(Fri) Jan. 2013 @ Global COE meeting room, Chiba University

1. Electronic states of organic-related interfases
2. ２． G-COE, Graduate School of Advanced Integration Science / Research fellow / Nobuo Ueno
3. USA / Princeton University / Antoine Kahn
4. Continued from April 2001
5. Electronic structure of the molecule-metal interface in organic devices is studied.
6. Grant-in-Aid for Creative Scientific Research of JSPS, 21st Century COE program and Global COE Program, research grant, etc.
7. Main result
   (1) K.K.Okudaira, H. Setoyama, H. Yagi, M. Mase, S. Kera, A. Kahn and N. Ueno, Study of excited states of fluorinated copper phthalocyanine by inner shell excitation, J. Electron Spec. & Relat. Phenom.137-140, 137-140 (2004).
   (2) S. Kera, Y. Yabuuchi, H. Yamane, H. Setoyama, K.K. Okudaira, A. Kahn, and N. Ueno, Impact of an interface dipole layer on molecular level alignment at an organic-conductor interface studied by UPS, Phys. Rev. B. 70(8), 085304-1-6 (2004).
   (3) Fabio Bussolotti, Satoshi Kera, Kazuhiro Kudo, Antoine Kahn and Nobuo Ueno, Gap states in pentacene thin film induced by inert gas exposure, Phys. Rev. Lett. 110, 267602-1-5 (2013).
8. January, every year. Chiba University, Joint discussion meeting.

1. Studies of structure and electronic states at well-characterized organic interfaces
2. G-COE, Graduate School of Advanced Integration Science / Research fellow / Nobuo Ueno
3. Germany / Humboldt University(Berlin) / Prof. N. Koch
   Germany / Tuebingen University / Prof. F. Schreiber
4. Continued from September 2004
5. Interface structure and molecular-orientation dependent electronic structure of organic-metal interfaces are studied
6. 21st Century COE program and Global COE Program and Grant-in-Aid for Scientific Research (A) , research grant.
7. Main result
   (1) S. Duhm, I. Salzmann, N. Koch.,H. Fukagawa, T. Kataoka, S. Hosoumi, K. Nebashi, S. Kera, and N. Ueno, Vacuum sublimed □, □dihexylsexithiophene thin films: Correlating electronic structure and molecular orientation, J. Appl. Phys. 104, 033717-1-7(2008).
   (2) Steffen Duhm, Shunsuke Hosoumi, Ingo Salzmann, Alexander Gerlach, Martin Oehzelt, Bernhard Wedl, Tien-Lin Lee, Frank Schreiber, Norbert Koch, Nobuo Ueno, and Satoshi Kera, Influence of intramolecular polar bonds on interface energetics in perfluoro-pentacene on Ag(111) , Phys. Rev. B81, 045418-1-6 (2010).

(3) Steffen Duhm, Qian Xin, Norbert Koch, Nobuo Ueno, and Satoshi Kera, Impact of alkyl side chains at self-assembly, electronic structure and charge arrangement in sexithiophene thin films, Organic Electronics 12, 903–910 (2011).

(4) T. Hosokai, H. Machida, S. Kera, A. Gerlach, F. Schreiber, and N. Ueno, Impact of structural imperfections on the energy level alignment in organic thin films, Phys. Rev. B, 83, 195310-1-7 (2011).

(5) G. Heimel, S. Duhm, I. Salzmann, A. Gerlach, A. Strozecka, J. Niederhausen, C. Bürker, T. Hosokai, I. Fernandez-Torrente, G. Schulze, S. Winkler, A. Wilke, R. Schlesinger, J. Frisch, B. Bröker, A. Vollmer, B. Detlefs, J. Pflaum, S. Kera, K. J. Franke, N. Ueno, J. I. Pascual, F. Schreiber, and N. Koch, Charged and metallic molecular monolayers through surface-induced aromatic stabilization, Nature Chem. 5, 187–194 (2013).

(6) Eds. N. Koch, N. Ueno, and A. T. S. Wee, Book editor and Preface, "*The Molecule-Metal Interface*", (Wiley, 2013).

(7) N. Ueno, N. Koch and A. T. S. Wee, "*Introduction to the Molecule–Metal Interface*" in "*The Molecule-Metal Interface*", Eds. N. Koch, N. Ueno, and A. T. S. Wee, Chap. 1, pp.1-14, (Wiley, 2013).

(8) N. Koch, N. Ueno and A. T. S. Wee, "*General Outlook*" in "*Molecule-Metal Interface*", Eds. N. Koch, N. Ueno, and A. T. S. Wee, pp.251-252 (Wiley, 2013).

(9) Steffen Duhm, Christoph Buerker, Jens Niederhausen, Ingo Salzmann, Takuya Hosokai, Julien Duvernay, Satoshi Kera, Frank Schreiber, Norbert Koch, Nobuo Ueno, and Alexander Gerlach, Pentacene on Ag(111): Correlation of bonding distance with intermolecular interaction and order, ACS Appl. Mater. Interfaces, 5, 9377–9381 (2013).

(10) Jens Niederhausen, Steffen Duhm, Georg Heimel, Christoph Buerker, Qian Xin, Andreas Wilke, Antje Vollmer, Frank Schreiber, Satoshi Kera, Juergen P. Rabe, Nobuo Ueno, and Norbert Koch, Seleno groups control the energy-level alignment between conjugated organic molecules and metals, J. Chem. Phys. 140, 014705-1-12 (2014).

8. Sept 17-25, 2011, Berlin, Germany, The KOSMOS Summer University 2011 "Frontiers of Organic/Inorganic Hybrid Materials for Electronics and Optoelectronics".

1. Interfaces electronic states of organic-based devices
2. G-COE, Graduate School of Advanced Integration Science / Research fellow / Nobuo Ueno
3. Singapore / National University of Singapore / Prof. A. Wee and Dr. W. Chen
4. Continued from April 2009
5. Electronic structure of the molecule-metal interface in organic devices is studied.
6. JSPS program, Grant-in-Aid for Scientific Research (A) and G-COE, research grant.
7. Main result

(1) Yu Li Huang, Rui Wang, Tian Chao Niu, Satoshi Kera, Nobuo Ueno, Jens Pflaum, Andrew Thye Shen Wee, and Wei Chen, One Dimensional Molecular Dipole Chain Arrays on Graphite via Nanoscale Phase Separation, Chem. Commun. 46 (47), 9040 – 9042 (2010).

(2) Hong Ying Mao, Fabio Bussolotti, Dong-Chen Qi, Rui Wang, Satoshi Kera, Nobuo Ueno, Andrew Thye Shen Wee, and Wei Chen, Mechanism of the Fermi Level Pinning at Organic Donor-Acceptor Heterojunction Interfaces, Org. Electronics 12, 534–540 (2011).

(3) Tian Chao Niu, Yu Li Huang, Jia Tao Sun, Satoshi Kera, Nobuo Ueno, Andrew Thye Shen Wee, and Wei Chen, Tunable two-dimensional molecular dipole dot arrays on graphite, Appl. Phys. Lett. 99, 143114-1-3, (2011).

(4) Yu Li Huang, Yunhao Lu, Tian Chao Niu, Han Huang, Satoshi Kera, Nobuo Ueno, Andrew Thye Shen Wee, and Wei Chen, Reversible Single-Molecule Switching in an Ordered Monolayer Molecular Dipole Array, Small, 8(9), 1423–1428 (2012)

(5) Y. L. Huang, W. Chen, F. Bussolotti, T. C. Niu, A. T. S. Wee, N. Ueno, and S. Kera, Impact of molecule-dipole orientation on energy level alignment at the submolecular scale, Phys. Rev. B87, 085205-1-6 (2013).

(6) Satoshi Kera, Shunsuke Hosoumi, Kazushi Sato, Hirohiko Fukagawa, Shin-ichi Nagamatsu, Yoichi Sakamoto, Toshiyasu Suzuki, Han Huang, Wei Chen, Andrew Thye Shen Wee, Veaceslav Coropceanu, and Nobuo Ueno, Experimental reorganization energies of pentacene and perfluoropentacene: Effects of perfluorination, J. Phys. Chem. C, 117 (43), 22428–22437 (2013).

(7) Fabio Bussolotti, Jinpeng Yang, Alexander Hinderhofer, Yu Li Huang, Wei Chen, Satoshi Kera, Andrew T.S. Wee, and Nobuo Ueno, Origin of the energy level alignment at organic/organic interfaces: The role of structural defects
Phys. Rev. B 89, 115319-1-7 (2014).

(8) Yu Li Huang, Elisabeth Wruss, David A. Egger, Satoshi Kera, Nobuo Ueno, Wissam A. Saidi, Tomas Bucko, Andrew T. S. Wee, Egbert Zojer,Understanding the adsorption of CuPc and ZnPc on noble metal surfaces by combining quantum-mechanical modelling and photoelectron spectroscopy, Molecules 19, 2969-2992 (2014).

8. None

1. Power-scaling of a diode-pumped Nd doped solid-state lasers with a bounce amplifier geometry
2. Graduate School of Advanced Integration Science / Professor / Takashige Omatsu
3. UK / Imperial College London / Prof. M. J. Damzen
4. Feb.1997-present
5. We have investigated power scaling issues of diode-pumped Nd doped bounce laser amplifiers based on highly doped Nd: YAG ceramic as well as Nd doped mixed vanadates.
6. The Scientific Exchange Programme of the Japan Society for the Promotion of Science.
   The Joint Research Project of the Japan Society for the Promotion of Science
7. Main result
   - 10 journal papers have been published.
   - 102conference papers have been published.

- 1 book has been published.

8. Other important items to be stated
   - International Workshop Novel high power solid-state lasers and laser processing (Chiba, Feb.22, 2005)
   - International workshop Nonlinear optics for high power laser technology (Chiba, July,2008)

1. Physical properties of low-dimensional nano structure formed on semiconductor surfaces
2. Graduate School of Advanced Integration Science / Professor / Kazuyuki Sakamoto
3. Sweden / Linköping University / Professor R.I.G. Uhrberg
4. From 2002 (continuing)
5. One- and two-dimensional nano structures, which are formed on semiconductor surfaces by the adsorption of metal atoms, have attracted much attention due to the possibility of observing various exotic low-dimensional physical phenomena. The final goal of this project is to observe and to determine low-dimensional physics that have not been reported so far.
6. Grants-in-Aid from the Ministry of Education, Culture, Sports, Science and Technology of the Japanese Government, and the Swedish Research Council
7. Main result
   (1) Valley spin polarization by using the extraordinary Rashba effect on silicon", K. Sakamoto, T.-H. Kim, T. Kuzumaki, B. Muller, Y. Yamamoto, M. Ohtaka, J.R. Osiecki, K. Miyamoto, Y. Takeichi, A. Harasawa, S.D. Stolwijk, A.B. Schmidt, J. Fujii, R.I.G. Uhrberg, M. Donath, H.W. Yeom, and T. Oda, Nature Communications **4**:2073 doi: 10.1038/ncomms3073 (2013).

   (2) "Atomic and electronic structures of the ordered 2√3×2√3 and molten 1×1 phase on the Si(111):Sn surface", P.E.J. Eriksson, J.R. Osiecki, K. Sakamoto, and R.I.G. Uhrberg, Phys. Rev. B 81, 235410-1-9 (2010).

   (3) "Eletronic structure of the thallium induced 2×1 reconstruction on Si(001)", P.E.J. Eriksson, K. Sakamoto, and R.I.G. Uhrberg, Phys. Rev. B 81, 205422-1-5 (2010).

   (4) "Abrupt Rotation of the Rashba spin to the direction perpendicular to the surface", K. Sakamoto, T. Oda, A. Kimura, K. Miyamoto, M. Tsujikawa, A. Imai, N. Ueno, H. Namatame, M. Taniguchi, P.E.J. Eriksson, and R.I.G. Uhrberg, Phys. Rev. Lett. 102, 096805-1-4 (2009).

   (5) "Electronic structure of the Si(110)-(16x2) surface: High-resolution ARPES and STM investigation", K. Sakamoto, M. Setvin, K. Mawatari, P.E.J. Eriksson, K. Miki, and R.I.G. Uhrberg, Phys. Rev. B 79, 045304-1-6 (2009).

   (6) "High-temperature annealing and surface photovoltage shifts on Si(111)7×7", H. M. Zhang, K. Sakamoto, G.V. Hansson, and R.I.G. Uhrberg, Phys. Rev. B 78, 035318-1-7 (2008).

   (7) "Lithium-induced dimer reconstructions on Si(001) studied by photoemission spectroscopy and band-structure calculations", P.E.J. Eriksson, K. Sakamoto, and R.I.G. Uhrberg, Phys. Rev. B 75, 205416-1-9 (2007).

(8) “Core-level photoemission study of thallium adsorbed on a Si(111)-(7x7) surface: Valence state of thallium and the charge state of surface Si atoms”, K. Sakamoto, P.E.J. Eriksson, S. Mizuno, N. Ueno, H. Tochihara, and R.I.G. Uhrberg, Phys. Rev. B 74, 075335-1-5 (2006).

(9) “Structural investigation of the quasi-one-dimensional reconstructions induced by Eu adsorption on a Si (111) surface”, K. Sakamoto, A. Pick and R.I.G. Uhrberg, Phys. Rev. B 72, 195342-1-9 (2005).

(10) “Electronic structure of the Ca/Si (111)-(3x2) surface”, K. Sakamoto, H.M. Zhang, and R.I.G. Uhrberg, Phys. Rev. B 69, 125321-1-7 (2004).

(11) “Band structure of the Ca/Si (111)-(2x1) surface”, K. Sakamoto, H.M. Zhang, and R.I.G. Uhrberg, Phys. Rev. B 68, 245316-1-5 (2003).

(12) “Surface electronic structures of Au-induced reconstructions on the Ag/Ge (111) √3x√3 surface”, H.M. Zhang, K. Sakamoto, and R.I.G. Uhrberg, Surf. Sci. 532-535, 934-939 (2003).

(13) “Structural investigation of the Ca/Si (111) surfaces”, K. Sakamoto, W. Takeyama, H.M. Zhang, and R.I.G. Uhrberg, Phys. Rev. B 66, 165319-1-8 (2002).

8. None

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1. Inverse photoemission study of spin-polarized unoccupied surface states originated from strong spin-orbit coupling
2. Graduate School of Science and Technology / Professor / Kazuyuki Sakamoto
3. Germany / Munster University / Prof. M. Donath
4. From 2010 (continuing)
5. The Rashba effect is a novel low-dimensional physical property that produces spin-polarized two-dimensional electron gas even for nonmagnetic materials. The spin-polarization vector, which is parallel to the surface plane and perpendicular to the wave vector in case of normal Rashba effect, is known to point different directions depending on the symmetry of the surface. The purpose of this project is to have a proper understanding of these peculiar Rashba effects by measuring the spin-polarized occupied surface band using the spin and angular-resolved photoelectron in the system in Japan, and the spin-polarized unoccupied band using the spin and angular-resolved inverse photoelectron system in Germany.
6. Grants-in-Aid from the Ministry of Education, Culture, Sports, Science and Technology of the Japanese Government.
7. Main result

(1) “Rotating Spin and Giant Splitting: Unoccupied Surface Electronic structure of Tl/Si(111)”, S.D. Stolwijk, A.B. Schmidt, M. Donath, K. Sakamoto, and P. Kruger, Phys. Rev. Lett. 111, 116402-1-5 (2013).

(2) “Valley spin polarization by using the extraordinary Rashba effect on silicon”, K. Sakamoto, T.-H. Kim, T. Kuzumaki, B. Muller, Y. Yamamoto, M. Ohtaka, J.R. Osiecki, K. Miyamoto, Y. Takeichi, A. Harasawa, S.D. Stolwijk, A.B. Schmidt, J. Fujii, R.I.G. Uhrberg, M. Donath, H.W. Yeom, and T. Oda, Nature Communications **4**:2073 doi: 10.1038/ncomms3073 (2013).

(3) "Thin line of a Rashba-type spin texture: Unoccupied surface resonance of Tl/Si(111) along Gamma-M", S.D. Stolwijk, K. Sakamoto, A.B. Schmidt, P. Kruger, and M. Donath, Phys. Rev. B **90**, 161109(R) (2014).

(4) "Symmetry induced peculiar Rashba effect on thallium adsorbed Si(111) surfaces", K. Sakamoto, T. Oda, A. Kimura, Y. Takeichi, J. Fujii, R.I.G. Hurberg, M. Donath, H.W. Yeom, J. Electron Spectrosc. Relat. Phenom. 201, 88 (2015).

(5) "Spin texture with a twist in momentum space for Tl/Si(111)", S.D. Stolwijk, **K. Sakamoto**, A.B. Schmidt, P. Kruger, and M. Donath, Phys. Rev. B **91**, 245420 (2015).

8. 8. None

1. Physical properties of novel materials with spin-polarized surface states
2. Graduate School of Science and Technology / Professor / Kazuyuki Sakamoto
3. Germany / Wurzburg University / Prof. F. Reinert
4. From 2009 (continuing)
5. The topological insulators materialize a new state of quantum matter where an unusual gapless metallic state appears at the surface of a band insulator due to a topological principle. This metallic surface state is characterized by a Dirac-cone dispersion which has been shown to have a helical spin structure where the spin vector points parallel to the surface and perpendicular to the momentum. In an ideal topological insulator, the Dirac-point is located at the Fermi level. In a real system, however, the Dirac-point is far from the Fermi level making the bulk property metallic due to charge doping from defects that are formed during the sample preparation. The purpose of this project is to have a proper understanding of these new state of matters, and to develop an easy way to dope topological insulators making the bulk property insulating so that they can be used as materials for spintronic devices. The sample preparation and ultra-high-resolution photoemission measurements are performed in Germany, and the spin-polarized photoemission measurements are carried out in Japan.
6. Grants-in-Aid from the Ministry of Education, Culture, Sports, Science and Technology of the Japanese Government.
7. Main result

(1) "Spin orientation and sign of the Rashba splitting in Bi/Cu(111)", H. Bentmann, T. Kuzumaki, G. Bihlmayer, S. Blugel, E. V. Chulkov, F. Reinert and K. Sakamoto, Phys. Rev. B 84, 112456-1-6 (2011)..

(2) "Single Dirac cone on the Cs-covered topological insulator surface Sb2Te3(0001) ", Christoph Seibel, Henriette Maaß, Minoru Ohtaka, Sebastian Fiedler, Christian Jünger, Chul-Hee Min, Hendrik Bentmann, Kazuyuki Sakamoto, and Friedrich Reinert, Phys. Rev. B 86, 161105 -1-5 (2012).

(3) "Connection of a topological surface state with the bulk continuum in Sb2Te3(0001)", C. Seibel, H. Bentmann, J. Braun, J. Minár, H. Maaß, K. Sakamoto, M. Arita, K. Shimada, H. Ebert, and F. Reinert, Phys. Rev. Lett., 114, 066802 (2015).

(4) "The Rashba-split surface state of Sb2Te3(0001) and its interaction with bulk states", C. Seibel, H. Maaß, H. Bentmann, J. Braun, K. Sakamoto, M. Arita, K. Shimada, J. Minár, H. Ebert, and F. Reinert,

J. Electron Spectrosc. Relat. Phenom. 201, 110 (2015).

8. None

1. Structure and thermodynamic properties of aqueous solutions.
2. Graduate School of Advanced Integration Science / Associate Professor / Takeshi Morita
3. Canada / The University of British Columbia / Yoshikata Koga
   Denmark / Roskilde University / Peter Westh
4. 2000～
5. Comprehensive structural and thermodynamic studies on non-electrolyte aqueous solutions by X-ray diffraction, measurements of chemical potential and partial molar enthalpy, and determination of entropy.
6. Grants for Excellent Graduate Schools (MEXT, Japan.), mini COE (MEXT, Japan.), Grand-in-Aid for Scientific Research (MEXT, Japan.), Frontier science international training program for young (MEXT, Japan.) researchers leading in material and computational sciences"
7. Main result

   (1) A Thermodynamic Study of Aqueous Acetonitrile: Excess Chemical Potentials, Partial Molar Enthalpies, Entropies and Volumes, and Fluctuations.
   P. V. Nikolova, S. J. B. Duff, P. Westh, C. A. Haynes, Y. Kasahara, K. Nishikawa and Y. Koga
   Can. J. Chem., **78,** 1553-1560 (2000).

   (2) Mixing Schemes of Aqueous Dimethyl Sulfoxide: A Support by X-ray Diffraction Data.
   Y. Koga, Y. Kasahara, K. Yoshino and K. Nishikawa
   J. Sol. Chem. **30,** 885-893 (2001).

   (3) Chemical Potential and Concentration Fluctuation in Some Aqueous Alkane-mono-ols at 298 K..
   J. Hu, C. A. Haynes, A. H. Y. Wu, C. M. W. Chang, M. G. M. Chen, E. G. M. Yee, T. Ichioka, K. Nishikawa and Y. Koga
   Can. J. Chem. **81**, 141-149 (2003).

   (4) Excess Partial Molar Entropy of Alkane-mono-ols in Aqueous Solutions at 298 K..
   Y. Koga, P. Westh and K. Nishikawa
   Can. J. Chem. **81**, 150-155 (2003)

   (5) The Effects of Na2SO4 and NaClO4 on the Molecular Organization of H2O.
   Y. Koga, P. Westh and K. Nishikawa
   J. Phys. Chem. **A 108**, 1635-1637 (2004).

   (6) "Icebergs" or No "Icebergs" in Aqueous Alcohols?: Composition-dependent Mixing Schemes.
   Y. Koga, K. Nishikawa and P. Westh
   J. Phys. Chem. **A 108**, 3873-3877 (2004).

   (7) Towards Understanding the Hofmeister Series (1): The Effect of Sodium Salts of Some Anions on the Molecular Organization of H2O.
   Y. Koga, P. Westh, J. V. Davies, K. Miki, K. Nishikawa H. Katayanagi

J. Phys. Chem. A 108, 8533-8541 (2004).

(8) Effects of ethanol and dimethylsulfoxide on the molecular organization of H2O as probed by 1-propanol.

T. Morita, P. Westh, K. Nishikawa and Y. Koga

J. Phys. Chem. B 116, 7328−7333 (2012).

(9) How Much Weaker Are the Effects of Cations than Those of Anions? The Effects of K+ and Cs+ on the Molecular

Organization of Liquid H2O

T. Morita, P. Westh, K. Nishikawa, and Y. Koga

J. Phys. Chem. B **118**, 8744−8749 (2014).

(10) Characterization of BF4− in terms of its effect on water by the 1-propanol probing methodology

T. Morita, A. Nitta, K. Nishikawa, P.Westh, and Y. Koga

J. Mol. Liq. **198**, 211–214 (2014).

(11) Effects of Constituent Ions of a Phosphonium-based Ionic Liquid on Molecular Organization of H2O as Probed by

1-propanol: Tetrabutylphosphonium and Trifluoroacetate Ions

T. Morita, K. Miki, A. Nitta, H. Ohgi, and P. Westh

Phys. Chem. Chem. Phys., **17**, 22170–22178 (2015).

8. None

1. Interaction mechanism in singlet excited dye/photoacid generator photosensitive system
2. Graduate School of Advanced Integration Science / Professor / Shigeru Takahara
3. France / Department of Photochemistry, Universite de Haute Alsace / Prof. Xavier Allonas

   France / Department of Photochemistry, Universite de Haute Alsace / Prof. Jean-Pierre Fouassier
4. 2004.7.16～
5. Some novel visible photoinitiating systems mainly based on the PAG sensitization have been investigated. The photodissociation processes of some important classes of PAGs and photophysical and photochemical behavior of the sensitizing dyes have been also studied, as well as their sensitization mechanisms.
6. Gift of money for research and education
7. Main result

   - COMMUNICATIONS AND PAPERS

     1) Shota Suzuki, Xavier Allonas,* Jean-Pierre Fouassier, Toshiyuki Urano, Shigeru Takahara, Tsuguo Yamaoka, Interaction mechanism in pyrromethene dye/photoacid generator photosensitive system for high-speed photopolymer , J. Photochem. Photobio. A: Chem., 181(1) 60-66 (2006).

     2) Jean-Pierre Malval,* Fabrice Morlet-Savary, Xavier Allonas, Jean-Pierre Fouassier, Shota Suzuki, Shigeru Takahara, and Tsuguo Yamaoka, On the cleavage process of the

N-trifluoromethylsulfonyloxy-1,8-naphthalimide photoacid generator, Chem. Phys. Lett., 443, 323-327 (2007).

3) Shigeru Takahara,* Shota Suzuki, Tomoaki Tsumita, Xavier Allonas, Jean-Pierre Fouassier, Tsuguo Yamaoka, Sensitization Reaction of Oxime Type Photoacid Generator, J. Photopolym. Sci. Technol., 21(4), 499-504 (2008).

4) Shota Suzuki, Fabrice Morlet-Savary, Xavier Allonas,* Jean-Pierre Fouassier, Shigeru Takahara, Tsuguo Yamaoka,Photochemistry of Naphthalimide Photoacid Generators, Jean-Pierre Malval, J. Phys. Chem. A, 112(17), 3879 – 3885 (2008).

- BOOK

1) Shota Suzuki, Xavier Allonas, Jean-Pierre Fouassier, Toshiyuki Urano, Shigeru Takahara, and Tsuguo Yamaoka, "High speed photopolymers: Interaction mechanism in a novel dye/photoacid generator system and applications", in Photochemistry and UV curing: New Trends, Jean-Pierre Fouassier ed, Trivandrum, Kerala, India (Book published in 2006).

- CONTRIBUTIONS TO CONFERENCE

1) S. Suzuki, S. Takahara, T. Yamaoka, X. Allonas, J. P. Fouassier; Pyrromethene Dye Sensitized Photopolymer for Microlithography: SFC Grand Est 2005, Mulhouse, France (2005).

2) S. Suzuki, X. Allonas, J. P. Fouassier, T. Urano, S. Takahara, T. Yamaoka; Interaction Mechanism In Pyrromethene Dye/Photoacid Generator Photosensitive System for High Speed Photopolymer: SICC-4 (Singapore International Chemical Conference, Singapore (2005).

3) S. Suzuki, X. Allonas, J. P. Fouassier, T. Urano, S. Takahara, T. Yamaoka; Photoacid Generation Mechanism in Pyrromethene Sensitizing Dye/Oxime Type Photoacid Generator System: XXI IUPAC Symposium on Photochemistry, P-301, Kyoto (2006).

4) S. Suzuki, X. Allonas, J. P. Fouassier, T. Urano, S. Takahara, T. Yamaoka; Photosensitization of Photoacid Generators by Pyrromethene Dyes: XXI IUPAC Symposium on Photochemistry P-407, Kyoto (2006).

5) Shigeru. Takahara, Shota Suzuki, Tomoaki Tsumita, Xavier Allonas, Jean-Pierre Fouassier, Tsuguo Yamaoka, Sensitization Reaction of Oxime Type Photoacid Generator, 25th Conference of Photopolymer Science and Technology, Chiba (2008).

6) Naoto Nishizawa, Kota Nakazima, Tomoaki Tsumita, Shota Suzuki, Shigeru Takahara, Xavier Allonas, Jean-Pierre Fouassier; Excited Singlet Electron Transfer in Sensitization Reaction of Oxime Type Photo-acid Generator in polymer Matrix, European Symposium of Photopolymer Science, LT1 (Invited short talk), Mulhouse, France (2010).

8. None

1. Electronic structures of organic / metal interfaces studied by photoemission spectroscopy
2. Center for Frontier Science / Professor / Hisao Ishii
   Garauate School of Advanced Integration Sceince / Assistant professor / Yasuo Nakayama

3. Taiwan / National Tsing Hua University / Shu-Jung Tang

4. FY2010

5. The electronic structures of organic / metal interfaces of various system which attracts interest are investigated by photoemission spectroscopy. The target system is interfaces between organic semiconductor films and quantum wells where free electrons are confined in nano-scale ultra thin metal film

6. Global COE Program, KAKENHI (Grant-in-Aid for scientific reserch A), Sasagawa Scientific Research Grant of the Japan Science Society, “Summer Visiting Program” of Interchange Association, Japan, “International Shuttle Program” of Japan Student Services Organization, KAKENHI (Grant-in-Aid for scientific reserch B), Chiba Univeristy COE program

7. Original papers :

   Yasuo Nakayama, Meng-Kai Lin, Chin-Yong Wang, Tun-Wen Pi, Hisao Ishii, S.-J. Tang, “Interface electronic structure of zinc-phthalocyanine on the silver thin-film quantum-well”, e-Journal of Surface Science and Nanotechnology, vol.10, (2012) pp. 149—152.

   Meng-Kai Lin, Yasuo Nakayama, Chin-YungWang, Jer-Chia Hsu, Shin-ichi Machida, Tun-Wen Pi, Hisao Ishii, S.-J. Tang, “The interfacial properties at organic/metal interface probed by the quantum-well states” , Physical Review B, 86(15) (2012) 155453-1~5.

   Conference contributions :

   Meng-Kai Lin, Yasuo Nakayama, Chin-Hung Chen, Chin-Yung Wang, H.-T. Jeng, Tun-Wen Pi, Hisao Ishii, S.-J. Tang, "Tuning gap states at organic-metal interface by quantum size effects", Nature Communications, 4 (2013) 2925-1~7.

   中山泰生, Meng-Kai Lin, Chih-Hao Pan, Tun-Wen Pi, S.-J. Tang, 石井 久夫, 「誘電体分子の表面吸着に伴う Ag 超薄膜の量子化エネルギー変化」第６０回応用物理学関係連合講演会 神奈川工業大学（2013 年 3 月 28 日）[28aG13-9] (in Japanese)

8. Dr. Y. Nakayama, a lecturer (specially appointed) of Center of Frontier Scicence, visited National Taiwan University, National Tsing Hua University, and National Synchrotron Radiation Research Center with two graduate students to promote Japan-Taiwan international collaboration under the “Summer Visiting Program” of Interchange Association, Japan. A graduate student, Mr. Meng-Kai Lin, of National Tsing Hua University also visited to this department to proceed collaborating works. In Dec 2013, Under collaboration between the division of nanoscience of AIST and the department of physics of NTHU, Taiwan-Japan International Workshop on Spectroscopy and Surface Science was held. In 2014, MOD between Chiban University and NTHU was contracted in 2014.

1. Properties of new interfaces built-up on ordered organic single crystal surfaces

2. Center for Frontier Science / Professor / Hisao Ishii (Garauate School of Advanced Integration Sceince / Assistant professor / Yasuo Nakayama)

3. Germany / Humboldt University (Berlin) / Prof. N. Koch

4. FY2010

5. The ordered structure of organic layer on clean organic single crystal surface are prepared, and the properties of the heterointerfaces are investigated by scanning probe microscope.

6. Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST), JSPS "Institutional Program for Young Researcher Overseas Visits" (Frontier science international training program for young researchers leading in materials science and computational science (Graduate School of Advanced Integration Science)), KAKENHI (Grant-in-Aid for Young Scientists B), KAKENHI (Grant-in-Aid for scientific reserch B)

7. Original paper :

Yasuo Nakayama, Jens Niederhausen, Shin'ichi Machida, Yuki Uragami, Hiroumi Kinjo, Antje Vollmer, Jürgen P. Rabe, Norbert Koch, Hisao Ishii, "Valence band structure of rubrene single crystals in contact with an organic gate dielectric", Organic Electronics. 14(7), (2013) 1825-1832.

Conference contributions :

Julia Wagner, Mark Gruber, Andreas Wilke, Yuya Tanaka, Katharina Topczak, Andreas Steindamm, Ulrich Hoermann, Andreas Opitz, Yasuo Nakayama, Hisao Ishii, Jens Pflaum, Norbert Koch, Wolfgang Bruetting, "Identification of different origins for s-shaped current voltage characteristics in planar heterojunction organic solar cells", Journal of Applied Physics, 111(5) (2012) 054509-1～12

中山泰生, 町田真一, Jens Niederhausen, 浦上裕希, 金城拓海, K. Rasika Koswattage, 間瀬 一彦, Antje Vollmer, Norbert Koch, 石井久夫, 「ルブレン単結晶およびその表面上に形成したヘテロ界面の価電子バンド構造の実測」第 21 回有機結晶シンポジウム　東京工業大学（2012 年 11 月 9 日）[O-16] (in Japanese)

Yasuo Nakayama, Shin'ichi Machida, Jens Niederhausen, Yuki Uragami, Hiroumi Kinjo, K. Rasika Koswattage, Kazuhiko Mase, Antje Vollmer, Jügen P. Rabe, Norbert Koch, Hisao Ishii, "Electronic investigation inside crystalline organic semiconductors: two-dimensional valence band structures, gap states, and buried interfaces", International Symposium on Organic Transistors and Functional Interfaces (OFET2012); Princeton, USA, Oct./28/2012. (Invited)

中山泰生, Jens Niederhausen, 町田真一, 金城拓海, 浦上裕希, Antje Vollmer, Norbert Koch, 石井久夫, 「ルブレン単結晶上の金属－有機界面：成長様式と電子構造」, 2012 年秋季 第 73 回応用物理学会学術講演会　愛媛大学（2012 年 9 月 11 日）[11aH1-8] (in Japanese)

Yasuo Nakayama, Shin'ichi Machida, Jens Niederhausen, Hiroumi Kinjo, Yuli Uragami, Antje Vollmer, Norbert Koch, Hisao Ishii, "Photoemission Observation of Hetero-interfaces Formed onto the Rubrene Single Crystal as the Model Interfaces of an Organic Field Effect Transistor", The 2012 International Conference on Flexible and Printed Electronics (ICFPE2012); Tokyo, Japan, Sep./6/2012. (Session Invited Talk)

Yasuo Nakayama, Jens Niederhausen, Shin'ichi Machida, Hiroumi Kinjo, Yuki Uragami, Antje Vollmer, Norbert Koch, Hisao Ishii, "Metals and Insulating Molecules on the Rubrene Single Crystal Surface: Model Interfaces of an Organic Field Effect Transistor"

5th International Symposium on Flexible Organic Electronics (ISFOE12); Thessaloniki, Greece, Jul./3/2012.

8. None

1. Properties of charge accumulation at organic heterointerfaces and the device performance
2. Center for Frontier Science / Professor / Hisao Ishii (Assistant Prof./ Yutaka Noguchi)
3. Germany / University of Augsburg / Wolfgang Bruetting
4. FY 2010～
5. Functions of organic semiconductor devices often originate from heterointerfaces in the device. We investigated the relations between charge accumulation mechanisms at the interfaces and the device performances using several experimental techniques, especially focusing on the role of orientation polarization. We have been conducting a good collaborating works including mutual people exchange.
6. JSPS "Institutional Program for Young Researcher Overseas Visits" (Frontier science international training program for young researchers leading in materials science and computational science(Graduate School of Advanced Integration Science)), Chiba University COE start-up Program, Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST), KAKENHI (Grant-in-Aid for scientific reserch B)
7. Main result
   - Paper
     1) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii, "Impedance spectroscopy for pentacene field-effect transistor: channel formation process in transistor operation", Proc. SPIE, 8117 (2011) 811713
     2) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii, "Displacement current measurement of a pentacene metal-insulator-semiconductor device to investigate both quasi-static and dynamic carrier behavior using a combined waveform", Organic Electronics, 12(9), (2011)1560-1565.
     3) Yutaka Noguchi, Yukimasa Miyazaki, Yuya Tanaka, Naoki Sato, Yasuo Nakayama, Tobias D. Schmidt, Wolfgang Bruetting, Hisao Ishii, "Charge accumulation at organic semiconductor interfaces due to a permanent dipole moment and its orientational order in bilayer devices", Journal of Applied Physics, 111(11) (2012) 114508-1～10.
     4) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii "Three-Terminal Capacitance-Voltage Measurements of Pentacene Field-Effect Transistor during Operation", 14(10), (2013) 2491-2496
   - Conference
     1) Yutaka Noguchi, Yukimasa Miyazaki, Yasuo Nakayama, Wolfgang Bruetting, Hisao Ishii, "Charge accumlation mechanisms at organic hetero interfaces: Interface charge and orientation polarization" [invited], The 10th International Discussion & Conference on Nano Interface Controlled Electronic Devices 2010 (IDC-NICE 2010), Oct 28 2010, Jeju, Korea.
     2) Yukimasa Miyazaki, Yutaka Noguchi, Yasuo Nakayama, Wolfgang Bruetting, Hisao Ishii, "Charge accumulation mechanisms at organic hetero interfaces: the effects of interface charges and

orientation polarization", 9th International Conference on Nano-Molecular Electronics (ICNME 2010), Dec 15 2010, Kobe, Japan.

3) Yutaka Noguchi, Yukimasa Miyazaki, Yuya Tanaka, Yasuo Nakayama, Wolfgang Bruetting, Hisao Ishii, Carrier behaviors at organic heterointerfaces studied by displacement current measurement and impedance spectroscopy, 6th international conference on Molecular and Bioelectronics (M&BE6), (March 2011) *The conference itself was cancelled due to the earthquake, but the abstract book has been published.

4) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii, "Impedance spectroscopy for pentacene field-effect transistor -channel formation process in transistor operation", SPIE Optics+Photonics; San Diego, CA, Aug./2011

5) 野口 裕, 宮崎行正, 田中有弥, Wolfgang Bruetting, 石井久夫, 「分子のダイポールモーメントと有機ヘテロ界面の電荷蓄積」, 第 12 回有機 EL 討論会; 日本科学未来館 みらい CAN ホール, Jun./30/2011 (S3-2)

6) 野口 裕, 宮崎行正, 田中有弥, Wolfgang Bruetting, 石井久夫,「分子の永久双極子に起因する有機／有機界面の電荷蓄積現象」, 第 72 回 応用物理学会学術講演会; 山形大学, Aug./30/2011 (30a-Q-26)

7) 野口 裕、宮崎 行正、田中 有弥、Wolfgang Bruetting、石井 久夫, "有機半導体デバイス内部の電界分布と電荷蓄積現象"（依頼講演）,日本学術振興会 情報科学用有機材料第 142 委員会 A 部会 第 121 回、B 部会 第 113 回、C 部会 第 48 回 合同研究会、東京理科大学森戸記念館、Oct./28/2011

8) Yutaka Noguchi, Yukimasa Miyazaki, Yuya Tanaka, Takamitsu Tamura, Kyung Jun Kim, Yasuo Nakayama, Wolfgang Bruetting, Hisao Ishii "Interface Charges in Organic Light-Emitting Diodes: The Origin and Impacts on Device Properties", Fifth International Conference on Optical, Optoelectronic and Photonic Materials and Applications (ICOOPMA2012); Nara, 5/Jun./2012 (2A1-1)

9) 田中有弥, 野口裕, Michael Kraus, Wolfgang Brütting, 石井久夫、「3 端子容量－電圧測定によるペンタセン電界効果トランジスタのチャネル形成過程の観測 」、第 59 回応用物理学関係連合講演会; 早稲田大学, 16/Mar./2012 (16p-F9-11)

10) H.S. Lim, 宮崎 行正, 磯島 隆史, 伊藤 英輔, 原 正彦, WheeWon Chin, Jinwook Han, Wolfgang Brütting, 中山 泰生, 野口 裕, 石井 久夫,「Alq3 誘導体蒸着膜の逆極性の配向分極とデバイス特性」, 第 60 回応用物理学会春季学術講演会; 神奈川工科大学, Mar./29/2013. (29a-G13-1)

8. Other important items to be stated

(1) Assist. Prof. Yutaka Noguchi recieved a presentation award from "Yuki EL Touron-kai" (2012.11.21)

(2) COE Start-up International Workshop "Organic Semiconductors Towards the Next", Nov 11 2010, was chaired, in which Prof. Bruetting was invited.

1. Elucidation of electronic properties based on direct observations of frontier density of states in organic semiconductors

2. Center for Frontier Science / Professor / Hisao Ishii (Garauate School of Advanced Integration Sceince/

Assistant professor/ Yasuo Nakayama, Assistant Prof./ Yutaka Noguchi)

3. Germany / University of Augsburg / Wolfgang Bruetting
4. FY 2009
5. Investigations and development of experimental techniques for deep understandings of physics of organic semiconductor devices.
6. KAKENHI (Grant-in-Aid for scientific research A)
7. Main result
   - Paper
     1) Julia Wagner, Mark Gruber, Andreas Wilke, Yuya Tanaka, Katharina Topczak, Andreas Steindamm, Ulrich Hoermann, Andreas Opitz, Yasuo Nakayama, Hisao Ishii, Jens Pflaum, Norbert Koch, Wolfgang Bruetting, "Identification of different origins for s-shaped current voltage characteristics in planar heterojunction organic solar cells" , Journal of Applied Physics, 111(5) (2012) 054509-1～12
   - Conference

     None
8. None

1. Study on carrier injection in organic electronics
2. Center for Frontier Science / Professor / Hisao Ishii (Garauate School of Advanced Integration Sceince/ Assistant professor/ Yasuo Nakayama)
3. USA / University of Minnesota / Daniel Frisbie
4. FY2013
5. Research to improve the carrier injection properties of organic electronics
6. Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST), KAKENHI (Grant-in-Aid for scientific reserch B)
7. Wei Xie, Pradyumna L. Prabhumirashi, Yasuo Nakayama, Kathryn A. McGarry, Michael L. Geier, Yuki Uragami, Kazuhiko Mase, Christopher J. Douglas, Hisao Ishii, Mark C. Hersam, C. Daniel Frisbie, "Utilizing Carbon Nanotube Electrodes to Improve Charge Injection and Transport in Bis(trifluoromethyl)-dimethyl-rubrene (fm-rubrene) Ambipolar Single Crystal Transistors", ACS Nano, 7(11) (2013) 10245-10256.
8. None

1. Ultrafast Dynamics in Ionic Melts and Related Solutions.
2. Graduate School of Advanced Integration Science / Associate Professor / Hideaki Shirota
3. India / Department of Chemical, Biological and Macromolecular Science, S. N. Bose National Centre for Basic Sciences / Prof. Ranjit Biswas
4. January 2012～
5. We investigate the ultrafast dynamics including inter- and intramolecular vibrations and orientational

dynamics of eutectic melts, such as acetamide/[KSCN+NaSCN] and acetamide/[LiNO3+LiBr] , and ionic liquid mixtures with water by means of femtosecond Raman-induced Kerr effect spectroscopy.

6. Program of Center for Frontier Science, Chiba University and Grant-in-Aids for Young Scientists (A)
7. Main result
   (1) Intermolecular/Interionic Vibrations of 1-Methyl-3-n-octylimidazolium Tetrafluoroborate Ionic Liquid and H2O Mixtures. H. Shirota, R. Biswas. Journal of Physical Chemistry B 116, 13765-13773 (2012).
   (2) R. Biswas, H. Shirota, in preparation.
8. RB gave some seminars (Center for Frontier Science and Department of Chemistry) at Chiba University.

1. Liquid Structure of Ionic Liquids.
2. Graduate School of Advanced Integration Science / Associate Professor / Hideaki Shirota
3. USA / Department of Chemistry and Chemical Biology, Rutgers University / Prof. Edward W. Castner, Jr.
   Italy / Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche / Dr. Alessandro Triolo.
4. January 2011～
5. We investigate the liquid structure of some ionic liquids by means of x-ray scattering.
6. Grant-in-Aids for Young Scientists (A)
7. Main result
   (1) Comparing intermediate range order for alkyl- vs. ether-substituted cations in ionic liquids. A. Triolo, O. Russina, R. Caminiti, H. Shirota, H. Y. Lee, C. S. Santos, N. S. Murthy, E. W. Castner, Jr. Chemical Communications 48 (41) 4959-4961.
   (2) How does the Ionic Liquid Organizational Landscape Change when Nonpolar Cationic Alkyl Groups are Replaced by Polar Isoelectronic Diethers? H. K. Kashyap, C. S. Santos, R. P. Daly, J. J. Hettige, N. S. Murthy, H. Shirota, E. W. Castner, Jr., C. J. Margulis. Journal of Physical Chemistry B 117, 1130-1135 (2013).
   (3) H. Y. Lee, H. Shirota, E. W. Castner, Jr., Submitted.
8. Coauthor papers of 12 were written with EWC since 2000, because HS worked with EWC at Rutgers. EWC and HS organized Ionic Liquids session at 6th IDMRCS (Rome, 2009) and 7th IDMRCS (Barcelona, 2013).

1. High Pressure Crystallization and Crystalline Structure of Novel Ionic Liquids.
2. Graduate School of Advanced Integration Science / Associate Professor / Hideaki Shirota
3. Poland / Institute of Physics, University of Silesia / Prof. Lukasz Hawelek.
   Poland / Institute of Physics, University of Silesia / Prof. Marian Paluch.
4. December 2010-
5. We perform the high pressure crystallization of ionic liquids and determine the crystalline structure.
6. Grant-in-Aids for Young Scientists (A)
7. High-Pressure Crystallisation of 1-Methyl-3-trimethylsilylmethylimidazolium Tetrafluoroborate Ionic Liquid. L. Hawelek, H. Shirota, J. Kusz, K. Grzybowska, M. Mierzwa, M. Paluch, A. Burian J. Zioloa.

Chemical Physics Letters 546, 150-152 (2012).

8. None.

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1. Glass Transition Dynamics in Ionic Liquids.
2. Graduate School of Advanced Integration Science / Associate Professor / Hideaki Shirota
3. Poland / Institute of Physics, University of Silesia / Prof. Marian Paluch.
   Italy / Dipartimento di Fisica, CNR-IPCF / Dr. Kia L. Ngai.
4. December 2010～
5. We investigate the dielectric relaxation process of some ionic liquids near glass transition temperature.
6. Grant-in-Aids for Young Scientists (A)
7. Glass Transition Dynamics of Room-Temperature Ionic Liquid 1-Methyl-3-trimethylsilylmethylimidazolium Tetrafluoroborate. Georgina Jarosz, Michal Mierzwa, Jerzy Ziozo, Marian Paluch, Hideaki Shirota, Kia L. Ngai. Journal of Physical Chemistry B115, 12709-12716(2012).
8. ８．KLN is an organizer of 7th IDMRCS (2013, Barcelona) and HS is a session organizer of ionic liquids

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1. Ultrafast Dynamics of Liquids and Solutions by Means of Femtosecond Optical Kerr Effect Spectroscopy.
2. Graduate School of Advanced Integration Science / Associate Professor / Hideaki Shirota
3. UK / School of Chemistry, University of East Anglia / Prof. Stephen R. Meech.
4. September 1995～
5. We investigate the low-frequency mode of benzoic acid dimer in solution.
6. Grant-in-Aids for Young Scientists (A)
7. Main result
   (1) Low-frequency Modes of the Benzoic Acid Dimer in Chloroform Observed by the Optical Kerr Effect. S. Yamaguchi, Kamila Mazur, I. A. Heisler, H. Shirota, K. Tominaga, S. R. Meech. Journal of Chemical Physics, 135, 134504/1-9 (2011).
   (2) Deuterium isotope effects on ultrafast polarisability anisotropy relaxation in methanol. H. Shirota, K. Yoshihara, N. A. Smith, S. Lin, S. R. Meech. Chemical Physics Letters, 281, 27-34 (1997).
   (3) Ultrafast Dynamics of Liquid Anilines Studied by the Optical Kerr Effect. N. A. Smith, S. Lin, S. R. Meech, H. Shirota, K. Yoshihara. Journal of Physical Chemistry A101, 9578-9586(1997).
8. SRM gave a lecture in an intensive course at Chiba Universuty in 2010.

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1. Theory of X-ray absorption spectroscopy and development of multiple scattering method
2. Graduate School of Advanced Integration Science / Professor / Peter Krueger
3. Partner abroad
   (1) INFN, Frascati, Italy, Prof. C. R. Natoli.
   (2) University of Rennes I, France, Dr. K. Hatada, Dr. D. Sebilleau.
   (3) NSRL, University of Science and Technology of China, Heifei, Prof. W. Zhu, Prof. L. Song, Mr. J. Xu.
4. 2012～
5. Development of multiple scattering theory for X-ray absorption spectra. Effects of non-spherical potentials

and electron correlation. Application to defects and adsorbates in graphene and oxides.

6. Grant-in-Aid for Scientific Research of JSPS, Research activity Start-up grant (2013-2015)
7. Main result
   (1) J. Xu, P. Krüger, C. R. Natoli, K. Hayakawa, Z. Wu and K. Hatada, X-ray absorption spectra of graphene and graphene oxide by full-potential multiple scattering calculations with self-consistent charge density, Phys. Rev. B 92, 125408 (2015).
   (2) J. Xu, C. R. Natoli, P. Krüger, K. Hayakawa, D. Sébilleau, Li Song, and K. Hatada, ES2MS: An interface package for passing self-consistent charge density and potential from Electronic Structure codes To Multiple Scattering codes, Computer Physics Communications 203, 331-338 (2016).
8. MSnano network scientific workshop "Trends in x-ray Absorption and Photoelectron Spectroscopy and Multiple Scattering Theory", Chiba, Japan, 27-28 July 2015

1. Spectroscopic investigation of electronic structure of titanium oxide nanostructures for solar cell applications.
2. Graduate School of Advanced Integration Science / Professor / Peter Krueger
3. Partner abroad
   (1) University of Mons, Belgium, Dr. Carla Bittencourt,
   (2) McMaster University, Hamilton, Canada, Prof. A. Hitchcock, Dr. X. Zhu,
   (3) EPFL, Lausanne, Switzerland, Prof. M. Grioni, Dr. K. S. Moser
4. 2012～
5. In order to find better materials for solar cells, we are studying the electronic structure of titanium dioxide nanostructures, in particular the effects of morphology, crystal structure, doping as well as charge-lattice coupling. To this end, we use X-ray absorption and electron spectroscopies and theoretical modeling.
6. None
7. Main result
   (1) C. Bittencourt, M. Rutar, P. Umek, A. Mrzel, K. Vorzel, D. Arcon, K. Henzler, P. Krüger and P. Guttmann, Molecular Nitrogen in N-doped TiO2 Nanoribbons, RSC Adv. 5, 23350 (2015).
   (2) X.Zhu, A. Hitchcock, C. Bittencourt, P.Umek and P. Krüger, Individual Titanate Nanoribbons Studied by 3D-resolved Polarization Dependent X-ray Absorption Spectra Measured with Scanning Transmission X-ray Microscopy, J. Phys. Chem. C 119, 24192-24200 (2015)
   (3) S. Moser, S. Fatale, P. Krüger, H. Berger, P. Bugnon, A. Magrez, H. Niwa, J. Miyawaki, Y. Harada, and M. Grioni, Electron-phonon coupling in the bulk of anatase TiO2 measured by resonant inelastic x-ray spectroscopy, Phys. Rev. Lett. 115, 096404 (2015)
8. None

1. STM study of electronic spin properties of nanomagnets
2. Graduate School of Advanced Integration Science / Associate Professor /Toyo Kazu Yamada
3. Germany /Karlsruhe Institute of Technology / Prof.W. Wulfhekel

4. From Apr.2010

5. Scanning tunneling microscopy (STM) can visualize atomic structures of nanomaterials. In this study we have studied single organic molecules as well as iron nanomagnets, which are considered to be a new candidate material for near-future spintronics

6. JSPS, JST etc.

7. Main result

   (1) Magneto-electric coupling at metal surfaces, L. Gerhard, T.K. Yamada, T. Balashov, A.F. Takacs, M. Daena, S. Ostanin, A. Ernst, I. Mertig, and W. Wulfhekel, Nature Nanotechnology, 5 巻, No.11, pp.792-797, 2010 年.

   (2) Electrical control of the magnetic state of Fe, L. Gerhard, T.K. Yamada, T. Balashov, A.F. Takacs, M. Daena, S. Ostanin, A. Ernst, I. Mertig, and W. Wulfhekel, IEEE Transactions on Magnetics, 47 巻, No.6, pp.1619-1622, 2011 年.

   (3) Giant magnetoresistance through a single molecule, S. Schmaus, A. Bagrets, Y. Nahas, T.K. Yamada, A. Bork, F. Evers, and W. Wulfhekel, Nature Nanotechnology, 6 巻, No.3, pp.185-189, 2011 年.

   (4) Electric Field Control of Fe Nano Magnets, T.K. Yamada, L. Gerhard, R.J.H. Wesselink, A. Ernst, and Wulf Wulfhekel, J. Magn. Soc. Jpn., 36 巻, No.2, pp.100-103, 2012 年.

   (5) Robust spin crossover and memristance across a single molecule, T. Miyamachi, M. Gruber, V. Davesne, M. Bowen, S.Boukari, F. Scheurer, G. Rogez, T.K. Yamada, P. Phresser, E. Beaurepaire, and W. Wulfhekel, Nature Communications, 3 巻, pp.938:1-6, 2012 年.

   (6) Single molecule magnetoresistance with combined antiferromagnetic and ferromagnetic electrodes, A. Bagrets, S. Schmaus, A. Jaafar, D. Kramczynski, T.K. Yamada, M. Alouani, W. Wulfhekel, and F. Evers, Nano Letters, 12 巻, No.10, pp.5131-5136, 2012 年.

   (7) Temperature control of the growth of iron-oxide nano-islands on Fe(001), Toyo Kazu Yamada, Yuki Sakaguchi, Lukas Gerhard, and Wulf Wulfhekel accepted JJAP, 18.4.2016.

8. None

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1. STM electron spectroscopy measurements of graphene on metal substrates.

2. Graduate School of Advanced Integration Science / Associate Professor /Toyo Kazu Yamada

3. Spain / University Autonoma Madrid / Prof. A. L. Vazquez de Parga

4. From Apr.2010

5. Atomic and electronic structures of graphene grown on Ru(0001) have been studied by using scanning tunneling microscopy (STM) and spectroscopy.

6. JSPS, JST etc.

7. Room temperature spin-polarizations of Mn-based antiferromagnetic nanoelectrodes, T. K. Yamada and A. L. Vazquez de Parga, Appl. Phys. Lett., 105 巻, No.18, pp.183109:1- pp.183109:5, 2014 年.

8. None

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1. Research and Development of Wireless Sensor Networks

2. Graduate School of Advanced Integration Science／Professor／Hiroo Sekiya
3. China／Xiangtan University／Pei Tingrui and Li Zhetao
4. From October 2015
5. Protocol designs and performance analyses of Wireless Sensor Networks (WSNs) are carried out. Now we have a plan to construct acutual WSNs at the main campus of Xiagtan University for environment remort sensing.
6.
7. Main result
   (1) LI Zhe-tao, CHEN Qian, ZHU Geng-ming, CHOI Young-june, SEKIYA Hiroo. A Low Latency, Energy Efficient MAC Protocol for Wireless Sensor Networks. International Journal of Distributed Sensor Networks. Volume 2015 (2015), 946587.
   (2) PEI Tingrui, LEI Fangqing, LI Zhetao, ZHU Gengming, PENG Xin, CHOI Youngjune, SEKIYA Hiroo. A Delay-aware Congestion Control Protocol for Wireless Sensor Networks. Acta Electronica Sinica. Accepted.
   (3) PEI Tingrui, DENG Yafeng, LI Zhetao, ZHU Gengming, PAN Gaofeng, CHOI Youngjune, SEKIYA Hiroo. A throughput aware with collision-free MAC for wireless LANs. SCIENCE CHINA Information Sciences. Accepted.
   (4) TIAN Shujuan, FAN Xiaopin, XIE Jingxiong, LI Zhetao, CHOI Youngjune, SEKIYA Hiroo. Alternative Multiplicative Iterative Method for Projection Matrix Design in Compressive Images. International Journal of Distributed Sensor Networks. Submitted.
   (5) LI Zhetao, ZENG Hongqing, PEI Tingrui, SEKIYA Hiroo, CHOI Youngjune. Back-off and RectificationofGreedy Algorithm for Compressed Sensing. Acta Electronica Sinica. Submitted.
   (6) LI Zhetao, ZENG Hongqing, TIAN Shujuan, SEKIYA Hiroo, CHOI Youngjune, Greedy Sparse Signal Recovery with Hope-Tree Building for Compressed Sensing. ICASSP2016. Submitted.
8. None

Center for Frontier Science

1. Electronic structures of organic / metal interfaces studied by photoemission spectroscopy
2. Center for Frontier Science / Professor / Hisao Ishii
   Garauate School of Advanced Integration Sceince / Assistant professor / Yasuo Nakayama
3. Taiwan / National Tsing Hua University / Shu-Jung Tang
4. FY2010
5. The electronic structures of organic / metal interfaces of various system which attracts interest are investigated by photoemission spectroscopy. The target system is interfaces between organic semiconductor films and quantum wells where free electrons are confined in nano-scale ultra thin metal film
6. Global COE Program, KAKENHI (Grant-in-Aid for scientific reserch A), Sasagawa Scientific Research

Grant of the Japan Science Society, “Summer Visiting Program” of Interchange Association, Japan, “International Shuttle Program” of Japan Student Services Organization, KAKENHI (Grant-in-Aid for scientific reserch B), Chiba Univeristy COE program

7. Original papers :

Yasuo Nakayama, Meng-Kai Lin, Chin-Yong Wang, Tun-Wen Pi, Hisao Ishii, S.-J. Tang, “Interface electronic structure of zinc-phthalocyanine on the silver thin-film quantum-well”, e-Journal of Surface Science and Nanotechnology, vol.10, (2012) pp. 149—152.

Meng-Kai Lin, Yasuo Nakayama, Chin-YungWang, Jer-Chia Hsu, Shin-ichi Machida, Tun-Wen Pi, Hisao Ishii, S.-J. Tang, “The interfacial properties at organic/metal interface probed by the quantum-well states” , Physical Review B, 86(15) (2012) 155453-1~5.

Conference contributions :

Meng-Kai Lin, Yasuo Nakayama, Chin-Hung Chen, Chin-Yung Wang, H.-T. Jeng, Tun-Wen Pi, Hisao Ishii, S.-J. Tang, "Tuning gap states at organic-metal interface by quantum size effects", Nature Communications, 4 (2013) 2925-1~7.

中山泰生, Meng-Kai Lin, Chih-Hao Pan, Tun-Wen Pi, S.-J. Tang, 石井 久夫, 「誘電体分子の表面吸着に伴う Ag 超薄膜の量子化エネルギー変化」第６０回応用物理学関係連合講演会 神奈川工業大学(2013 年 3 月 28 日) [28aG13-9] (in Japanese)

8. Dr. Y. Nakayama, a lecturer (specially appointed) of Center of Frontier Scicence, visited National Taiwan University, National Tsing Hua University, and National Synchrotron Radiation Research Center with two graduate students to promote Japan-Taiwan international collaboration under the “Summer Visiting Program” of Interchange Association, Japan. A graduate student, Mr. Meng-Kai Lin, of National Tsing Hua University also visited to this department to proceed collaborating works. In Dec 2013, Under collaboration between the division of nanoscience of AIST and the department of physics of NTHU, Taiwan-Japan International Workshop on Spectroscopy and Surface Science was held. In 2014, MOD between Chiban University and NTHU was contracted in 2014.

1. Properties of new interfaces built-up on ordered organic single crystal surfaces
2. Center for Frontier Science / Professor / Hisao Ishii (Garauate School of Advanced Integration Sceince / Assistant professor / Yasuo Nakayama)
3. Germany / Humboldt University (Berlin) / Prof. N. Koch
4. FY2010
5. The ordered structure of organic layer on clean organic single crystal surface are prepared, and the properties of the heterointerfaces are investigated by scanning probe microscope.
6. Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST), JSPS ”Institutional Program for Young Researcher Overseas Visits” (Frontier science international training program for young researchers leading in materials science and computational science (Graduate School of Advanced Integration Science)), KAKENHI (Grant-in-Aid for Young Scientists B), KAKENHI

(Grant-in-Aid for scientific reserch B)

7. Original paper :

Yasuo Nakayama, Jens Niederhausen, Shin'ichi Machida, Yuki Uragami, Hiroumi Kinjo, Antje Vollmer, Jürgen P. Rabe, Norbert Koch, Hisao Ishii, "Valence band structure of rubrene single crystals in contact with an organic gate dielectric", Organic Electronics. 14(7), (2013) 1825-1832.

Conference contributions :

Julia Wagner, Mark Gruber, Andreas Wilke, Yuya Tanaka, Katharina Topczak, Andreas Steindamm, Ulrich Hoermann, Andreas Opitz, Yasuo Nakayama, Hisao Ishii, Jens Pflaum, Norbert Koch, Wolfgang Bruetting, "Identification of different origins for s-shaped current voltage characteristics in planar heterojunction organic solar cells", Journal of Applied Physics, 111(5) (2012) 054509-1～12

中山泰生，町田真一，Jens Niederhausen，浦上裕希，金城拓海，K. Rasika Koswattage，間瀬 一彦，Antje Vollmer, Norbert Koch，石井久夫，「ルブレン単結晶およびその表面上に形成したヘテロ界面の価電子バンド構造の実測」第 21 回有機結晶シンポジウム　東京工業大学（2012 年 11 月 9 日）[O-16] (in Japanese)

Yasuo Nakayama, Shin'ichi Machida, Jens Niederhausen, Yuki Uragami, Hiroumi Kinjo, K. Rasika Koswattage, Kazuhiko Mase, Antje Vollmer, Jügen P. Rabe, Norbert Koch, Hisao Ishii, "Electronic investigation inside crystalline organic semiconductors: two-dimensional valence band structures, gap states, and buried interfaces", International Symposium on Organic Transistors and Functional Interfaces (OFET2012); Princeton, USA, Oct./28/2012. (Invited)

中山泰生，Jens Niederhausen，町田真一，金城拓海，浦上裕希，Antje Vollmer，Norbert Koch，石井久夫，「ルブレン単結晶上の金属－有機界面：成長様式と電子構造」，2012 年秋季 第 73 回応用物理学会学術講演会　愛媛大学（2012 年 9 月 11 日）[11aH1-8] (in Japanese)

Yasuo Nakayama, Shin'ichi Machida, Jens Niederhausen, Hiroumi Kinjo, Yuli Uragami, Antje Vollmer, Norbert Koch, Hisao Ishii, "Photoemission Observation of Hetero-interfaces Formed onto the Rubrene Single Crystal as the Model Interfaces of an Organic Field Effect Transistor", The 2012 International Conference on Flexible and Printed Electronics (ICFPE2012); Tokyo, Japan, Sep./6/2012. (Session Invited Talk)

Yasuo Nakayama, Jens Niederhausen, Shin'ichi Machida, Hiroumi Kinjo, Yuki Uragami, Antje Vollmer, Norbert Koch, Hisao Ishii, "Metals and Insulating Molecules on the Rubrene Single Crystal Surface: Model Interfaces of an Organic Field Effect Transistor"

5th International Symposium on Flexible Organic Electronics (ISFOE12); Thessaloniki, Greece, Jul./3/2012.

8. None

1. Properties of charge accumulation at organic heterointerfaces and the device performance
2. Center for Frontier Science / Professor / Hisao Ishii (Assistant Prof./ Yutaka Noguchi)
3. Germany / University of Augsburg / Wolfgang Bruetting

4. FY 2010～

5. Functions of organic semiconductor devices often originate from heterointerfaces in the device. We investigated the relations between charge accumulation mechanisms at the interfaces and the device performances using several experimental techniques, especially focusing on the role of orientation polarization. We have been conducting a good collaborating works including mutual people exchange.

6. JSPS "Institutional Program for Young Researcher Overseas Visits" (Frontier science international training program for young researchers leading in materials science and computational science(Graduate School of Advanced Integration Science)), Chiba University COE start-up Program, Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST), KAKENHI (Grant-in-Aid for scientific reserch B)

7. Main result

- Paper

(1) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii, "Impedance spectroscopy for pentacene field-effect transistor: channel formation process in transistor operation", Proc. SPIE, 8117 (2011) 811713

(2) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii, "Displacement current measurement of a pentacene metal-insulator-semiconductor device to investigate both quasi-static and dynamic carrier behavior using a combined waveform", Organic Electronics, 12(9), (2011)1560-1565.

(3) Yutaka Noguchi, Yukimasa Miyazaki, Yuya Tanaka, Naoki Sato, Yasuo Nakayama, Tobias D. Schmidt, Wolfgang Bruetting, Hisao Ishii, "Charge accumulation at organic semiconductor interfaces due to a permanent dipole moment and its orientational order in bilayer devices", Journal of Applied Physics, 111(11) (2012) 114508-1～10.

(4) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii "Three-Terminal Capacitance-Voltage Measurements of Pentacene Field-Effect Transistor during Operation", 14(10), (2013) 2491-2496

- Conference

(1) Yutaka Noguchi, Yukimasa Miyazaki, Yasuo Nakayama, Wolfgang Bruetting, Hisao Ishii, "Charge accumlation mechanisms at organic hetero interfaces: Interface charge and orientation polarization" [invited], The 10th International Discussion & Conference on Nano Interface Controlled Electronic Devices 2010 (IDC-NICE 2010), Oct 28 2010, Jeju, Korea.

(2) Yukimasa Miyazaki, Yutaka Noguchi, Yasuo Nakayama, Wolfgang Bruetting, Hisao Ishii, "Charge accumulation mechanisms at organic hetero interfaces: the effects of interface charges and orientation polarization", 9th International Conference on Nano-Molecular Electronics (ICNME 2010), Dec 15 2010, Kobe, Japan.

(3) Yutaka Noguchi, Yukimasa Miyazaki, Yuya Tanaka, Yasuo Nakayama, Wolfgang Bruetting,

Hisao Ishii, Carrier behaviors at organic heterointerfaces studied by displacement current measurement and impedance spectroscopy, 6th international conference on Molecular and Bioelectronics (M&BE6), (March 2011) *The conference itself was cancelled due to the earthquake, but the abstract book has been published.

(4) Yuya Tanaka, Yutaka Noguchi, Michael Kraus, Wolfgang Bruetting, Hisao Ishii, “Impedance spectroscopy for pentacene field-effect transistor -channel formation process in transistor operation”, SPIE Optics+Photonics; San Diego, CA, Aug./2011

(5) 野口 裕, 宮崎行正, 田中有弥, Wolfgang Bruetting, 石井久夫, 「分子のダイポールモーメントと有機ヘテロ界面の電荷蓄積」, 第 12 回有機 EL 討論会; 日本科学未来館 みらい CAN ホール, Jun./30/2011 (S3-2)

(6) 野口 裕, 宮崎行正, 田中有弥, Wolfgang Bruetting, 石井久夫,「分子の永久双極子に起因する有機／有機界面の電荷蓄積現象」, 第 72 回 応用物理学会学術講演会; 山形大学, Aug./30/2011 (30a-Q-26)

(7) 野口 裕、宮崎 行正、田中 有弥、Wolfgang Bruetting、石井 久夫, "有機半導体デバイス内部の電界分布と電荷蓄積現象"(依頼講演),日本学術振興会 情報科学用有機材料第 142 委員会 A 部会 第 121 回、B 部会 第 113 回、C 部会 第 48 回 合同研究会、東京理科大学森戸記念館、Oct./28/2011

(8) Yutaka Noguchi, Yukimasa Miyazaki, Yuya Tanaka, Takamitsu Tamura, Kyung Jun Kim, Yasuo Nakayama, Wolfgang Bruetting, Hisao Ishii "Interface Charges in Organic Light-Emitting Diodes: The Origin and Impacts on Device Properties", Fifth International Conference on Optical, Optoelectronic and Photonic Materials and Applications (ICOOPMA2012); Nara, 5/Jun./2012 (2A1-1)

(9) 田中有弥, 野口裕, Michael Kraus, Wolfgang Brütting, 石井久夫、「3 端子容量－電圧測定によるペンタセン電界効果トランジスタのチャネル形成過程の観測 」、第 59 回応用物理学関係連合講演会; 早稲田大学, 16/Mar./2012 (16p-F9-11)

(10) H.S. Lim, 宮崎 行正, 磯島 隆史, 伊藤 英輔, 原 正彦, WheeWon Chin, Jinwook Han, Wolfgang Brütting, 中山 泰生, 野口 裕, 石井 久夫,「Alq3 誘導体蒸着膜の逆極性の配向分極とデバイス特性」, 第 60 回応用物理学会春季学術講演会; 神奈川工科大学, Mar./29/2013. (29a-G13-1)

8. Othre important items to be stated

(1) Assist. Prof. Yutaka Noguchi recieved a presentation award from “Yuki EL Touron-kai” (2012.11.21)

(2) COE Start-up International Workshop "Organic Semiconductors Towards the Next", Nov 11 2010, was chaired, in which Prof. Bruetting was invited.

1. Elucidation of electronic properties based on direct observations of frontier density of states in organic semiconductors
2. Center for Frontier Science / Professor / Hisao Ishii (Garauate School of Advanced Integration Sceince/ Assistant professor/ Yasuo Nakayama, Assistant Prof./ Yutaka Noguchi)
3. Germany / University of Augsburg / Wolfgang Bruetting

4. FY 2009
5. Investigations and development of experimental techniques for deep understandings of physics of organic semiconductor devices.
6. KAKENHI (Grant-in-Aid for scientific research A)
7. Main result
   - Paper
     (1) Julia Wagner, Mark Gruber, Andreas Wilke, Yuya Tanaka, Katharina Topczak, Andreas Steindamm, Ulrich Hoermann, Andreas Opitz, Yasuo Nakayama, Hisao Ishii, Jens Pflaum, Norbert Koch, Wolfgang Bruetting, "Identification of different origins for s-shaped current voltage characteristics in planar heterojunction organic solar cells" , Journal of Applied Physics, 111(5) (2012) 054509-1～12
   - Conference
     None
8. None

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1. Study on carrier injection in organic electronics
2. Center for Frontier Science / Professor / Hisao Ishii (Garauate School of Advanced Integration Sceince/ Assistant professor/ Yasuo Nakayama)
3. USA / University of Minnesota / Daniel Frisbie
4. FY2013
5. Research to improve the carrier injection properties of organic electronics
6. Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST), KAKENHI (Grant-in-Aid for scientific reserch B)
7. Wei Xie, Pradyumna L. Prabhumirashi, Yasuo Nakayama, Kathryn A. McGarry, Michael L. Geier, Yuki Uragami, Kazuhiko Mase, Christopher J. Douglas, Hisao Ishii, Mark C. Hersam, C. Daniel Frisbie, "Utilizing Carbon Nanotube Electrodes to Improve Charge Injection and Transport in Bis(trifluoromethyl)-dimethyl-rubrene (fm-rubrene) Ambipolar Single Crystal Transistors", ACS Nano, 7(11) (2013) 10245-10256.
8. None

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1. Study on the numerical methods to solve the moment equations of the radiative transfer
2. Center for Frontier Science / Professor / Tomoyuki Hanawa
3. France / Maison de la Simulation / Edouard Audit
4. FY 2013
5. We are studying the moment equations of the radiative transfer which provide us a good approximation. In the fiscal year 2013, we analyzed the M1 model which describe the radiation field by the 0th and 1st moments. The M1 model is found to be identical to the hydrodynamical equations of ultra-relativistic particles. The analysis provides us some useful and practical information for applying the M1 model to

relativistic flow and achieving higher order accuracy in the numerical solutions. The result is published in Journal of Quantitative Spectroscopy and Radiative Transfer and is given as an oral talk at the Annual Spring Meeting of the Japanese Astronomical Society of Japan.

6. No specific grant.
7. Main Result
   - Journal of Quantitative Spectroscopy and Radiative Transfer, Volume 145, September 2014, Pages 9-16
   - Reformulation of the M1 model of radiative transfer, Tomoyuki Hanawa, Edouard Audit http://dx.doi.org/10.1016/j.jqsrt.2014.04.014
8. No items warranting special mention

Graduate School of Horticulture

1. A comparative study of soil microbial biomass dynamics and survival strategies in Northern European and Japanese soils
2. Graduate School of Horticulture / Professor / Kazuyuki INUBUSHI
3. UK / AFRC Arable Crop Research Institute Rothamsted Experimental Station / Philip C Brookes
   China / Zhejiang University
4. Since 1986 (Continued)
5. Soil microorganisms play important roles in nutrient turnover and food production and even survivals of all livings on the Earth. This study is aimed to evaluate soil microbial biomass and their dynamics in bioelements' turnover by the methods commonly applicable to Northern European and Japanese soils
6. British Council、Grants-In-Aids (Basic Research (B), 1999-2001)
7. Main result
   - Brookes, P. C., Inubushi, K., Wu J. and Patra, D. D. (1991) Properties of the soil microbial biomass, Japanese Journal of Soil Science and Plant Nutrition, 62, 79-84
   - Inubushi, K., Brookes, P. C. and Jenkinson, D. S. (1991) Measurements of soil microbial biomass C, N and ninhydrin-N in aerobic and anaerobic soils by the fumigation-extraction method, Soil Biology and Biochemistry, 23, 737-741
   - Shibahara, F. and Inubushi, K. (1995) Measurements of microbial biomass C and N in paddy soils by the fumigation-extraction method, Soil Science and Plant Nutrition,41,681-689.
   - Inubushi, K (ed.) (2001) Microbial Diversity and Environmental Remediation in Biosphere, Chiba University International Symposium, Chiba University, pp. 145.
   - Inubushi, K. and Ando, A. (2001) Report of International Symposium, Biodivesity and bioremediation in biosphere, Bioscience and Industry, 59, 61.
   - Kanazawa S., et al (ed.) (2002) Nutrient Metabolisms and Bioremediation by Soil Microorganisms, Grant-in-aid Report, Kyushu University, pp.321.

- Inubushi, K. and Acquaye, S. (2004) Role of microbial biomass in biogeochemical processes in paddy soil environments, Soil Science and Plant Nutrition, 50 (6), 793-805
- Inubushi, K., Sakamoto, K., and Sawamoto T. (2005) Properties of microbial biomass in acid soils and their turnover, Soil Science and Plant Nutrition, 51 (5), 605-608
- Tirol-Padre, A., Tsuchiya, K., Inubushi, K., and Ladha, J.K. (2005) Enhancing soil quality through residue management in a rice-wheat system in Fukuoka, Japan. Soil Science and Plant Nutrition, 51 (6) 849-860
- Xu, X, Han, L., Wang, Y., and Inubushi, K. (2007) Influence of vegetation types and soil properties on microbial biomass carbon and metabolic quotients in temperate volcanic and tropical forest soils, Soil Science and Plant Nutrition, 53(4), 430-440
- Ushiwata, S., Sasa, H., and Inubushi, K. (2007) Influence of steam-treated grass clipping on grass growth, drainage water quality and soil microbial properties in a simulation of green course, Soil Science and Plant Nutrition, 53(4), 489-498
- Inubushi, K., Cheng, W., Mizuno, T., Lou, Y., Hasegawa, T., Sakai, H., Kobayashi, K. (2011) Microbial biomass carbon and methane oxidation influenced by rice cultivars and elevated CO2 in a Japanese paddy soil. European J. Soil Sci., 62. (1), 69-73
- Arai, H., Hadi, A., Darung, U., Limin, S. H., Takahashi, H., Hatano, R. and Inubushi, K. (2014) Land use change affects microbial biomass and fluxes of carbon dioxide and nitrous oxide in tropical peatlands, Soil Science and Plant Nutrition 60: 423-434
- Inubushi, K and Nagano, H (2016) Microbial biomass and functions in paddy soil, Chapter, Microbial biomass and turnover in soil, Ed. Kevin Tate.

8. Other important items to be stated
   - Chiba University International Symposium, July 6, 2001
   - Japanese Society of Soil Science and Plant Nutrition, Award, April, 2005; Poster Award, September, 2012

1. Composting of unutilized plant materials and their impacts on soil microbial, chemical and physical properties
2. Graduate School of Horticulture / Professor / Kazuyuki INUBUSHI
3. Nepal / Consultant (Agricultural, Environmental Microbiology) / Dr. Shashi S. Rajbanshi
   India / Haryana Agricultural University / Dr. Sneh Goyal, Prof. K.K.Kapoor, Prof. R.S. Antil, Ankit Singla
   Malaysia / Putra Malaysia University / Dr. Rosenani Abu Bakar
   Hungary / Szent István University / Dr. Peter Simandi /
   Hungary / Debrecen University / Prof. Katai Yanos
4. Since 1995 (Continued)
5. Huge amounts of waist materials are now discharged from urban and agricultural ecosystem and cause serious problems. This study aimed to solve such problem by composting unutilized plant materials and

evaluate their impacts on soil microbial, chemical and physical properties and ecosystems.

6. JSPS, Grants-In-Aids (Foreign Researchers・Invited Short-term), Nakajima Fundation, JASSO, Hangarian Academy of Sciences

7. Main result

- Rajbanshi, S. S., Endo, H., Sakamoto, K. and Inubushi, K. (1998) Stabilization of chemical and biochemical characteristics of grass straw and leafmix during in-vessel composting with and without seeding material, Soil Science and Plant Nutrition, 44, 485-495.
- Goyal, S., Inubushi,K., Kato, S., Xu, H.L., and Umemura, H.(1999) Effect of anaerobically fermented manure on the soil organic matter, microbial properties and growth of spinach under greenhouse conditions, Indian Journal of Microbiology, 39, 211-216.
- Inubushi, K., Goyal, S., Sakamoto, K., Wada, Y., Yamakawa, K. and Arai, T., (2000) Influence of application of sewage sludge compost on N2O production in soils, Chemosphere, 2, 329-334.
- Miyittah, M. and Inubushi, K. (2003) Decomposition and CO2-C evolution of okara, sewage sludge, cow and poultry manure composts in soils, Soil Science and Plant Nutrition, 49(1), 61-68.
- Simandi, P., Takayanagi, M., and Inubushi, K. (2005) Changes in the pH of two different composts are dependent on the production of organic acids, Soil Science and Plant Nutrition, 51 (5), 771-774
- Goyal,S., Sakamoto, K., Inubushi, K. and Kamewada, K. (2006) Long-term effects of inorganic fertilization and organic amendments on soil organic matter and soil microbial properties in Andisols, Archives of Agronomy and Soil Science, 52(6), 617-625
- Goyal,S., Sakamoto, K. and Inubushi, K. (2006) Decomposition of sewage sludge compost and its effect on soil microbial biomass and growth of spinach, Research on Crops, 7(2), 517-521
- Imre, V., Sakamoto, K. and Inubushi, K.（2008）: Selection of root-associated fungal endophytes from Ericaceae plants to enhance blueberry seedling growth, Jpn Soc Soil Sci Plnat Nutr, Abstract, 54, p.57
- Inubushi, K, A. Kawakami, F. Okubo, O. Jumadi, L. Melling, H. Kasai, K. Niida (2009): Greenhouse gases production in oil-palm plantation soil in Indonesia and Malaysia、Jpn Soc Trop Agr, Res for Tropical Agr.、2 (Extra issue 1) p.73-74
- F. Okubo, Inubushi, K, A. Kawakami, O. Jumadi, L. Melling, H. Kasai (2009): Organic matter decomposition and greenhouse gases production in oil-palm plantation soil in Indonesia and Malaysia、Jpn Soc Microbial Ecol、p.1
- Vano, I., Sakamoto, K. and Inubushi, K.（2009）: Selection of dark septate endophytes from Ericaceae plants to enhance blueberry (Vaccinium corymbosum L.) seedling growth. Abstracts of 7th International Symposium on Integrated Field Science, p.15 (Organized by Field Science Center, Tohoku University and Ecosystem adaptability Global COE, Tohoku University) (October 10-12, 2009, Sendai, JAPAN)
- Silvio Ushiwata, Yoshimiki Amemiya, Kazuyuki Inubushi (Aug. 2009): Inhibition of in vitro growth of Rhizoctonia solani by liquid residue derived from steam-treated grass clippings, Journal of General

Plant Pathology 75: 312-315

- Vano I, Sakamoto K, Inubushi K (2010) Selection of dark septate endophytes from Ericaceae plants to enhance blueberry (Vaccinium corymbosum L.) seeding growth. 19th World Congress of Soil Science (WCSS) (August 1-6, 2010, Brisbane, Australia), P-0349. Handbook: 49
- Antil R. S., Nagano H, Kobayashi S, Inubushi K (2010) Effects of organic vs. conventional forming on soil organic matter pools in particle-size fractions. 5th International Nitrogen Conference (Dec.3-7, 2010, New Delhi, India) Abstract: 55
- Ankit Singla, Paroda Shashi, Dhamija Sunder, Goyal Sneh, Shekhawat Kirti, Amachi Seigo, Inubushi Kazuyuki (2012) Bioethanol production from xylose: Problems and possibilities, J Biofuels, 3, 1, 39-49
- Vano Imre, Miwa Matsushima, Changyuan Tang, and Kazuyuki Inubushi (2011) Effect of peat moss and sawdust compost applications on N2O emission and N leaching in blueberry cultivating soil, Soil Science and Plant Nutrition, 57(2), 348-360
- Kong Y, Nagano H, Kátai, J, Vágó I, Oláh Á Z, Yashima M, Inubushi K (2013) CO2, N2O and CH4 production/consumption potentials of soils under different land-use types in central Japan and eastern Hungary. Soil Sci Plant Nutr 59 (3): 455-462
- Ankit Singla, Suresh K. Dubey, Hirokuni Iwasa and Kazuyuki Inubushi (2013) Nitrous oxide flux from komatsuna (Brassica rapa) vegetated soil: a comparison between biogas digested liquid and chemical fertilizer, Biol Fertil Soils 49:971–976
- Ankit Singla and Kazuyuki Inubushi (2013) CO2, CH4 and N2O production potential of paddy soil after biogas byproducts application under waterlogged condition, International Journal of Agriculture, Environment and Biotechnology 6(2): 233-239
- Ankit Singla and Kazuyuki Inubushi (2014) Effect of biochar on CH4 and N2O emission from soils vegetated with paddy, Paddy Water Environ, 12(1) 239-243
- Ankit Singla and Kazuyuki Inubushi (2014) Effect of biogas digested liquid on CH4 and N2O flux in paddy ecosystem. Journal of Integrative Agriculture 13(3): 635-640
- Ankit Singla, Rosnaeni Sakata, Syunsuke Hanazawa and Kazuyuki Inubushi (2014) Methane production/oxidation potential and methanogenic archaeal diversity in two paddy soils of Japan, International Journal of Ecology and Environmental Sciences (India) 40(1): 49-55
- Ankit Singla, Muhammad Aslam Ali, and Kazuyuki Inubushi (2014) Methane flux from paddy vegetated soil: A comparison between biogas digested liquid and chemical fertilizer, Wetlands Ecology and Management (DOI 10.1007/s11273-014-9365-3
- Ankit Singla, Hirokuni Iwasa, Kazuyuki Inubushi (2014) Effect of biogas digested slurry based-biochar and digested liquid on N2O, CO2 flux and crop yield for three continuous cropping cycles of komatsuna (Brassica rapa var. perviridis), Biology and Fertility of Soils, 50:1201–1209
- Kazuyuki Inubushi, János Kátai, Imre Vágó, Ágnes Zsuposné Oláh, Yuhua Kong, Hirohiko Nagano (2014) Effect of agroecological impacts on carbon and nitrogen dynamics in cropland in

Eastern-Hungary and Japan. European Society for Agronomy Ⅷth Congress (August 25-29, Debrecen, Hungary) Programbook, p. 21

- Matyas B, Matyas G, Szendrei M, Singla A, Kong Y, János Kátai, Ágnes Zsuposné Oláh, Inubush K (2015)Development of four-column data storage model for data-manipulation of greenhouse gases and soil properties. Sustainable Agri Res 4 (4) : 115-121
- Singla A, Dubey SK, Ali MA, Inubushi K (2015) Methane flux from paddy vegetated soil: a comparison between biogas digested liquid and chemical fertilizer. Wetlands Ecol Manage 23 : 139-148

8. Faculty of Horticulture Seminar, Chiba University, July 31, 2004

1. Emission and uptake of methane and nitrous oxide in peat wetland and agricultural field in tropical and temperate Asia
2. Graduate School of Horticulture / Professor / Kazuyuki INUBUSHI
3. Indonesia / Lambung Mangkurat University, President / Ir. Muhammad Rasmadi
   Indonesia / Lambung Mangkurat University, Faculty of Agriculture, Lecturer / Abdul Hadi
   Indonesia / Bogor Agricultural University / Daniel Murdiyarso, Iswandi Anas
   Indonesia / Makkasar University / Yusminah Hala
   China / Institute of Atmospheric Physics / Xu Xingkai
   Malaysia / Peat Research Institute/ Lulie Melling
   Thailand / King Mongkut University / Amnat Chidthaisong
4. Since 1998 (Continued)
5. Methane emission from wetland is estimated as 20% of global but accuracy is very low and such estimate for nitrous oxide is not available. This study is to investigate these emissions and their controlling factors in tropical wetland and agricultural field.
6. The Ministry of Environment (via NIAES)
7. Main result
   - Hadi, A., Inubushi, K., Purnomo, E., Razie, F., Yamakawa, K. and Tsuruta, H. (2000) Effect of land-use changes on nitrous oxide (N2O) emission from tropical peatlands, Chemosphere, 2, 347-358.
   - Hadi, A., Haridi, M., Inubushi, K., Purnomo, E., Razie, F. and Tsuruta, H. (2001) Effects of land-use change in tropical peat soil on the microbial population and emission of greenhouse gases, Microbes and Environments, 16 (2), 79-86
   - Hadi, A. and Inubushi, K. (2001) Applicability of method to measure organic matter decomposition in peat soils, Indonesian Journal of Agricultural Sciences, 1, 25-28
   - Hadi, A., K. Inubushi, E. Purnomo, and H. Tsuruta (2002): Effect of hydrological zone and land-use management on the emissions of N2O, CH4, and CO2 from tropical peatlands, Agroscientiae, 9, 53-60.
   - Xingkai, Xu and K. Inubushi (2004) Effects of N sources and methane concentration on methane uptake potential of a typical coniferous forest and its adjacent orchard soil, Biology and Fertility of Soils, 40, 215-221.

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- Ali M A, Kim P J, Inubushi K (2015) Mitigating yield-scaled greenhouse gas emissions through combined application of soil amendments: A comparative study between temperate and subtropical rice paddy soils, Science of the Total Environment. 529 : 140-148

8. Oze Award, June 2004

1. Paleoecosystem in “Arkaim” Ecopreserve and Protection of Boreal Ecosystem in Central South Ural, Russia
2. Graduate School of Horticulture / Professor / Kazuyuki INUBUSHI,/ Lecturer/ Miwa YASHIMA
3. Russia / Institute of Physicochemical and Biological Problems in Soil Science (IPBPSS), Russian Academy of Sciences / Professor / PRIKHODKO, Valentina et al.
   Russia / Moscow State University, Scientific officer, Manakhov Dmitry Valentinovich et al.
   Russia / Chelyabisk State University, Professor, Zdanovich Gennady Borisovich et al.
4. Since 2009 (Continued)
5. Reconstruction of ecological conditions of unique civilization of Bronze Age and conservation of nature and soils and other natural components on the boundary of Europe and Asia. The project is devoted to solution of the fundamental problem – reconstruction of ecological conditions of Bronze Age, conservation of unique paleoworld, saving and recovery of soils and other natural components in reserve regime.
6. JSPS and RFBR (Russian Foundation of Basic Research) Joint Research Program 2009-2010
7. Main result
   - Susumu Okitsu, Valentina E. Prikhodko, Miwa Matsushima and Kazuyuki Inubushi (2009); Vegetation landscape in Arkaim and surround area, south Urals, The Soc Vegetation, Tottori.
   - Hirohiko Nagano, Ikumi Utsugi, Mai Adachi, Fumina Okubo, Satoshi Horaguchi, Miwa Matsushima, Susumu Okitsu, Valentina E. Prikhodko, Elena Manakhova, Gennady B.Zdanovich, Dmitry G. Zdanovich, So Sugihara, Shinya Funakawa, Masayuki Kawahigashi and Kazuyuki Inubushi (2010): Biological aspects of soils in Arkaim and surround area, south Urals, Russia, World Congress of Soil Science, Brisbane, , P-0926, Handbook: 70

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- Susumu Okitsu, Valentina E. Prikhodko, Miwa Matsushima, and Kazuyuki Inubushi (2011) Vegetation landscape around the Arkaim eco-preserve, southeastern Ural, Russia, HortResearch, 65, 97-101
- Hirohiko Nagano, Soh Sugihara, Miwa Matsushima, Susumu Okitsu, Valentina E. Prikhodko, Elena Manakhova, Gennady B. Zdanovich, Dmitry V. Manakhov, Igor V. Ivanov, Shinya Funakawa, Masayuki Kawahigashi, and Kazuyuki Inubushi (2012) Carbon and nitrogen contents and greenhouse gas fluxes of the Eurasian steppe soils with different land-use histories located in the Arkaim museum reserve of South Ural, Russia, Soil Sci. Plant Nutr., 58(2) 238-244
- Prikhodko, V.E., Ivanov, I.V., Zdanovich, D.G., Zdanovich, G.B., Manakhov, D.V. and Inubushi, K. (2014) The Bronze Age fortified settlement of the steppe Trans-Ural: soil-archaeological research. Institute of Physicochemical and Biological Problems in Soil Science RAS, Moscow, Typography RAAS, 4.2 pp.49-76, 6.4 pp.196-207
- Inubushi K, Prikhodko V E, Nagano Kh, Manakhov D V (2015) Carbon and nitrogen compounds and emission of greenhouse gases in ancient and modern soils of the arkaim reserve in the steppe trans-ural region. Eurasian Soil Sci. 48 (12) : 1306-1316

8. Joint Seminar ; November 9, 2009 in Chiba University and November 11, 2009, in Nihon University

1. Ecophysiological diversity of water convolvulus (Ipomoea aquatica Forsk.) strains.
2. Graduate School of Horticulture / Professor / Michiko Takagaki
3. Thailand / Faculty of Agriculture, Kasetsart University / Pariyanuj Chulaka
   Thailand / BIOTEC / C. Kirdmanee
4. From 2000 to date
5. An aquatic vegetable (*Ipomoea aquatica* Forsk.) is used in a tropical region for long time. There are a lot of uncertain points of the characteristic. There are inherited varieties among the strains; color of the stem or shape of the leaf. It is assumed that the color of the stem is green in the cultivation strains and red in the wild strains. There are a lot of unknown parts of the inherited difference and the characteristic.

   From our current investigation, it has become clear that there are many cultivation methods of *Ipomoea aquatica* Forsk in Southeast Asia. In floating cultivation on the river or the canal, it has grown by minerals in water of river or canal. It can make a special mention of the high nutrient absorption ability of *Ipomoea aquatica* Forsk compared with other leafy vegetables. We collect many strains of Ipomoea aquatica Forsk in Thailand.

   Differences of the physiological and ecological characteristic among strains are investigated. At the same time, selection of the strains which have high nutrient absorption ability or stress tolerance and analysis of genetic variability among strains are done.

6. Heiwa Nakajima Foundation (Aids for the Academic Research in Asia Region), 2002.
   JSPS Grants-in-Aid for Scientific Research (B) 2006-2009.
7. Main result
   (1) Cultivation methods of water convolvulus in Thailand. Jap. J. Tropic. Agric., 45 (ext.1) 11-12. 2001
   (2) The lowest limiting concentration of the nutrient solution that could be absorbed by the water convolvulus. Proceedings of annual meeting of the societies for Agricultural Environmental Engineering: 220. 2001.
   (3) Genetic variability of water convolvulus (*Ipomoea aquatica* Forsk.) in Thailand, Jap. J. Tropic. Agric., 45 (ext.2) 105-106. 2001.
   (4) Growth of *Ipomoea aquatica* Forsk. strains under different concentrate on of nutrient solution, Jap. J. Tropic. Agric., 45 (ext.2) 107-108. 2001
   (5) Relations between leaf color or N contents of *Ipomoea aquatica* Forsk. strains and mineral contents of water, Jap. J. Tropic. Agric., 45 (ext.2) 3-4 2002
   (6) Morphological variability of *Ipomoea aquatica* Forsk strains, J. Tropic. Agric., 46(ext.1) 1-2 2002
   (7) Flowering variability of *Ipomoea aquatica* Forsk strains, J. Tropic. Agric., 47(ext.1) 33-34 2003
   (8) In vitro selection of *Ipomoea aquatica* Forsk. strains, Proceedings of annual meeting of the societies for Agricultural Environmental Engineering : 315. 2003.
   (9) Variability of shoot growth rate under low temperature of *Ipomoea aquatica* Forsk. strains, J. Tropic. Agric., 48(ext. 2):49-50, 2004
   (10) Comparison of photoperiodic responsibility of water convolvulus (*Ipomoea aquatica* Forsk.) and sweet potato (Ipomoea batatas Poir.), The First Int. Symposium on Water Convolvulus, KU, Bangkok, Thailand, 27.2005
   (11) Geographical distribution of water convolvulus in west Africa, The First Int. Symposium on Water Convolvulus, KU, Bangkok, Thailand, 28. 2005
   (12) An effective in vitro selection of water spinach for NaCl-, KH2PO4- and temperature-stresses, Environ. Control in Biol. 44(4): 265-277, 2006.
   (13) A rapid method for identifying salt tolerant water convolvulus (*Ipomoea aquatica* Forsk) under in vitro photoautotrophic conditions, Plant Stress, 1(2): 228-234, 2007
   (14) Improving Water Quality by Using Plants, with Water Convolvulus (Ipomoea aquatica Forsk.) as a Model, Acta Horticulturae, 797: 455-460, 2008.
   (15) Effect of light quality and intensity on flower-bud formation and plant hight in Water Spinach (*Ipomoea aquatica* Forsk.)
   Research for Tropical Agriculture, 5(1)15-19、2012.
8. None

1. Nutrient dynamics of vegetable cropping systems around Bangkok.
2. Graduate School of Horticulture / Professor / Michiko Takagaki

3. Thailand / Faculty of Agriculture, Kasetsart University / Pariyanuj Chulaka, Spachai Aumka

4. From 2000 to date

5. After Green Revolution, amount of chemical or organic fertilizers applied to the vegetable fields in Tropical region is increased. Application amounts are too big and percentage of release to outside of field systems might be big. These are causes of water pollutions in river, canal or pond. Object of this project is to know N, P flow in field system. We select five cropping system in Supanburi province and collect data about field management and N, P contents in water and soil in the fields to know the environmental friendly system.

6. JSPS Aids for the Academic Research in Asia Region, 2002-04.

7. Main result

   (1) The lowest limiting concentration of the nutrient solution that could be absorbed by the water convolvulus. Proceedings of annual meeting of the societies for Agricultural Environmental Engineering: 220. 2001.

   (2) Growth of *Ipomoea aquatica* Forsk. strains under different concentration of nutrient solution, Jap. J. Tropic. Agric., 45 (ext.2) 107-108. 2001

   (3) Relations between leaf color or N contents of *Ipomoea aquatica* Forsk. strains and mineral contents of water, Jap. J. Tropic. Agric., 45 (ext.2) 3-4、2002

   (4) Effects of mineral contents of water on those of *Ipomoea aquatica* Forsk Strains leaves, J. Tropic. Agric., 47(ext.1) 31-32、2003

   (5) Effect of Nitrogen Fertilizer Amount on Early Growth of Leafy Vegetable in Thailand, Jap. J. Tropic. Agric., 50(3):127-132., 2006.

   (6) Effects of Controlled-Release Nitrogen Fertilizer Application on Nitrogen Uptake by a Leafy Vegetables (*Brassica campestris* L.), Nitrate Leaching and N2O Emission, , Jap. J. Tropic. Agric., 51(4):152-159, 2007.

8. None

1. Marketing Strategy for Sustainable Agri-tourism

2. Graduate School of Horticulture / Professor / Yasuo Ohe

3. Italy / Faculty of Agriculture / Professor Adriano Ciani

4. Since 1998 (on going)

5. Objectives: In the developed countries, environmental friendly and local resource-using agri-tourism has been advocated to cope with serious depopulation of rural areas. Since establishment of marketing strategy is a curial point for sustainable agri-tourism, we need to collaborate on this field to find effective measures for the sustainable rural development.

   Details: Through bilateral exchange of researchers, optimum marketing strategy will be clarified and give future directions for Japanese agri-tourism.

   Forms: Exchange of researchers, joint survey analysis, and joint presentation at international meetings, finally joint publication of the research output.

6. Grant aids to joint presentation in the 99 International Farm Management Congress, Durban, 1999.

Research fellowship from Japan Society for the Promotion of Science in 2000.

Grant-in-Aid for Scientific Research since 2001-2014.

Grant-in-Aid for Scientific Research since 2016-2018.

7. Main result

- Ohe, Y. and A. Ciani (1999): Activities of Farm Tourism and Attitudes of the Operators: Japan-Italy Comparison, P. Simms
- Eds. Proceedings of the 12th International Farm Management Congress, 801-811, Durban.
  Yasuo Ohe and Adriano Ciani, Characteristics and Activities of Agri-tourism farms in Umbria, Italy, Ixth European of Agricultural Economists, poster paper, 1999.
- Ohe, Y. and Ciani, A. (1999): Characteristics and Activities of Agri-tourism Farms in Umbria, Italy, Ixth European of Agricultural Economists, poster paper
- Ohe,Y and A. Ciani (2000): On-farm Tourism Activity and Attitudes of the Operations: A Hiroshima-Umbria Comparative Case Study, The Technical Bulletin of Faculty of Horticulture, Chiba University, No.54, 73-80.
- Ohe, Y. (2003): Multifunctionality and Farm Diversification: A Case of Rural Tourism, 14th International Farm Management Congress, Proceedings CD-ROM, 761-768.
- Ohe, Y. and A. Ciani (2003): Evolutionary Process of Agri-toursim in Cetral Italy, Umbria, Japanese Journal of Tourism Studies, 2, 11-18.
- Ohe, Y. and A. Ciani (2005): Evaluating diversification of agri-tourism in Umbria, Italy, Japanese Journal of Farm Management, 43(1), 124-127.
- Ohe, Y. and Ciani, A. (2010): The demand trend of Italian agritourism, Brebbia, C.A. & Pineda, F.D. (Eds), Sustainable Tourism IV, Southampton: WIT Press, 437-448.
- Ohe, Y. and Ciani, A. (2011): Evaluation of agritourism activity in Italy: facility based or local culture based? Tourism Economics, 17(3), 581-601.
- Ohe, Y. and Ciani, A. (2012): Accessing demand characteristics of Agritourism in Italy, Tourism and Hospitality Management, 18(2), 281-296.
- Ohe, Y. (2014) Accessing Revision of Agritourism Law in Italy, 106th Annual Conference of Japan Tourism Association Proceedings, 10-11.
- Ciani, A., Rocchi, L., Paolotti, L., Diotallevi, F., Guerra, J B., Fernandez, F. Suni, A., Edwin, G.A., Muthu, N., Ohe, Y., and Grigore, A.-M. (2014) Corporate Social Responsibility (CSR): A Cross-Cultural Comparison of Practices, R. Wolf, T. Issa and M. Thiel (Eds.) Empowering Organizations through Corporate Social Responsibility, IGI Global, 73-96.

8. Other important items to be stated

- Keynote and invited speakers at the International Seminar on Italian Agritourism in Tokyo in 2001.
- Invited speakers at Seminar on Agritourism in Italy organized by Italian Embassy in Japan in 2002.

- Invited speakers at Seminar on Sustainable Rural Development held at Tirana Agricultural University in Tirana, Albania.
- Invited speakers at Seminar on Multifunctionality and agri-tourism held at Perugia University, Italy in September, 2006.
- Invited speaker at the international conference 'Quale Strategia per Lo Sviluppo Sostenibile? , Perugia, Italy in5 September, 2009.
- Invited speaker at the 4th International Conference on Sustainable Tourism, New Forest, UK July 5-7, 2010. The title : The demand trend of Italian agritourism.'
- Invited speaker at International Summer School at Todi, Italy organized by A. Ciani, 11-14 September, 2011, 24 August- 2 September, 2012, 31 August-6 September, 2015.
- Invited speaker at Conference Sustainable Tourism: Why, What, Who? at Perugia, Italy organized by A. Ciani, 10 October, 2014.

1. Study on the physiological active substances and aroma volatile biosynthesis in fruit
2. Graduate School of Horticulture / Professor / Satoru Kondo
3. The United State of America / United State of Department of Agriculture / Senior Researcher / Dr. James Mattheis
4. Since 2004 (Continued)
5. Aroma volatile is a kind of important factor to decide the fruit quality. Physiological active substances can promote or inhibit fruit ripening and aroma volatile production. However, the effects of physiological active substances on volatile compounds are unclear.
6. Grant-in-Aid for Scientific Research; Hiroshima Prefectural University
7. Main result
   (1) Kondo, S., J. P. Mattheis et al. 2005. Aroma volatile biosynthesis in apples affected by 1-MCP and methyl jasmonates. Postharvest Biol. Technol. 36:61-68.
   (2) Kondo, S., J. P. Mattheis et al. 2006. Aroma volatile emission and expression of 1-aminocyclopropane-1-carboxylate (ACC) synthase and ACC oxidase genes in pears treated with 2,4-DP. Postharvest Biol. Technol. 41:22-31.
   (3) Aroma volatile biosynthesis in apples at harvest or after harvest affected by jasmonates. 2006. Kondo, S.and J. Mattheis. Acta Hort. 712: 381-388.
8. Kondo S. Invited speaker at the international symposium on plant growth regulators in fruit production (Mexico, June, 2005)

1. Roles of jasmonates in fruit trees
2. Graduate School of Horticulture / Professor / Satoru Kondo
3. Italy / Bologna University / Professor / Dr. Guglielmo Costa; Dr. Patrizia Torrigiani
4. Since 2006 (Continued)
5. Physiological active substance, jasmonates influence tree or fruit physiology including coloring of the skin,

fruit ripening, flower bud formation, and dormancy. This study investigates the metabolism and physiology of jasmonates in the fruit and tree.

6. Bologna University

7. Main result

(1) Ziosi, V..Torrigiani, P., G. Costa, S. Kondo et al. 2008. Jasmonates-induced transcriptional changes suggest a negative interference with the ripening syndrome in peach fruit. Journal of Experimental Botany 59:563-573.

(2) Kondo, S. Roles of jasmonates in fruit ripening and environmental stress. 2010. Acta Hort.

8. Other important items to be stated

(1) Kondo S. Invited speaker at a seminar held in Bologna university (Bologna, Italy, May, 2006)

(2) Kondo S. Invited speaker at the international symposium on plant growth regulation in fruit production (Italy, September, 2009)

(3) Torigiani P, Fregola F, Ziosi V, Ruiz K, Kondo S, Costa G. 2012. Differential expression of allene oxide synthase (AOS), and jasmonate relationship with ethylene biosynthesis in seed and mesocarp of developing peach fruit. Postharvest Biology & Technology 63: 67-73.

(4) Invited speaker at a seminar held in Graduate School of horticulture, Chiba university (Professor Costa, 2013, March)

1. Study on the postharvest physiology in tropical fruit

2. Graduate School of Horticulture / Professor / Satoru Kondo

3. Thailand / King Mongkut's University of Technology Thonburi / Associate Professor / Dr. Varit Srilaong

4. Since 2000 (Continued)

5. Effects of physiological active substances on fruit physiology such as pigmentation, chilling injury and so on are investigated in subtropical and tropical fruit.

6. JASSO, JSPS postdoctoral fellowship for foreign researchers

7. Main result

(1) Kondo, S., S. Kanlayanarat et al. (2001). Abscisic acid metabolism during development and maturation of rambutan fruit. J. Hort. Sci Biotech. 76: 235-241.

(2) Kondo, S., S. Kanlayanarat et al. (2001). Changes in physical characteristics and polyamines during maturation and storage of rambutan. Scientia Hort. 91: 101-109.

(3) Kondo, S., S. Kanlayanarat et al. (2002). Effects of chilling injury on cell wall metabolism during storage of rambutan fruit. J. trop. Agri. 46:259-264.

(4) Kondo, S., Kanlayanarat et al. (2002). Abscisic acid metabolism during fruit development and maturation of mangosteens. J. Amer. Soc. Hort. Sci. 127:737-741.

(5) Kondo, S. Kanlayanarat et al. (2002). Cell wall metabolism during development of rambutan fruit. J. Hort. Sci. Biotech. 77:300-304.

(6) Kondo, S., S. Kanlayanarat et al. (2003). Relationship between ABA and chilling injury in mangosteen

fruit treated with spermine. Plant Growth regulat. 39:119-124.

(7) Kondo, S., Kanlayanarat et al. (2004). ABA catabolism during development and storage in mangoes: Influence of jasmonates. J. Hort. Sci. Biotech. 79:891-896.

(8) Kondo, S. et al. (2004). Relationship between jasmonates and chilling injury in mangosteens are affected by spermine. HortScience 39:1346-1348.

(9) Kondo, S., Kanlayanarat et al. (2004). Changes in jasmonates of mangoes during development and storage after varying harvest times. J. Amer. Soc. Hort. Sci. 129:152-157.

(10) Kondo, S., Kanlayanarat et al. (2005). Preharvest antioxidant activities of tropical fruit and the effect of low temperature storage on antioxidants and jasmonates. Post harvest Biol.Technol. 36:309-318.

(11) Kondo, S. et al. (2007). Effects of jasmonates differed at fruit ripening stages on ACC synthase and ACC oxidase gene expression in pears. J Amer. Soc. Hort. Sci. 132: 120-125.

(12) Kondo, S. (2007). Chilling-related browning of rambutan. Stewart Postharvest review. 3 (6). On line ISSN: 1945-9656.

(13) Kondo, S., Meemak, S., Ban, Y., Moriguchi, t., Harada, T. (2009). Effects of auxin and jasmonates on 1-aminocyclopropane-1-carboxylate (ACC) synthase and ACC oxidase gene expression during ripening of apple fruit. Postharvest Biol. Technol. 51: 281-284.

(14) Setha, S. and kondo, S. (2009). Abscisic acid levels and anti-oxidant activity are affected by an inhibitor of cytochrome P450 in apple seedlings. J. Hort. Sci. Biotech. 84: 340-344.

(15) Kondo, S., Sae-Lee, K. and Kanlayanarat, S. (2010). Xyloglucan and polyuronide in the cell wall of papaya fruit during development and storage. Acta Hort.

(16) Kammapana L, Kondo S, Srilaong V. (2014). Fruit developmental changes in abscisic and jasmonic acid contents of dragon fruit (Hylocereous undatus). International Food Res J. 21: 1095-1099.

(17) Changes in abscisic acid and antioxidant activity in sugar apples under drought conditions. 2015. Kowitcharoen L, Wong-Aree C, Setha S, Komkhuntod R, Srilaong V, Kondo S. Scientia Horticulturae 193:1-6.

8. Other important items to be stated

(1) Kondo S. Special seminar in King Mongkut's University Thonburi (Since 2000)

(2) Kondo S. International symposium publication (Southeast asia symposium on quality and safety of fresh and fresh cut produce) (Thailand, 2009, August)

(3) Satoru Kondo (2015) Dehydration tolerance in apple seedlings advanced by retarding ABA 8'-hydroxylase CYP707A. 16th Golden Jubilee PhD program conference. P.112 (Invited speaker)

(4) Satoru Kondo (2015) Oxylipin, abscisic acid and ethylene against pathogen infection in postharvest fruit. Thai National Postharvest Conference. 13th Thai National Postharvest Conference. P1 (Invited speaker)

1. ABA metabolism and water stress regulation
2. Graduate School of Horticulture / Professor / Satoru Kondo

3. Thailand / Mae Fah Luang University / Researcher / Assistant Professor, Sutthiwal Setha
4. Since 2007 (Continued)
7. Main result
   - Kondo S, Seata S. (2008). Abscisic acid levels and anti-oxidant activity are affected by an inhibitor of cytochrome P450 in apple seedlings. J. Hort. Sci. Biotech. 84: 340-344.
   - Kongsuwan A, Kondo S, Kittikon M, Setha S. (2012). A novel approach of LED light radiation increases growth rate and antioxidant of apple seedlings. Food Inov Asia PD 113: 181-188.
8. Other important items to be stated
   - Kondo S. Invited speaker at international symposium held in Mae Fah Luang University (The influence of the interaction between jasmonates, ethylene, and polyamines on fruit quality) (November, 2010, Chiang Rai, thailand)
   - Kondo S. Invited speaker at international symposium held in Mae Fah Luang University (Bioactive Compounds in Fruits are Affected by Light Quality and Plant Growth Regulators) (November, 2014, Chiang Rai, Thailand)

1. Relationship between phytohormones and low temperature storage in pineapples
2. Graduate School of horticulture/Professor/Satoru Kondo
3. Thailand／Faculty of Agriculture, Kasetsart university/Professor/ Jingtair Siriphanich
4. 2010 April～
5. The inhibition of chilling injury of fruit by the regulation of abscisic acid and gibberellic acid metabolism
6. Kasetsart university scholarship, Graduate School of Horticulture PhD course
7. Main result
   (1) Pusittigul I, Kondo S, Siriphanich J. (2012). Internal broning of pineapple (Ananas comosus L) fruit and endogenous concentrations of abscisic acid and gibberellins during low temperature storage. Scientia Hort. 145: 45-51.
8. Kondo S. Seminar at the faculty of agriculture, Kasetsart university（June, 2014、Bangkok、Thailsnd）

1. Effects of plant hormones on fruit set and growth in fruit tree
2. Chiba University / Emeritus Professor / Hiroyuki Matsui
   Center for Environment, Health and Field Sciences / Professor / Hitoshi Ohara
3. USA / Michigan State University / Martin J. Bukovac
4. 1994～
5. The objectives of this project are to develop cultivation methods for steady fruit production and high-quality fruits production, through the following investigations, ①relationship between fruit set and growth, and plant hormones, and ②the factor that relates to the penetration of plant hormones from the fruit surface.
6. Michigan State University
7. Main result
   ① N-Substituted phthalimide-induced of parthenocarpy in sour cherry (Prunus cerasus L.'Montm-orency

') enhanced by auxin. 1994. 24th Inter. Hort. Congress,Abstracts 269.

② Gibberellins in immature seed of Prunus cerasus: Structure detarmination and synthesis of gibberellins, GA95 (1,2-didehydro-GA20. 1996. Phytochemistry,42(4):913-920.

③ GA95 is a genuine precoursor of GA3 in immature seed of Prunus cerasus L.. 1998. 16th Inter. Conference on Plant Growth Substances,Abstracts 146.

④ Induction of fruit set and growth of parthenocarpic 'Hayward' kiwifruit with plant growth regulators. 1997. J. Japan. Soc. Hort. Sci. 66(3.4):467-473.

⑤ Endogenous gibberellin-induced parthenocarpy in grape berries. 2000. Acta Hort. 514:69-74.

⑥ Endogenous gibberellins in immature seeds of Prunus persica L.: identification of GA118, GA119, GA120, GA121, GA122 and GA126. 2001. Phytochemistry 57:749-758.

⑦ Effects of the combination of gibberellic acid and ammonium nitrate on the growth and quality of seedless berries in 'Delaware' grape. 2001. J. Japan. Soc. Hort. Sci. 72(5):366-371.

⑧ Effect of gibberellins on induction of parthenocarpic berry growth of three grape cultivars and their endoginous gibberellins. 2001. 52nd ASEV Annual Meeting, Technical Abstracts, 81.

⑨ Effects of gibberellin A3 and ammonium sulfate of growth and quality of seedless Delaware grapes. 2003. J. ASEV Jpn. 14(2):58-63.

⑩ Induction of parthenocarpic fruit growth with endogenous gibberellins of Loquat. 2004. Acta Hort. 653:67-70.

⑪ Production of seedless loquat fruits. 2004. Regulation of Plant Growth and Development. 39(1):106-113.

⑫ Effects of grape berry development stages on ammonium nitrate-enhanced penetration of gibberellin A3. 101st Abstracts ASHS Annual Conference, HortScience, 39(4):793.

8. None

1. Improvement of agricultural production in the arid area of China
2. Graduate School of Horticulture / Professor / Akihiro Isoda
3. China / Shihezi Agricultural and Environmental Institute for Arid Area in Central Asia / Peiwu Wang
4. From 1998
5. The object of this project is to improve agricultural production and to develop new agricultural technologies in the arid area of China. The main subjects of this project are water saving irrigation, mechanism of drought tolerance and organic agriculture on large scale.
6. None.
7. Main result

(1) Isoda et al. 2001. Dry matter production and physiological characteristics of cotton and soybean under different water conditions. Kanto Branch Jpn. J. Crop Sci., 16, 40-41.

(2) Isoda et al. 2001. Varietal differences in dry matter production of processing tomato in the arid area of China. Kanto Branch Jpn. J. Crop Sci., 16, 60-61.

(3) Isoda, A. and P. Wang, 2001. Effects of leaf movement on leaf temperature, transpiration and

radiation interception in soybean under water stress conditions. Tech. Bull. Faculty Hort. Chiba Univ., 55, 1-9.

(4) Isoda, A. and P. Wang, 2002. Leaf temperature and transpiration of field grown cotton and soybean under arid and humid conditions. Plant Prod. Sci., 5: 224-228.

(5) Isoda et al. 2002. Yield and dry matter production of soybean in the arid area of China, Kanto Branch Jpn. J. Crop Sci., 17, 68-69.

(6) Wang, C., A. Isoda, P. Wang, and Z. Li, 2002. Varietal differences in leaf temperature and sap flow rate of field grown cotton, Kanto Branch Jpn. J. Crop Sci., 17, 76-77.

(7) Wang, C., A. Isoda, Z. Li and P. Wang, 2004. Transpiration and leaf movement in field grown cottons under arid conditions. Plant Prod. Sci., 7:266-270

(8) Wang, C., A. Isoda and P. Wang, 2004. Growth and yield performance of some cotton cultivars in Xinjiang, China, an arid area with short growing period. J. Agron. Crop Sci., 190: 177-183

(9) Isoda, A., M. Mori, S. Matsumoto, Z. Li and P. Wang, 2006. High Yielding Performance of Soybean in Northern Xinjiang, China. Plant Prod. Sci., 9: 401-407.

(10) Wang, C., A. Isoda, D. Wang, M. Li, M. Ruan and Y. Su, 2006. Canopy structure and radiation interception of cotton grown under high density condition in northern Xinjiang. Cotton Sci., 18: 223-227.

(11) Isoda, A., H. Konishi, P. Wang and Z. Li, 2007. Effects of different irrigation methods on yield and water use efficiency of sugar beet in the arid area of China. 2007. HortResearch 61: 7-10.

(12) Isoda, A., H. Mao, Z. Li and P. Wang, 2010. Growth of High-Yielding Soybeans and its Relation to Air Temperature in Xinjiang, China. 2010. Plant Prod. Sci., 13: 209-217.

(13) Miyauchi, Y., A. Isoda, Z. Li and P. Wang, 2012. Soybean cultivation in desert sand using drip irrigation with mulch. Plant Prod. Sci., 15 : 310-316.

(14) Miyauchi, Y., A. Isoda, Z. Li and P. Wang, 2012. Effects of foliar application on humic substance on growth and yield of soybean in arid areas of Xinjiang, China. Jpn. J. Crop Sci., 81: 259-266.

(15) Isoda, A., P. Wang and Z. Li, 2012. Improvement of crop yield in a changing climate: Experiments in Xinjiang, China, Invited lecture at International Conference on Climate Change: A Challenge for Agriculturists, Khyber Pakhtunkhwa Agricultural University, Pakistan.

8. None.

1. Studies on the ancient gardens in Japan, China, and Korea
2. Chiba University / Emeritus Professor / Eijiro Fujii,
3. Graduate School of Horticulture / Professor / Zhang Junhua
4. Korea / Chongnam Univ. / Jisong Baiku
5. from 2000
6. To clarify the characteristics of ancient gardens in each country of Japan, China, and Korea which have long and intimate relations from cultural and political points of view

7.	Grant-in-aids for Scientific Research（Basic Research A）
8.	A Historical Consideration on the Gumnanji of the Bekje Kingdom in Korea Based on the Results of Recent Excavations
9.	Symposium on the ancient gardens in Japan and Korea, held at Nara National Institute of Cultural Heritage in 2000
1.	A Study on Community Design in the Contest of Cultural Identity
2.	Graduate School of Horticulture / Professor / Isami Kinoshita
3.	USA / University of Washington / Associate Professor / Jeffrey Hou
4.	2002～
5.	This collaborative research has been conducted to make clear the issue and its solution of the contest of cultural identit in community design. From the case studies of International District in Seattle and Kogane District in Matsudo city. One side there are many contests udner mult cultural society and the other side, in Japan, though it looks as mono cultural but there are invisible contests among generations and old and newcomers. However, the cultural difference should be made clear but not enforced so that the people share the experience of cultural difference for more understandable community development for the future. And the collaborative project reflect to the real improvement like the case of Kogane, which a pocket park was built stimulated by the Design/ Build after the joint students studio program of global classroom between both institutesions.
6.	University Program, Pacific Rim Community Design conference organizer, Tojo Academic Promotion Council, etc.
7.	Kinoshita, Isami (2010:.4) Niwa-roju-Private gardens serving the public realm, Jeffrey Hou ed. Insurgent Public Space Guerrilla Urbanism and the Remaking of Contemporary Cities , Routledge, 159-167 Hou, Jeffrey and Isami Kinoshita. 2007. Bridging Community Differences through Informal Processes: Reexamining Participatory Planning in Seattle and Matsudo. Journal of Planning Education and Research 26(3): 301-313. Hou, Jeffrey, Isami Kinoshita and Sawako Ono. 2005. Design Collaboration in the Space of Cross-cultural Flows. Landscape Journal 24(2): 125-135. Participatory Planning in Community of Differences: Comparative Case Studies from Japan and the U.S. , on submitting to JAPR, and a part was reported at the 5th Pacific Rim Community Design Conference in Seattle in Sep.2, 2004 Kinoshita, Isami, Hou,Jeffery 2006, Building Sustainable Community through Intergenerational Participation: Cases of Community-university Partnerships in International District, Seattle and Kogane, Matsudo, International Symposium On Urban Planning 2006 Proceedings, Taiwan Institute of Urban Planning, 422-431, Hou,Jeffrey, Kinoshita, Isami, 2004, Negotiating Community Differences: Participatory Planning in International District, Seattle and Kogane District, Matsudo, (The 5th pacific Rim Conference on

Participatory Community Design 2004　Seattle, Proceedings, (Re) Constructing Communities, Jeffrey Hou, Mark Francis, Nathan Brightbill ed.)

Isami KINOSHITA, 2015, Cross Cultural Design Collaboration：Community Design by the International Collaboration of Students,　PAYZAJ MIMARLIGI EGITIM ÖGRETIM CALISTAZI BILDIRILER KITABI, Akdeniz University,　47-66

Effects of Participation in Community Activities on Self-Efficacy of Japanese Junior High School Students Global Journal of Community Psychology Practice,　Vol.5, Issue 1, 1-12, 2014,　(Mari Yoshinaga1,Yoshika Takeda2, Isami Kinoshita)

8. Global Chiba　2013　International Seminar and Symposium “University and Community Partnership under Globalization” 2013.　3.　18−20

PLACEMAKING Symposium 2015.12.

1. A Study on Area Management of Urban Redevelopment Projects from the Viewpoints of Sustainability and Identity
2. Graduate School of Horticulture / Professor / Isami Kinoshita
3. Switzerland / University of Applied Science of Bern / Hans Binder
4. 2005～
5. This study is aimed at making clear the direction of area management of redevelopment projects mainly applied at the post heavy industrial sites from the viewpoints of sustainability and identity by the comparison of the cases in Switzerland and Japan.
6. JSPS Grant in Aid for Scientific Research
7. Isami Kinoshita, Hans Binder (2011) About Identity and Sustainability by Area Management for Urban Regeneration Project at Industrial Site- A Report Focusing on the case of　SulzerAreal,　Switzerland

City Planning Institute of Japan, City Planning Review No.46-1

Isami Kinoshita, Hans Binder (2008.8)，　A Study on Identity and Sustainability by Area Management of Urban Regeneration Projects～From Some Cases in Switzerland and Japan,　Proceedings of International Symposium on City Planning 2008 (peer reviewed), Korea Planners Association, 408 -417

Isami Kinoshita, Hans Binder (2007)　A Study on Sustainable Area Management by Urban Regeneration Projects～From some cases in Japan & Switzerland, International Symposium of City Planning 2007 Proceedings, City Planning Institute of Japan pp.660-669

1. A Study on Children’s Play Town and Children’s Participation
2. Graduate School of Horticultur / Professor / Kinoshita, Isami
3. Deutsches Kindehilfs Werk e.V. / General Mange / Dr. Heide-Rose Brueckner

Alice Salomon University / Professor / Dr. Hartmut –Wedekind,

4. 2006～
5. Spielstadt has devemolped in Germany. This study is amed to make clear its background from the point of view of children’s participaton.　In Germany, especially it is linked with the governmental policies to

promote children's participation for child friendly cities.

6. Housing Research Institute
7. Kinoshita, Isami・Uzuki, Morio・Mie, Kenzo ed. Heide-Rose Brueckner etc. (2010) 『Children Build City』 Hobunsha

   Kinoshita, Isami, Uzuki, Morio, Sonoda, Takaaki, Tokeshi, Yasuko. Nakamura, Momoko, Nagashima, Kenichiro " The condition of children's participaton in the case of Children's play town learning from Mini Muenchen etc, Housing Research Institute Papers No.34 ,349-360 (2008 .3)

   Japanese Movements on Children's Participation and Child-friendly City. Isami Kinoshita, Human Rights Education in Asia-Pacific, 査読有, Vol.6, 13-26, 2015
8. Dr. Heide-Rose Brueckner / Prof. Hartmut Wedekind, etc. Symposium 2006.6, Child Friendly Cities by Children's Participation learning from Geran Cases , Study Group of German Children's participation, Ichikawa Children's Culture Station

   Dr. Heide-Rose Brueckner / Prof. Hartmut Wedekind, etc. Summitt about Children's Play Town in 2009.8, Yokohama city

   Dr. Heide-Rose Brueckner / Prof. Hartmut Wedekind, 2012.7.25 , Symposium "Lern Werkstatt (learning workshop" oriented children's subjectivity and chld friendly ciites in Germany. Japan UNICEF Council

   Dr. Heide-Rose Brueckner / Prof. Hartmut Wedekind, 2012.7.27, Symposium Reconstruction through children and youth participation ～learning from German advanced cases , Sendai Youth Culture Center , Children Vigour Smile Project, NPO Miyagi- Sendai/Miyagi Children's Hill .

1. International Compartive Research about Children's Independent Mobility
2. Graduate School of Horticultur / Professor / Kinoshita, Isami , Post Doctoral Researcher: Riela Provi Drianda
3. UK / Policy Studies Institute / Ben Watson, etc.

   Australia / West Sydney University / Professor / Karen Malone

   Finland / Aalto University / Marketta Kytta etc.
4. 2009～
5. Implementing the questionnair research based on the basic form to primary school and junior highschool, the research result would be shared in the world to check the difference and transformation of children's independent mobility, in about 16 countries.
6. one part from JST Children's safety bu community design approach.
7. Main result
   - Riela PROVI DRIANDA & Isami KINOSHITA, 2011, Danger from Traffic to fear of Monkeys: children's independent mobility in four diverse sites in Japan, Global Studies of Childhood, Vol.1. No.3, pp. 224-240,
   - Policy Studies Institute, UK , Children's Independent Mobility: An International Comparison, 29 July 2015,

     http://www.psi.org.uk/children_mobility

- The Safe and Fun Children's Play Spaces: Evidences from Tokyo, Japan and Bandung, Indonesia, Drianda, R.P., Kinoshita, I ,The Journal of Urban Design, , Vol.20, DOI:10.1080/13574809.2015.1044507, Taylor and Francis, 437-460, 2015
- Riela Provi Drianda1, Isami Kinoshita2 Fani Deviana , Perencanaan Lingkungan Perkotaan yang Aman dari Ancaman Kriminalitas Terhadap Anak : Sebuah Studi Kasus dari Negeri Jepang , Jurnal Perencanaan Wilayah dan Kota, Vol. 26, No.1, April 2015, ITB, 7-17
- Drianda, R.P., Kinoshita.I, Said, I (2014) From the Irony of Gated Play Spaces to Triangle Park: A reflection on the impact of Bandung City's rapid development on children's independent mobility and friendly play environment'. Children and Society, 1-17, 2014

8. Other important items to be stated
   - Riela PROVI DRIANDA & Isami KINOSHITA, Toward a Safer Neighborhood for Children, 2nd International Conference Child Friendly Asia Pacific, Srakarta, 2011
   - Isami KINOSHITA, 2011 , Towards a Neighbourhood Paradise rather than Stranger Danger, 50th anniversary world conference of the International Play Association, 2011 Cardiff, Abstract , p 38

1. Inhabitants in Contexts / Place-based comparative research on ecosocially sustainable environments in Finland and Japan
2. Graduate School of Horticulture / Professor / Kinoshita, Isami
3. Post Doctral Researcher / Omiya, Ichiro
4. Finland / Aalto University / Senior Research Fellow / Marketta Kytta
5. 2010～
6. Using Soft GIS system which Marketta Kytta and her team of Aalto University had created, the collaborative research aimed to evaluate children's environment at primary schools and junior high schools of Finland and Japan. This collaborative research has shown the possibility of the method of Soft GIS as an interactive research for children.
7. JSPS Two Countries Joing Research Grant, Tokyo University / Rikutaro Manabe as a chief ほか
8. Kytta, Marketta, 2012, coordinator Kinoshtia Isami " Educaiton in Finland and children's behavioral environments -from the theory of affordance and Soft GIS , The 9th Symposium of the Resarch Center for Educaitonal Facilities, Tokyo Institute of Technology

1. Joing Reaserach about Children's Play Environment at Post Disaster Area afte the Great East Japan Earthquake
2. Graduate School of Horticulture / Professor / Kinoshita, Isami
3. UK / Sheffield University / Helen Woolley
4. 2012～
5. After the disaster of Great East Japan Earthquake, children's play environment was strongly serious situation. This joint research had documented how the environment around children's living area had been not taken care. However there are advanced cases supported by volunteers. From the research several

ideas were proposed.

http://www.h.chiba-u.jp/tcp/ChildfriendlyCommunity/Welcome.html

6. Daiwa Foundation
7. Main result
   - Woolley Helen, Kinoshita, Isami, 2012, Children's Lost Landscape in Japan, 4th International Conference Book of Abstracts, Center for the Study of Childhood and Youth, 83-84
   - Kinoshtia, Isami, 2012, Children's Participation in Reconstruction after the Great East Japan Earthquake---Intergenerational Approach Towards Child Friendly Recovery, the 6th International Conference of Child in the City, Sep.26-28, 2012 Zagreb, pp.136-137
   - Woolley, Helen, Kinoshtia, Isami, 2012 Children's Lost Landscape in Past Disaster Japan, poster session at the 6th International Conference of Child in the City, Sep.26-28, 2012 Zagreb
   - Kinoshtia, Isami, Woolley, Helen, 2013 Children, outdoor play and disasters: an example from the Tohoku area in north east Japan following the triple disaster of March 2011, Children & Society
   - Space, People, Interventions and Time(SPIT): A Model for Understanding Children's Outdoor Play in Post-Disaster Contexts Based On a Case Study from the Triple Disaster Area of Tohoku in North-East Japan,, Children and Society, DOI:10.1111/chso.12072, 1-17, 2014 (Helen WOOLEY, Isami KINOSHITA)
   - Children's Play Environment after a Disaster: The Great East Japan Earthquake, Isami KINOSHITA, Helen WOOLEY, Children 2015,2, 査読有, Special Issue "The Role of Play in Children's Health and Development" doi:10.3390/children2010039, 39-62, 2015
8. Global Chiba 2013 International Seminar and Symposium "University and Community Partnership under Globalization" 2013.3.18-20

1. 都市環境改善（特に住宅団地の低炭素化対策、水や廃棄物問題など）のための対策
2. Graduate School of Horticulture / Professor / Kinoshita, Isami
3. Hunan University / Professor / Liu Su、Associate Professor / Shen Yao
4. 2015～
5. 都市環境について東京圏地区の都市環境対策と中国の状況と対策について議論をする。

   １）エコハウスと住宅団地の低炭素化対策

   ２）都市の水と緑のシステムづくり（例えば LID：Low-Impact Development 技術の応用）

   ３）都市農業：植物工場・都市農園４）エコ都市基盤づくりに関する先進技術（例え：スマートシティの実践）
6. JST Japan-Asia Youth Exchange Program in Science" (SAKURA Exchange Program in Science)
7. Main result
   - Models and Approaches for Integrating Protected Areas with Their Surroundings: A Review of the Literature, Sustainability 2015, 7, 8151-8177; doi:10.3390/su7078151, Wenwu Du 1,2,*, Sofia M. Penabaz-Wiley 2, Anthony Murithi Njeru 2 and Isami Kinoshita 2
   - A GIS-Based Approach in Support of Spatial Planning for Renewable Energy: A Case Study of

Fukushima, Japan, , Sustainability, 2087-2117; doi:10.3390/su6042087, 2014 (Qianna Wang, Martin Mwirigi MI'kiugu and Isami Kinoshita)

8. The Bottom Up Movement of Townscape Conservation in Japan, Proceedings of 2015 International Conference on Architectural History and Heritage Conservation Study , 199-207 China Architecture & building press School of Architecture Hunan University

1. International Comparative Studies on the Roles of Green Environment for Urban Regeneration
2. Faculty of Horticulture / Associate Professor / Takeshi KINOSHITA, PhD
   Graduate School of Horticulture / Associate Professor / Kyungrock YE
3. China / Institute of Natural and Environmental Sciences, Himeji Institute of Technology / Yue SHEN
   China / Shan-tong Agricultural University / Eikichi Boku
   United States of America / Harvard University Graduate School of Design / Ryosuke Shimoda
   United Kingdom / AA School Landscape Urbanism / Taku Suzuki
4. 2002～continued
5. This project is the advanced reseach works based on the international comparative studies titled " The Roles of Traditional Gardens for Consrvation of Historic Cities and Towns", which had been conducted 1999 to 2001.This research project aims to discuss on the ideal way of environmental regeneration and lanscape planning.
6. No (own expence)
7. Yue SHEN, Yohei SAITOH, Takeshi KINOSHITA, Kyungrock YE and Akira MOCHIZUKI, Formation of Greenery Space in the Vacant Lot of the Former Athletes' Village of the Tokyo Olympic Games - From Athletes' Village to Forest Park -, The 5th International Landscape Architectural Symposium of China, Japan and Korea, p.86-91, 2002 Beijing, China.
   Takeshi KINOSHITA, Ryosuke SHIMODA, Taku SUZUKI and others, How should we face to "Urbanism", The National Meeting of the Japanese Institute of Landscape Architecture 2003, Chiba, Japan.
8. Cooporative Studies by the three countries' reseachers

1. Characteristics of water cycle and water quality in the catchment effected by human activites
2. Graduate School of Horticulture /Professor / Changyuan Tang
3. China / Institute for Geography Science and Natural Resources / Prof. Song Xianfang
4. 2005～
5. Project outline
   It is well known that there are serious problems about environment and population in the regions with rapid economic development. From the viewpoint of hydrology, we would like to make clear the effect of human activities on water cycle and water quality evolution in the catchment scale.
   - Professor Liu Changming from the Institute for Geography Science and Natural Resources, CAS. Had a meeting in Tokyo t o discuss the cooperation with professor emeritus Shindo in April 9, 2007.
   - Prof. Yu Jingjie from Institute for Geography Science and Natural Resources, CAS worked as a visiting

Professor with Prof. Tang in the Faculty of Horticulture from June to September, 2007.

- Professor emeritus Shindo and Prof. Tang visited Institute for Geography Science and Natural Resources, CAS in Sept. 7, 2007.
- Prof. Tang and the scientists from the Institute for Geography Science and Natural Resources, CAS made a ten-days field surveying for water environment in the Huai River, China from Sept. 8, 2007.

  Prof. Liu Changming, Prof. Xia Jun and Prof. Song Xianfang attended Japan-China symposium on water environment in the Huai River in Oct. 25, 2007, and visited Faculty of horticulture to discuss about the cooperation researches the day next.
- From March 3 to 9, 2008, Prof. Kondo and Prof. Tang visited Beijing and attended Asian Groundwater symposium suppored by the Institute for Geography Science and Natural Resources, CAS. During the period, Prof. Tang had a field work for groundwater surveying in NCP.

6. Grant-in-aid for Science Research of Japanese Ministry of Education, Science and Culture (Leader: Prof. Tang Changuang, Chiba University)
7. Main result

- Shen YJ, Tang C, Xiao JY, Oki T, Kanae S. (2005): Effects of urbanization on water resource development and its problems in Shijiazhuang, China. IAHS Publ., No 293, 380-388.
- Xiao JY, Shen YJ, Ge JF, Tateishi R, Tang C, Liang YQ and Huang ZY. (2006) Evaluating urban expansion and land use change in Shijiazhuang, China, by using GIS and remote sensing, Landscape and Urban Planning, Vol.75, 69-80.
- Tang C., Chen JH., Kondo K. and Lu Y. (2006): Characteristics of soil water movements and water table at the Leizhou peninsula, Guangdong province, China. Advances in Geosciences, Vol. 4: Hydrol. Sci., World Scientific, 219-227.
- Chen JY., Tang C and Yu JJ. (2006): Use of 18O, 2H and 15N to identify nitrate contamination of groundwater in a wastewater irrigated field near the city of Shijiazhuang, China. Jour. Hydrol., Vol.326, 367-378.
- Aji K., Tang C., Kondo K. Song, XF. and Sakura, Y. (2006): Environtmental isotopes of precipitation, groundwater and surface water in Yanshan Mountain, China. Advances in Geosciences, Vol. 4: Hydrol. Sci., World Scientific, 11-16.
- Liu XC, Xia J., Song XF., Yu JJ., Tang C. and Zhan CS (2006): A study of surface water and groundwater using isotopes in Huaishahe basin in Beijing, China. IAHS Publ., NO.302,106-114.
- Li Fadong, Song Xianfang, Tang Changyuan et al., (2007): Tracing infiltration and recharge using stable isotope in Taihang Mt., North China. Environmental Geology, 53:687–696 (DOI 10.1007/s00254-007-0683-0)

  Song Xianfang, Li Fadong, Liu Changming et al., (2007): Water cycle in Taihang Mt. and its recharge to groundwater in North China Plain. Journal of Natural Resources, 22(3): 398-408.
- Song Xianfang, Li Fadong, Yu Jingjie, Tang Changyuan et al. (2007): Characteristics of groundwater

cycle using deuterium, oxygen-18 and hydrochemistry in Chaobai River Basin. Geographical Research. 26(1):11-21.

- Li Fadong, Tang Changyuan, Zhang Qiuying et al. (2008): Surface water-groundwater interactions in a Yellow River alluvial fan. Surface Water–Groundwater Interactions: Process Understanding, Conceptualization and Modelling (Proceedings of Symposium HS1002 at IUGG2007, Perugia, July 2007). IAHS Publ. 321, (in revision)
- Zhang Qiuying, Li Fadong, Tang Changyuan, et al. (2008): Effects of maize straw and gravel mulches on soil water content in Taihang Mt., northern China. Hydrology in Mountain Regions: Observations, Processes and Dynamics (Sponsor ICSIH with co-sponsorship of UCCS, ICRS, ICSW, ICCLAS, ICGW, PUB), IUGG 2007 Perugia. IAHS Publ. 3**, (in revision)
- Fadong Li, Xianfang Song, Changyuan Tang et al. (2008): Stable isotopic characterization in precipitation, soil water and groundwater in Taihang Mountain, North China. IAHS Publ. 319.
- Li Fadong, Pan Guoying, Tang Changyuan, et al. (2008): Recharge source and hydrogeochemical evolution of shallow groundwater in a complex alluvial fan system, southwest of North China Plain. Environmental Geology, DOI 10.1007/s00254-007- 1059-1 (online first).

8. None

1. Comparison of Natural Landscape Evaluation Between Japan and Russia
2. Graduate School of Horticulture / Associate Professor / Katsunori Furuya
3. Russian Federation / Lomonosov Moscow State Univ. / Elena PETROVA
   Russian Federation / V.B. Sochava Institute of Geography SB RAS / Yuri SEMENOV
   Russian Federation / Vernadsky State Geological Museum of RAS / Yury MIRONOV
   Russian Federation / Institute of Orientalistic RAS / Anastasia PETROVA
4. Since 2008
5. The purpose of this study is to compare the landscapes appreciation in Russia and Japan, in two countries with deep-rooted traditions of landscape appreciation. The photo database of landscapes both similar and unique for Russia and Japan was made using the same methods. The respondents in both countries are suggested to classify and group photo images of different landscapes according to their personal perception as well as to estimate the attractiveness of given landscapes images.
6. 2008-2009 Joint Research Program in Bilateral Programs, JSPS and RFBR
7. Main result
   - Elena Petrova, Yoji Aoki, Yury Mironov, Anastasia Petrova, Katsunori Furuya, Hajime Matsushima, Norimasa Takayama, Comparison of natural landscapes appreciation between Russia and Japan: methods of investigation, Monitoring and Management of Visitor Flows in Recreational and Protected Areas, Pisa (Italy), 198-202.
   - Katsunori Furuya, Hajime Matsushima, Introduction of the natural landscape evaluation between Japan and Russia, International Seminar of Chiba University Expert Program, 2009.8.12

- Yoji AOKI, Elena PETROVA, Yury MIRONOV, Anastasia PETROVA, Katsunori FURUYA, Hajime MATSUSHIMA, Norimasa TAKAYAMA Toshihiro NAKAJIMA, Comparison of natural landscapes appreciation between Russia and Japan: photo selection, Special seminar at Moscow University, 2009.2.19
- Hirofumi Ueda, Toshihiro Nakajima, Norimasa Takayama, Elena Petrova, Hajime Matsushima, Katsunori Furuya, Yoji Aoki, Ways of Seeing the Forest -Landscape Image Sketches in Japan and Russia-, Monitoring and Management of Visitor Flows in Recreational and Protected Areas, Wageningen, 2010. 6.
- Katsunori Furuya ed., Summaries of technical reports of JAPAN-RUSSIA Joint Research Project and Scientific Seminar, Chiba University, 2009.8.12
- Hirofumi Ueda, Toshihiro Nakajima, Norimasa Takayama, Elena Petrova, Hajime Matsushima, Katsunori Furuya, Yoji AokiYui (2012) Landscape image sketches of forests in Japan and Russia, Forest Policy and Economics, Elsevier, 19 20–30
- Norimasa Takayama・Hajime Matsushima・Elena Petrova・Hirofumi Ueda・Toshihiro Nakajima・Katsunori Furuya・Yoji Aoki (2012) Differences in environmental attitudes between Russia and Japan, The 6th International Conference on Monitoring and Management of Visitors in Recreational and Protected Areas, 6, 404-405
- Elena G Petrova, Yury V Mironov, Yoji Aoki, Hajime Matsushima, Satoshi Ebine, Katsunori Furuya, Anastasia Petrova, Norimasa Takayama and Hirofumi Ueda (2015) Comparing the visual perception and aesthetic evaluation of natural landscapes in Russia and Japan: cultural and environmental factors, Progress in Earth and Planetary Science, Springer Open Journal, 2:6, 1-12, DOI 10.1186/s40645-015-0033-x

8. Chiba University International Seminar of Chiba University, August 12,2009

1. A Comparative Study on Landscape Evaluation Between Japan and Korea
2. Graduate School of Horticulture / Associate Professor / Katsunori FURUYA
   Graduate School of Horticulture / JSPS Research Fellow / Yusuke MIZUUCHI
3. Korea / Seoul National University / Associate Professor / SON Yonghoon
4. Since 2012 (continued)
5. It is assumed that the human attitude toward environment depends on each culture and each country if the environment and culture differ according to geographical conditions and so on. In this study, focusing on the above common points and differences, it carrys out an international comparative study of the recognition and evaluation of the natural landscape. It takes mainly two approaches for resereaching in this study. The first is to figure out the abstract image of natural scenery that each culture or each ethnic group has. In order to understand the evaluation of the scene, the simple method is to let the respondets evaluate the same sceneny and to compare the result. Thus, it shows the taken photos to people of each country and lets them evaluate those photos. Also, it focuses on “forest” that is representive scenery people get close with at most, and lets

the respondents draw or write about the image of "forest" they have. It reveals the way to evaluate sceneries that each country or each ethnic group has alalyzing those tests. The second approach is an international comparison of obvious landscape perceptions and evaluation on site. In this study, it tries to build the unprecedented new method to understand sceneries on site, that enables to understand the object and the object field at the same time by letting the respondents take the pictures of scenery for evaluation and taking the spatial geographic information using the GPS at the same time.

6. JSPS International Training Program（ITP）Oct-Dec,2012, Sep-Nov,2013
   2014-2016 Joint Research Program in Bilateral Programs, JSPS and NRF
7. Main result
   - MIZUUCHI Yusuke, FURUYA Katsunori, SON YongHoon (2014)：Landscape Evaluation Method by Visitor-Employed Photography with Usage of Cellphones- Case Study of Mount Gwanak, Korea：JpGU Meeting 2014 Yokohama, 2014: accept
   - Yusuke MIZUUCHI(2014)：A Study about Landscape Perception by the method of Visitor Employed Photography on Mt.Gwanak in Korea、The Japan - Korea sututdent seminar on Landscape studies 2014,Awaji,2014
   - Yusuke MIZUUCHI, YongHoon Son, Katsunori FURUYA (2013)：A Comparative Study on Forest Image Between Japan and Korea From the Perspective of Natural Resources : The First Asia Parks Congress,2013,Sendai,
   - MIZUUCHI Yusuke, FURUYA Katsunori, SON YongHoon (2013)：A Comparative Study on Landscape Evaluation Between Japan and Korea：JpGU Meeting 2013, Chiba, 2013
     MIZUUCHI Yusuke (2013)：Difference in the Landscape of Korea and Japan Among University Students in Korea：ITP Korea-Japan Student seminar program, Seoul, 2013
   - Yusuke MIZUUCHI, Yonghoon SON, Moonseok KANG, Katsunori FURUYA（2014）：Landscape Evaluation Method by Visitor-Employed Photography with Usage of Cell- phones - Case Study of Mount Gwanak, Korea, Japan Geoscience Union Meeting 2014, Yokohama, 2014
   - Yusuke MIZUUCHI, Yonghoon SON, Moonseok KANG, Katsunori FURUYA（2015）：Constructing a Survey Method for Landscape Evaluation Using Visitor Employed Photography and GPS, Landscape Research Japan Online, Vol. 8・1-7, http://doi.org/10.5632/jilaonline.8.1
8. None

1. Possibility for ecotourism and protected areas of green space in Jakarta, Indonesia
2. Graduate School of Horticulture / Associate Professor / Katsunori FURUYA
   Graduate School of Horticulture / JSPS Research Fellow / Yui TAKASE
   Graduate School of Horticulture / Doctor student / Takako KOHORI
3. Indonesia / Bogor Agricultural University / Bambang Sulistyantara
   Indonesia / Bogor Agricultural University / Akhmad Arifin Hadi
   Indonesia / Bogor Agricultural University / Prita Indah Pratiwi

Indonesia/ Bogor Agricultural University / Hadi Susilo Arifin

4. Since 2012 (continued)

5. It carried out field survey and questionnaire survey. In the questionnaire survey, it asked about "awareness of eco-tourism" and "awareness of green space in Jakarta." for 210 students from Bogor Agricultural University. In the field survey, it had the visit to six green spaces in Jakarta where the respondents had visited many times, and analyzed its features.

   Most of green open spaces in Jakarta are easy to be changed into other land use. In fact, green open spaces in Jakarta have changed rapidly in recent years. It is necessary to increase protected area in the future. The objective of this study was to define students' attitude toward green space conservation activities and students' participation opinions. A survey was conducted with university students in Bogor Agricultural University (n=614).

   The population of Indonesia is 4th in the world ranking, and rapid economic growth has been observed based on this large population. Expansion of the city areas is progressing, especially around its capital Jakarta. The current issue is to develop and establish open space. In this study, alun-alun, which is Indonesia's traditional open space, has been set as a study subject. Alun-alun is a space where nothing other than lawns and several trees exist in a vast area. In recent years, with a government initiative, alun-alun have been converted to city gardens. A city garden can be defined as an open space where flowers and trees are planted. In this study, the objective has been set to compare people's impressions on alun-alun, between traditional ones and the ones which spatial structure has been changed.

6. JSPS International Training Program（ITP） 2013, 2014, 2015

7. Main result

   - Yui Takase, "Potential of protected area and Ecotourism in Green Open Space of Jakarta", The First Asia Parks Congress,2013,Sendai , p.308,
   - Yui Takase , Katsunori Furuya , Akhmad Arifin Hadi , Prita Indah Pratiwi , Bambang Sulistyantara , "Potential of Ecotourism and Environmental Education in Protected Areas of Indonesia", The First Asia Parks Congress, 2013, Sendai, p.226
   - Pratiwi Prita Indah, Katsunori FURUYA, Bambang Sulistyantara (2013) A Comparative Study on Landscape Evaluation Between Japan and Indonesia, : JPGU Meeting 2013 Japan Geoscience Union Meeting, Chiba
   - MATSUDA, Mikiya ; TAKASE, Yui1 ; PRATIWI, Prita indah ; SULISTYANTARA, Bambang ; FURUYA, Katsunori（2015） Survey about Bogor Agricultural University Students' Opinions of Green Space Conser- vation Activities, Japan Geoscience Union Meeting 2015, Makuhari,
   - Prita Indah Pratiwi1, Bambang Sulistyantara, Andi Gunawan, Katsunori Furuya (2014) A Comparative Study on The Perception of Forest Landscape Using LIST Method Between University Students of Japan and Indonesia Journal of Tropical Forest Management, JMHT, XX, (3): 167-178 DOI: 10.7226/jtfm.20.3.167

- Prita Indah Pratiwi, Katsunori Furuya, dan Bambang Sulistyantara (2014) The Difference in People's Response Toward Natural Landscape Between University Students of Japan and Indonesia, Journal of People and Environment, J. MANUSIA DAN LINGKUNGAN, 21(2), 247-253
- MARISKI, Mariski; GUNAWAN, Andi; HADI, Akhmad arifin; FURUYA, Katsunori (2015) Study of People Perceptions about Four Parks in Jakarta, Japan Geoscience Union Meeting 2015, Makuhari
- KOHORI, Takako; FURUYA, Katsunori (2015) Impression by Spatial Structure At Indonesia's Traditional Open Space Alun-Alun — University Students As Study Subject, Japan Geoscience Union Meeting 2015, Makuhari
- HADI, Akhmad arifin; FURUYA, Katsunori; PRATIWI, Prita indah (2015) Study of Correlation between the Existences of Landscape Elements to People Preference of Landscape Quality, Japan Geoscience Union Meeting 2015, Makuhari
- MARISKI, Mariski; GUNAWAN, Andi; HADI, Akhmad arifin; FURUYA, Katsunori (2015) Study of People Perceptions about Four Parks in Jakarta, Japan Geoscience Union Meeting 2015, Makuhari
- Takako KOHORI, Katsunori FURUYA (2015) Study on the influences to student's recognition and activity by the change of alun-alun, Landscape Research Japan, Vol. 78(5), 573-578

8. None

1. Cooperative protection and grassland management in CMR Dauru international protected area
2. Graduate School of Horticulture / Associate Professor / Katsunori FURUYA
   Graduate School of Horticultur / Doctor student / Han Guorong
3. China, Inner Mongolia Autonomous Region / Bureau of Dalai Lake National Nature Reserve / Song-tao LIU
4. Since 2013 (continued)
5. Natural area does not exist in isolation, but connects with the surrounding areas through ecological and ethnic groups. However, the natural environment even in the same ecological area will be changed by the different management methods and administrators. Dauru glassland ecological area is wide range and faces three countries; China, Mongolia and Russia. The locals have lived in harmony with nature for a long time. CMR Dauria International Protected Area was born in this area with the agreement concluded by China, Mongolia and Russia. Following situations differs among those three areas; regulation of resource and land use, natural environment conservation, public welfare of local people, cooperation by locals. These difference influence natural environment, landscape and ecological system. This study aims at next three points; 1) it reveals the current status and formation of CMR Dauria International Protected Area and the situation of cooporation among three countries. 2) Moreover, it finds the agendas of glassland management in protected area comparing the transition of glassland use and the glassland management in three countries. 3) Lastly, it compares the cooperation with locals among three countries and reveals the approaches for cooperative protection by locals. These studies promote the solution for agendas of CMR Dauria International Protected Area and the approaches of natural conservation by locals and would help the partnership with the neighbor protected area holding extensive biodiversity.

6. Self,JT scholarship,AGSST domestic workshop participation and presentation support program 2013
7. Main result
   - Guorong Han, Katsunori Furuya (2013) : Regional Cooperation for Protected Areas-Dalai Lake National Nature Reserve in China : The First Asia Parks Congress,2013,Sendai
   - Guorong Han, Katsunori Furuya (2014) : Analysis of Scenery Transition and Residents'Opinion in Dalai Lake Nature Reserve : JpGU Meeting 2014 Japan Geoscience Union Meeting,
   - Guorong Han, Katsunori Furuya (2013) : The Russia-Mongolia-China Dauria International Protected Area (DIPA) : Proceeding of The 31th Kanto Branch Meeting of Japanese Institute of Landscape Architecture、p. 145.
   - Guorong HAN, Katsunori FURUYA (2015) Current Situation of Nature Conservation under Joint Conservation Agreement and Ecological Migration in Hulun Lake Nature Reserve, Vol. 78(5), 555-560
8. none

1. Application of plant biotechnology for breeding of horticultural and medicinal plants
2. Graduate School of Horticulture / Professor Emeritus / Masahiro MII
3. Thailand / Mahidol University / Kanyaratt Supaibulwatana
4. Since 1997 Continued
5. Plant biotechnology is now expected to apply for the breeding of useful plants such as horticultural and medicinal plants. In our collaborative study, we have conducted various basic studies to develop the necessary biotechnologies for this purpose, such as establishment of plant regeneration system from tissue cultures, establishment of protoplast culture method and its utilization for the somatic hybridization through protoplast fusion, isolation of female gametophytes, and development of genetic transformation system for the useful transgenic plants, in important floricultural crops such as lily, petunia and agapanthus, and medicinal plants such as *Artemisia annua* which is an important source for anti-malarial substance, artemisinin.
6. None
7. Main result
   - Banyai W., M. Mii and K. Supaibulwatana. 2011. Enhancement of artemisinin content and biomass in *Artemisia annua* by exogenous GA3 treatment. Plant Growth Regul. 63: 45-54.
   - Banyai W., C. Kirdmanee, M. Mii and K. Supaibulwatana. 2010. Overexpression of farnesyl pyrophosphate synthase (FPS) gene affected artemisinin content and growth of *Artemisia annua* L. Plant Cell Tiss. Organ Cult. 103: 255-265.
   - Hasthanasombut, S., K. Supaibulwatana, M. Mii and I. Nakamura 2011. Genetic manipulation of Japonica rice using the OsBADH1 gene from Indica rice to improve salinity tolerance. Plant Cell Tisue Organ Cult. 104:79-89.
   - Banyai W., M. Mii and K. Supaibulwatana. 2010. Overproduction of artemisinin in tetraploids *Artemisia annua*. Plant Biotechnol. 27: 427-433.

- Sangthong, R., D. P. Chin, K. Supaibulwatana, M. Mii 2009. Gametosomatic hybridization between egg cell protoplast and mesophyll protoplast of *Petunia hybrida*. Plant Biotechnol. 26: 377-383.
- Sangthong, R., D. P. Chin, M. Hayashi, K. Supaibulwatana, M. Mii 2009. Direct isolation of female germ units from ovules of *Petunia hybrida* by enzymatic treatment without releasing somatic protoplasts from ovular tissue. Plant Biotechnol. 26: 369-375.
- Sangthong, R., M. Mii, P. Soonthornchainaksaeng and K. Supaibulwatana 2005. Characteristics of the tetraploid plant derived as a somaclonal variation in *Lilium longiflorum*. Acta Hort. 673: 167-174.

  Suzuki, S., K. Supaibulwatana, Mii, M. and M. Nakano 2001. Production of transgenic plants of the Liliaceous ornamental plant *Agapanthus praecox* ssp. *orientalis* (Leighton) Leighton via Agrobacterium-mediated transformation of embryogenic calli. Plant Sci. 161: 89-97.
- Aziz-Purwantoro, K. Supaibulwatana, M. Mii and T. Koba 1999. Cytological and RAPD (Random Amplified Polymorphic DNA) analyses of somaclonal variation in Easter lily (*Lilium longiflorum Thunb.*). Plant Biotechnol. 16: 247-250.
- Supaibulwatana, K. and M. Mii 1998. Induction of meristematic nodular calli from various explants of *Lilium* spp. and long term stability in plant regeneration ability and ploidy level of the calli. Plant Biotechnol. 15: 95-102.
- Supaibulwatana, K. and M. Mii 1997. Organogenesis and somatic embryogenesis from young flower buds of *Agapanthus africanus* Hoffmanns. Plant Biotechnol. 14:23-28.

8. None

1. Quaternary climatic and vegetation changes in Kathmandu Basin, Nepal
2. Graduate School of Horticulture / Associate Professor / Dr. Arata Momohara
3. Nepal / Central Department of Geology, Tribhuvan University / Dr. Khum Narayan Paudayal
4. 2005～
5. Vegetation and flora in Nepal situated in southern part of the Himalaya have been greatly influenced by change of Asian monsoon with the Quaternary glacial and interglacial climatic fluctuations and tectonic changes with uplift of the Himalaya. We study pollen and plant macrofossils from sediments in the Kathmandu Basin to clarify relationships between climatic changes and vegetation changes in the Quaternary.
6. JSPS Grant-in aid for Scientific Research 2005-2006
7. Main result
   - Bhandari, S., Momohara, A., and Paudayal, K.N., Palaeoclimatic implications of the late Quaternary plant macrofossils from the Kathmandu Valley, central Nepal. Abstracts: IPC/IOPC 2012, Japanese Journal of Palynology, 58, Special Issue, 16.
   - Paudayal, K.N., Bhandari, S., and Momohara, A., Late Quaternary climate on the basis of pollen and diaspores from Kathmandu Basin, Nepal. Abstracts: IPC/IOPC 2012, Japanese Journal of Palynology, 58, Special Issue, 181.

- Bhandari, S., Momohara, A., and Paudayal, K.N., 2010. Late Pleistocene plant macrofossils from the Thimi Formation (Madhyapur Thimi section) of the Kathmandu Valley, central Nepal. Journal of Nepal Geological Society, 40, 31-48.
- Bhandari, S., Momohara, A., and Paudayal, K.N., 2009. Late Pleistocene plant macro-fossils from the Gokarna Formation of the Kathmandu Valley, Central Nepal. Bulletin of the Department of Geology, Tribhuvan University, Nepal, 12, 75-88.

1. Evolution of biodiversity with environmental changes in southern East Asia since the Neogene
2. Graduate School of Horticulture / Associate Professor / Dr. Arata Momohara
3. China / Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences / Prof. Dr. Zhekun Zhou
4. 2000～
5. The warm temperate zone in the area surrounded by the Hengduan, Namling, and Qinling Mountains in south East Asia has the highest species diversity of plant taxa in the temperate zone in the Northern Hemisphere. Many plants endemic to this area were once distributed in Japan in the Neogene and the research of the flora and vegetation is very important to clarify development process of modern Japanese flora. We study modern vegetation and fossil flora in this region to clarify evolution of diversity of east Asian flora and vegetation accompanied with a development of geomorphology and monsoon climate by uplift of the Himalaya and Tibet since the Neogene.
6. JSPS Grant-in aid for Scientific Research 2005-2006
   JSPS Invitation Fellowship Programs for Researchers in Japan (Long term) 2005
7. Main result
   - Momohara, A., Saito, T., Huang YJ., Zhou, ZK., 2011, Forests dominated by Fagus lucida and Fagus longipetiolata on Mt. Fanjing, northeastern Guizhou, China. Japanese Journal of Historical Botany, 20(2), 55-56.
   - Oginuma, K., Chen, S.T., Zhou, Z.K., Peng, C.I., Momohara, A., and Setoguchi, H., 2007. Intraspecific polyploidy of *Houttuynia cordata* and chromosome number evolution in Saururaceae. Chromosome Botany, 2, 87-91.
   - Uehara, K., Tanaka, N., Momohara, A., and Zhou, Z.K, 2006. Genetic diversity of an endangered aquatic plant, *Potamogeton lucens* subspecies *sinicus*. Aquatic Botany, 85, 350-354.
   - Momohara, A., Zhou, Z.K., Li, X.X., and Setoguchi, H., 2006. Cenozoic flora with Quercus sect. Heterobalanus in the western Yunnan Province, southwestern China. Japanese Journal of Historical Botany, 14, 43-44.
   - Zhou, Z.K. and Momohara, A., 2005. Fossil history of some endemic seed plants of East Asia and its phytogeographical significance. Acta Botanica Yunnanica, 27(5), 449-470.
8. Invited by JSPS Invitation Fellowship Programs for Researchers in Japan (Long term) in 2005 (Mar. - Dec.). Symposium in IPC/IOPC meeting 2012 Uplift of the Himalaya and its impact on the climatic and biodiversity changes in East Asia. 2012.8.29, Chuo University, Tokyo

1. Solving the role of inducible glutamate dehydrogenase isoenzyme by 15N NMR
2. Graduate School of Horticulture / Associate Professor / Masami Watanabe
3. UK / University of Oxford / Professor / R. George Ratcliffe
4. Since 2007
5. Glutamate dehydrogenase isoenzyme patterns change after isolation of protoplasts. This project focused on the role of the inducible isoenzyme 7 in protoplasts and showed that the isoenzyme deaminated glutamate by using 15N NMR.
6. The Naito Foundation Fellowship (Sabbatical Leave)
7. Main result
   - Masami Watanabe, Ohnishi Yumi, Yasuhiro Itoh, Kaori Yasuda, Kazunari Kamachi, R. George Ratcliffe
   - Solving the role of inducible glutamate dehydrogenase isoenzyme 7 in Brassica napus leaf protoplasts
   - Nitrogen 2010, 1st International Symposium on the Nitrogen Nutrition of Plants, P32
   - Masami Watanabe, Ohnishi Yumi, Yasuhiro Itoh, Kaori Yasuda, Kazunari Kamachi, R. George Ratcliffe
   - Deamination role of inducible glutamate dehydrogenase isoenzyme 7 in Brassica napus leaf protoplasts Phytochemistry 72 (2011) 587–593
8. None

1. Circadian clock-dependent signaling between higher plant organelles
2. Graduate School of Horticulture / Associate Professor / Mitsumasa Hanaoka
3. United Kingdom / University of Bristol / Dr. Antony Dodd
4. Since 2010 (continued)
5. In higher plants, it is well known that the circadian clock is responsible for photosynthetic and metabolic activities. However, how the timing signal is communicated with chloroplasts is yet to be clarified. In this collaborative study, signal transduction between organelles in plant cells will be understood.
6. International Joint Project, The Royal Society
7. Main result
   (1) Zeenat B. Noordally, Kenyu Ishii, Kelly A. Atkins, Sarah J. Wetherill, Jelena Kusakina, Eleanor J. Walton, Maiko Kato, Miyuki Azuma, Kan Tanaka, Mitsumasa Hanaoka and Antony N. Dodd (2013) Circadian control of chloroplast transcription by a nuclear-encoded timing signal. Science **339**, 1316-1319.
   (2) Antony N. Dodd, Jelena Kusakina, Anthony Hall, Peter D. Gould and Mitsumasa Hanaoka (2014) The circadian regulation of photosynthesis. *Photosynth. Res.* **119**, 181-190.
8. Other important items to be stated
   - Press release(Chiba-nippo, Mar 15, 2013)
   - Presentation in the International Symposium on Plant Photobiology (UK, 2013)

- Awarded by Daiwa Adrian Prizes for Scientific Collaboration 2013

1. Examination of plant food digestibility using in vitro simulated digestion technique
2. Graduate School of Horticulture / Associate Professor / Yukiharu Ogawa
3. New Zealand / Riddet Institute, Massey University / Dr Jaspreet Singh, Dr Lovedeep Kaur
4. Since 2011 (continued)
5. To elucidate relationships between structural characteristics and digestibility of plant food, starch digestibility of cooked rice is examined using in vitro simulated digestion technique in this project.
6. 2012, Program to Support Sending Graduate Students Abroad, Chiba University, 2014, Program to Support Sending Graduate Students Abroad, Chiba University, JSPS Joint Research Project
7. Main result
   - Masatsugu Tamura, Jaspreet Singh, Lovedeep Kaur, Yukiharu Ogawa, Relationships between starch digestibility and gelatinization degree of cooked rice with structural change, Journal of Food and Agricultural Technology, 1, 54-57, 2015.
   - Masatsugu Tamura, Jaspreet Singh, Lovedeep Kaur, Yukiharu Ogawa, Evaluation of digestibility of cooked rice grain using in vitro digestion technique, CIGR Journal, Special issue 2015, 268-273, 2015.
   - Masatsugu Tamura, Jaspreet Singh, Lovedeep Kaur, Yukiharu Ogawa, Impact of the degree of cooking on starch digestibility of rice - an in vitro study, Food Chemistry, 191, 98-104, 2016.
   - Masatsugu Tamura, Jaspreet Singh, Lovedeep Kaur, Yukiharu Ogawa, Impact of structural characteristics on starch digestibility of cooked rice, Food Chemistry, 191, 91-97, 2016.
8. None

Center for Environmental Remote Sensing

1. Remote sensing study of the atmosphere
2. Center for Environmental Remote Sensing / Professor / Hiroaki Kuze
3. China / Anhui Institute of Optics and Fine Mechanics (AIOFM), Chinese Academy of Sciences / Dr. Liu Wenqin / Director
4. From 1997
5. A wide range of collaboration activity has been made in the field of atmospheric remote sensing, including the differential optical absorption spectroscopy (DOAS), lidar and satellite observations, through visiting/staying at both institutes (CEReS and AIOFM) for various occasions such as participation to the workshop/international conferences and relatively long stay as visiting scientists.
6. COE fund, donated funds, support from CAS, etc.
7. Main result
   - Si Fuqi, Hiroaki Kuze, Yotsumi Yoshii, Masaya Nemoto, Nobuo Takeuchi, Toru Kimura, Toyofumi Umekawa, Taisaku Yoshida, Tadashi Hioki, Tsuyoshi Tsutsui, Masahiro Kawasaki, Measurement of regional distribution of atmospheric NO2 and aerosol particles with flashlight long-path optical

monitoring, Atmospheric Environment, 39 (27) (September 2005) 4959-4968.

- Si Fuqi, Liu Jianguo, Xie Pinghua, Zhang Yujun, Liu Wenqing, Hiroaki Kuze, Liu Cheng, Nofel Lagrosas and Nobuo Takeuchi, Determination of aerosol extinction coefficient and mass extinction efficiency by DOAS with a flashlight source, Chinese Phys. 14(11), (November 2005) 2360-2364.
- Si Fuqi, Liu Jianguo, Xie Pinghua , Zhang Yujun, Liu Wenqing , Hiroaki Kuze, Nofel Lagrosas and Nobuo Takeuchi, Correlation study between suspended particulate matter and DOAS data, Advances in Atmospheric Sciences (Science Press, co-published with Springer-Verlag GmbH, ISSN 0256-1530), Vol. 23, No.3: DOI 10.1007/s00376- 006-0461-z, (May 2006) 461-467.
- Si Fuqi, Liu Jianguo, Xie Pinhua, Zhang Yujun, Liu Wenqing, Hiroaki Kuze, Liu Cheng, Nobuo Takeuchi, Determination of Aerosol Optical Thickness and Atmospheric Visibility by Differential Optical Absorption Spectroscopy, Acta Optica Sinica, 2006-07
- Hiroaki Kuze, Masashi Miyazaki, Daisuke Kataoka, Ippei Harada, Measurement of NO2 and SPM in the lower troposphere by means of DOAS method based on white flashlight sources, The 4th DOAS International Workshop for Environmental Research and Monitoring, March 30-April 3, 2008 (Anhui).
- Si FQ, Xie PH, Liu JG, Zhang YJ, Liu WQ, H. Kuze, N. Takeuchi, Determination of the retrieval arithmetic of aerosol size distribution measured by DOAS, Spectroscopy and spectral analysis, vol.28 (10), pp. 2417-2420, 2008.
- Wenqing Liu, Pinhua Xie, Jianguo Liu, Yihuai Lu, Min Qin, Fuqi Si, Ang Li, Liang Xu, Dexian Wu, Tianshu Zhang, Xuesong Zhao, Air quality study in Beijing during Olympics with optical measurements, CEReS Colloquium, March 13, 2009 (CEReS).
- Hiroaki Kuze, Optical remote sensing of atmospheric aerosol and trace gases in Chiba, Japan, AIOFM Seminar, November 9, 2015..

8. None

1. Atmospheric remote sensing and its application to various environmental studies
2. Center for Environmental Remote Sensing / Professor / Hiroaki Kuze
3. Indonesia / Hasanuddin University / Dr. Syamsir Dewang / Associate Professor
4. From 1999
5. Collaboration activities are made on the application of remote sensing methods, including visible to infrared as well as microwave data, to environmental monitoring through the communication of researchers, particularly accepting students to the graduate course of Chiba University.
6. COE fund, scholarships from both Japanese and Indonesian governments
7. Main result
   - Bannu, Josaphat Tetuko Sri Sumantyo, Musali Knishnaiah, Hiroaki Kuze, Study on interannual variation of sea surface temperature anomalies in the Indo-Pacific region and Indonesian rainfall variability, 3rd Indonesia Japan Joint Scientific Symposium (Chiba University) 9-11 September, 2008.
   - Bannu, Josaphat Tetuko Sri Sumantyo, Musali Knishnaiah, Hiroaki Kuze, The impact of El Nino and

the positive Indian Ocean Dipole on rainfall variability in the Indo-Pacific region, The 14th CEReS International Symposium, pp.107-110 (Chiba University) 13-14 November 2008.

- Merna Baharuddin, Prilando Rizki Akbar, Josaphat Tetuko Sri Sumantyo, and Hiroaki Kuze, Development of circularly polarized synthetic aperture radar sensor mounted on unmanned aerial vehicle, ISRS2008, Korea Institute of Geoscience and Mineral Resources (KIGAM), Daejeon, Korea, Oct. 29-31, 2008.
- Merna Baharuddin, Victor Wissan, Josaphat Tetuko Sri Sumantyo, and Hiroaki Kuze, Equilateral triangular microstrip antenna for circularly-polarized synthetic aperture radar, Progress in Electromagnetics Research C (PIERC) 8, page 107-120, 2009.
- Merna Baharuddin, Josaphat Tetuko Sri Sumantyo, and Hiroaki Kuze, Microstrip Antenna Subarray for Circularly-polarized Synthetic Aperture Radar, March 22-26, The 27th Progress in Electromagnetics Research Symposium (PIERS) (Xi'an, China).
- Yuhendra, Ilham Alimuddin, Josaphat Tetuko Sri Sumantyo, Hiroaki Kuze, Assessment of pan-sharpening methods applied to image fusion of remotely sensed multi-band data, International Journal of Applied Earth Observation and Geoinformation Volume 18, August 2012, Pages 165-175.
- Ilham Alimuddin, Tomoaki Tanaka, Hiroshi Hara, Yusaku Mabuchi, Naohiro Manago, Tatsuya Yokota, Hiroaki Kuze, Direct sunlight-DOAS measurement of aerosol and NO2 using a non-scanning fiber sensor, The 17th CEReS International Symposium Microwave Remote Sensing for Environmental Diagnosis, 2012.
- Ilham Alimuddin, Luhur Bayuaji1, Josaphat Tetuko Sri Sumantyo, Hiroaki Kuze, Integrated analysis of Quickbird and JERS-1 SAR data for land subsidence study in The City of Makassar, The 17th CEReS International Symposium Microwave Remote Sensing for Environmental Diagnosis, 2012.
- Ilham Alimuddin, Luhur Bayuaji, Haeruddin C. Maddi, Josaphat Tetuko Sri Sumantyo, Hiroaki Kuze, Development tropical landslide susceptibility map using DInSAR technique of JERS-1 SAR data, International Journal of Remote Sensing and Earth Sciences (IJReSES), Vol 8, (2011).
- Yuhendra, Alimuddin I, Tetuko Sri Sumantyo J, Kuze H, Spectral quality evaluation of pixel-fused data for improved classification of remote sensing images, Geoscience and Remote Sensing Symposium (IGARSS), 2011 IEEE International.
- Kuze H. Goto Y, Mabuchi Y, Saitoh H, Alimuddin I, Bagtasa G, Harada I, Ishibashi T, Tsujimoto T, Kameyama S, Urban air pollution monitoring using differential optical absorption spectroscopy (DOAS) and wind lidar, Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International.
- Ilham Alimuddin, Hayato Saito, Yusaku Mabuchi, Naohiro Manago, Hiroshi Hara, Hiroaki Kuze, Development of a non-scanning fiber sensor for direct sunlight-DOAS measurement of nitrogen dioxide, IJJSS2014, Gaja Mada University, Yogyakarta, Indonesia, October 29-30, 2014.
- Ilham Alimuddin, R. Langkoke, B. Rochmanto, J.S.T Sumantyo,Hiroaki Kuze, Coastline changes

monitoring using satellite images of Makassar Coastal Areas, IJJSS2014, Gaja Mada University, Yogyakarta, Indonesia, October 29-30, 2014.

- Ilham Alimuddin, A.R. Rasyid, Purwanto, N.P. Bhandary, Ryuichi Yatabe, J.T.S. Sumantyo and H. Kuze, Landslide susceptibility mapping using DInSAR and statistic model in Bawakaraeng mountain, Sulawesi, Indonesia, The 23rd CEReS International Symposium, Keyaki Hall, December 1-2, 2015.

8. None

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1. Project for Biomass measurement on Mongolian grassland
2. Center for Environmental Remote Sensing / Associate Professor / Yoshiaki Honda
3. Mongolia / National Remote Sensing Center / Mr. S.Khudulmur
4. 2002～
5. Establishment for the grassland biomass measurement method using satellite data. The results can be used for desertification monitoring and estimation of plant productivity.
6. Japan Aerospace Exploration Agency
7. None
8. None

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1. Cooperative research program of the variation of solar and terrestrial radiation over the East Asian region
2. Center for Environmental Remote Sensing / Associate Professor/ Hitoshi Irie
3. China / Institute of Atmospheric Physics, Chinese Academy of Sciences / Guang-yu SHI(Academician of CAS)
4. From 1996
5. The object of this research program is to estimate radiative effects of aerosols and clouds over the East Asian region using solar and terrestrial radiation observation data. In addition, variations of the radiation field is investigated in detail by combining satellite and ground observation data.
6. Grants-in-Aid for Scientific Research(2002-2004), Japan-China joint research program(1999-2001), Japan Aerospace Exploration Agency, MEXT-GEOSS program(2006-2010)
7. Main result
   - G. -Y.Shi, T.Nakajima, T.Takamura, T.Hayasaka, L.Xu, B. Wang, X. Jin, X. -B. Fan, R. -m. Hu, P. Zhang, L.-S. Zhang X. -H. Wang, and H. Zhang, Observational Study on the Radiative Properties of Atmosphere Aerosols over China. CEReS International Symposium on Atmospheric Correction of Satellite Data and its Application to Global Environment, p.280-283, Chiba, Jan.21-23, 1998.
   - T. Takamura, I. Okada, N. Takeuchi, G-Y. Shi, T. Nakajima, 2001 : Estimation of surface solar radiation from satellite data and its validation using SKYNET data, P2-37, p536-541, Proceedings of the Fifth International Study Conference on GEWEX in Asia and GAME, Oct. 3-5,2001, Aichi Trade Center, Nagoya, Japan.
   - T. Takamura, I. Okada, T. Nakajima, G-Y Shi, J. Zhou, 2001: SKYNET aerosol / radiation observation network in the East Asia, 55-61,, Proceedings of Nagasaki Workshop on Aerosol-Cloud Radiation Interaction and Asian Lidar Network, 27-29 Nov. 2001, Nagasaki.

- T.Takamura,A.Arao, H. Fukushima, G.Shi, N.Sugimoto(Editors), 2001: Proceedings of Nagasaki Workshop on Aerosol-Cloud Radiation Interaction and Asian Lidar Network, pp.119.
- Bi J.R., J.P. Huang, Y.Z. Liu, Z.W. Huang, G.Y. Shi, and T. Takamura, 2010: Aerosol Optical Characteristics Observed by Sky Radiometer over Loess Plateau in China. Proceedings of the 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, p91-94, Oct. 21-23, 2010, Okinawa, Japan.
- Bi.Jianrong, Yuzhi Liu, Jianping Huang, Guanyu Shi, Tamio Takamura, Zhong wei Huang, Pradeep Khatri, Jinsen Shi, Tianhe Wang, Xin Wang, Beidou Zhang, 2010: Characteristics of Dust Aerosol derived from sky-radiometer over Loess Plateau of Northeast China. Proceedings of the 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, p95-100, Oct. 21-23, 2010, Okinawa, Japan.

8. Other important items to be stated
   - Nagasaki Workshop on Aerosol-Cloud Radiation Interaction and Asian Lidar Network, 27-29 Nov. 2001, Nagasaki University, Nagasaki.
   - CEReS International Symposium and SKNET workshop on "Remote Sensing of the Atmosphere for Better Understanding of Climate Change", 13-14, Nov. 2008, Chiba University
   - The 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, Nago/Okinawa, Oct. 2010.（日本学術振興会支援を、一部受ける）

1. Cooperative research program of the climate effect of suspended particles at the SKYNET Hefei site
2. Center for Environmental Remote Sensing / Associate Professor / Hitoshi Irie
3. China / Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences / Jun Zhou(Professor),Dong Liu(Assoc. Prof.)
4. From 1997
5. The objectives of this program are to perform collaborative measurements of atmospheric components at the SKYNET Hefei site and to analyze their data for climate research. The acquired data are made open to the public or research community through the SKYNET web system in CEReS of Chiba University before 2006 and also by AIOFM researchers after 2007.
6. Japan Aerospace Exploration Agency, MEXT-GEOSS program
7. Results
   - Jun Zhou, Guming Yu, Chuanjia Jin, Fudi Qi, Dong Liu, Huanling Hu, Zhiben Gong,Guangyu Shi, Teruyki Nakajima, and Tamio Takamura, Lidar Observations of Asian Dust over Hefei, China in the Spring of 2000, Journal of Geophysical Research, 107(2002), No.D15, AAC 5-1 – 5-8.
   - Zhen-zhu Wang, J. Zhou, Chao Li, T. Takamura, and N. Sugimoto, Studies on net long-wave radiation on clear days in Hefei region, Proceedings of the 14th CEReS Int'l Symposium and SKYNET Workshop on "Remote Sensing of the Atmosphere for Better Understanding of Climate Change", 65-68, Nov. 13-14

2008, Keyaki-Hall, Chiba University.

- Wang, Zhenzhu, Dong Liu, Yingjian Wang, Pradeep Khatri, Jun Zhou, Guangyu Shi, Tamio Takamura, 2010: Aerosol radiative properties over Hefei during 2007-2010. Proceedings of the 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, p125-131, Oct. 21-23, 2010, Okinawa, Japan.

8. Other important items to be stated
   - The 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, Nago/Okinawa, Oct. 2010.(Partly supported by JSPS.)
   - Prof. Takamura has been a visiting professor of Anhui Institute of Optics and Fine Mechanics during 2011.6 to 2012.5.

1. Cooperative research program for the climate effect of suspended particles at the SKYNET Pune site(India).
2. Center for Environmental Remote Sensing/ Associate Professor / Hitoshi Irie
3. India / Indian Institute of Tropical Meteorology / Pandithurai Govindan(Scientist D)
4. From 2004
5. The objective of this program is to observe aerosols, clouds, and radiation at the SKYNET/Pune site in India, and then to analyze data for studying climate effects. Pune is one of major cities near Mumbai in India, located in urbanized areas under a typical monsoon climate condition. Pune can be a representative site for South Asia.
6. MEXT-GEOSS program, Japan Society for the Promotion of Science
7. Results
   - G. Pandithurai, R.T. Pinker, T. Takamura, and P.C.S. Devara, 2004: Aerosol radiative forcing over a tropical urban site in India, Geophys. Res. Lett., 31(2004), L12107.
   - Pandithurai, G., R.T. Pinker, P.C.S. Devara, T. Takamura, and K.K. Dani, 2007: Seasonal asymmetry in diurnal variation of aerosol optical characteristics over Pune, western India, Journal of Geophysical Research, 112, D08208, doi:10.1029/2006JD007803.
   - Panicker, A. S., G. Pandithurai, T. Takamura, and R. T. Pinker (2009), Aerosol effects in the UV-B spectral region over Pune, an urban site in India, Geophys. Res. Lett., 36, L10802, doi:10.1029/2009GL037632.
   - G. Pandithurai, T. Takamura, J. Yamaguchi, K. Miyagi, T. Takano, Y. Ishizaka and A. Shimizu, 2009: Aerosol effect on cloud droplet size as monitored from surface remote sensing over East China Sea region, Geophysical Research Letters, VOL.36, L13805, doi:10.1029/2009 GL038451, 2009.
   - G. Pandithurai, J. Yamaguchi, T. Takano, Y. Ishizaka, A. Shimizu, T. Takamura, Aerosol indirect effect studies at Cape Hedo during spring campaign-2008, Proceedings of the 14th CEReS Int'l Symposium and SKYNET Workshop on "Remote Sensing of the Atmosphere for Better Understanding of Climate Change", 53-56, Nov. 13-14 2008, Keyaki-Hall, Chiba University

- Panicker, A.S., G. Pandithurai, T. Takamura, Dong-In Lee, 2010: Shortwave versus longwave aerosol radiative forcing over an urban environment. Proceedings of the 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, p47-150, Oct. 21-23, 2010, Okinawa, Japan.
- Pandithurai, G., S. Dipu and T. Takamura, 2010: Aerosol-cloud interactions derived from remote sensing and in-situ aircraft measurements. Proceedings of the 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, p133-135, Oct. 21-23, 2010, Okinawa, Japan.

8. Others

Dr. Pandithurai Govindan has had a cooperative research at the CEReS, Chiba University during 2008.5 to 2009.2, as a visiting faculty member of the CEReS, Chiba University.

1. The cooperative research program for the climate effect of particles suspended in the atmosphere of Korea.
2. Center for Environmental Remote Sensing/ Associate Professor / Hitoshi Irie
3. South Korea / Seoul National University / B.J. Sohn(Professor)
4. From 2005
5. The objective of this program is to analyze SKYNET network data for estimating the climate effect of aerosols in Korea and its surrounding areas. The estimate of radiative forcing using shared SKYNET data is one of the most interesting targets for both sides.
6. JST/CREST program, MEXT-GEOSS program
7. Results
   - Do-Hyeong Kim, Byung-Ju Sohn, Teruyuki Nakajima, Tamio Takamura, Toshihiko Takemura, Byonung-Cheol Choi, and Soon-Xhang Yoon, 2004: Aerosol optical properties over east Asia determined from ground-based sky radiation measurements, J. Geophys. Res., 109, D02209.
   - Do-Hyeong Kim, Byung-Ju Sohn, Teruyuki Nakajima and Tamio Takamura, 2005: Aerosol radiative forcing over east Asia determined from ground-based solar radiation measurements, J. Geophys. Res., 110, D10S22, doi:10.1029/2004JD004678,2005.
   - Takamura, T., N. Sugimoto, A. Shimizu, A. Uchiyama, A. Yamazaki, K. Aoki, T. Nakajima, B. J. Sohn, and H. Takenaka (2007), Aerosol radiative characteristics at Gosan, Korea, during the Atmospheric Brown Cloud East Asian Regional Experiment 2005, J. Geophys. Res., 112, D22S36, doi:10.1029/2007JD008506.
   - Hyun-Sung Jang, Hwan-Jin Song, Hyoung-Wook Chun, Byung-Ju Sohn, and Tamio Takamura,2011: Validation of MODIS-derived Aerosol Optical Thickness Using SKYNET Measurements over East Asia, Journal of Korean Earth Sciences Society, 32(1), 21-32, doi:10.5467/JKESS.2011.32.1.21.(In Korean)
8. Others

CEReS/Chiba University team has attended the ABC EAREX2005(Atmosopheric Brown Cloud East Asian Regional Experiment 2005) at the Cheju-island in South Korea during March to April, 2005, supported and

operated by Seoul National University and Korean Meteorological Agency.

1. Study on Environmental Conscious & Sustainable Agricultural System through Food Security Concept
2. Center for Environmental Remote Sensing / Associate Professor / Chiharu Hongo
3. Indonesia / Udayana University(with Agreement of Academic Cooperation) / Prof. Dr. Ketut Suastika
   Indonesia / Bogor Agricultural University (with Agreement of Academic Cooperation) / Prof. Dr. Barus Baba
   Indonesia / Padjadjaran University(with Agreement of Academic Cooperation) / Prof. Dr. Zulrizuka Iskandar
   Indonesia / Regional Office of Food crop service of west Jawa Province / Director Mr. Diden Trisnadi
4. From 2009
5. Concept of this study is to conduct both research and education on basis of two 'wheels' : science and utilization, and these research and education should be closely connected and coordinated to each other. This study is not stand-alone but should be a part of the community sharing the environmental, agricultural and other special information, and then the study provides pertinent information useful for improvement of base for food production through analysis and diagnosis of all related spatial information to be collected and shared under global information network. Final goal of the study is to contribute to realize the food security for sustainable food production and environment conservation.
6. Grant-in-aid- for Scientific Research by the Ministry of Education, Science, Sports and Culture (Fundamental Research (B))
   The Environment Research and Technology Development Fund by the Ministry of the Environment, Government of Japan
7. Main result
   - Chiharu Hongo, Tomonobu Tsuzawa, Kazuhisa Tokui, Eisaku Tamura: Development of damage assessment method of rice crop for agricultural insurance using satellite data, Journal of Agricultural Science, Vol. 7, No. 12, 59-71, November 2015
   - Chiharu Hongo, Gunardi Sigit, Ryohei Shikata, Eisaku Tamura, Estimation of water requirement for rice cultivation using satellite data, DOI:10.1109/IGARSS.2015.7326868 , Publisher:IEEE,p4660-4663, 2015
   - Chiharu Hongo, Gunardi Sigit, Ryohei Shikata, Katsuhisa Niwa and Eisaku Tamura, The Use of Remotely Sensed Data for Estimating of Rice Yield Considering Soil Characteristics, Journal of Agricultural Science; Vol. 6, No. 7,172-184, 2014
   - Chiharu Hongo, A. A. A. Mirah Adi,I. G. A. A. Ambarawati,Eisaku Tamura, Estimation of rice yield and utilization of rice straw for bioethanol using satellite data, IEEE Geoscience and Remote Sensing Society, July 13-18, 2014
   - I Gusti Agung Ayu Ambarawati, Chiharu Hongo, A.A. Ayu Mirah Adi, Eisaku Tamura, Agriculture insurance: Adaptation to vulnerability of climate change in Bali, Indonesia, AGU Fall meeting, 15-19 December, 2014
   - Chiharu Hongo, Eisaku Tamura and Gunardi Sigit, Evaluation of nitrogen nutritional conditions by

analyzing hyperspectral data, 9th European Conference on Precision Agriculture, p23, 2013

- Chiharu Hongo, Gunardi Sigit and Ryohei Shikata, Estimation of rice production on regional scale and individual field scale, Proceedings of The International Symposium on Remote Sensing, P123, 15-17 May, 2013
- Ryohei Shikata, Chiharu Hongo and Gunardi Sigit, Analysis of relationship between the estimated rice yield and the irrigation water system in West Java, Proceedings of The International Symposium on Remote Sensing, P303-306, 15-17 May, 2013
- Koshi Yoshida1, Issaku Azechi, Ryunosuke Hariya, Kenji Tanaka, Keigo Noda,Kazuo Oki, Chiharu Hongo, Koki Honma, Masayasu Maki and Hiroaki Shirakawa, Future Water Availability in the Asian Monsoon Region:A Case Study in Indonesia, Journal of Developments in Sustainable Agriculture 8: 25-31, 2013
- Chiharu Hongo, Gunardi Sigit, Koshi Yoshida, Masayasu Maki,Koki Honma, Kazuo Oki, Hiroaki Shirakawa and Takaaki Furukawa, Estimation of rice production based on LAI images by MODIS data in West Java, Proceedings of the 18rd CEReS International Symposium on Remote Sensing, 2013
- Chiharu Hongo, Gunardi Sigit and Takaaki Furukawa, Estimation of rice yield from remotely sensed data, ACES and Ecosystem Markets 2012, 127,2012
- Chiharu Hongo, Takaaki Furukawa, Gunardi Sigit, Masayasu Maki, Koki Honma, Koshi Yoshida, Kazuo Oki, Hiroaki Shirakawa, Estimation of rice yield from MODIS data in West Jawa,Indonesia, The 11th International conference on Precision Agriculture, 2012.7.15-18, P164
- Kanae Miyaoka, Masayasu Maki, Junichi Susaki, Koki Homma, Koshi Yoshida, Chiharu Hongo, DETECTION OF RICE PLANTED AREA USING MULTI-TEMPORAL ALOS/PALSAR DATA, FR3.10.2 6777-6780., IGARSS 2012
- Nuarsa I Wayan, Fumihiko Nishio, Chiharu Hongo, Rice Yield Estimation Using Landsat ETM+ Data and Field Observation, Journal of Agriculture Science, Canada, Vol.4, No.3, 36-45, 2012
- Nuarsa I Wayan, Fumihiko Nishio, Chiharu Hongo, Dede Mahardika, Using variance analysis of multitemporal MODIS images for rice field mapping in Bali Province, Indonesia, International Journal of Remote Sensing, Vol.33, No.17, 5402-5417, 2012
- Nuarsa I Wayan, Fumihiko Nishio, Chiharu Hongo, Relationship between Rice Spectral and Rice Yield Using Modis Data, Journal of Agriculture Science, Canada, Vol.3, No.2, 80-88, 2011
- Nuarsa I Wayan, Fumihiko Nishio, Chiharu Hongo, Spectral characteristic comparison of rice plants under healthy and water deficient conditions using Landsat RTM+ data, 写真測量とリモートセンシング、Vol.50, No2, 66-79, 2011
- Nuarsa I Wayan, Fumihiko Nishio, Chiharu Hongo, Spectral characteristics and mapping of rice plants using multi-temporal Landsat data, Journal of Agriculture Science, Canada, Vol.3, No.1, 54-67, March.2011
- Chiharu hongo, Gunardi Sigit, Koki Honma, Koshi Yoshida, Masayasu Maki, Handarto, The use of

remotely sensed data for estimating of rice yield, International Conference on Space, Aeronautical and Navigational Electronics, No. 239, 185-189, 2011

- Masashi Kasuya, Chiharu Hongo, Gunardi Sigit, Koshi Yoshida, Masayasu Maki, Koki Honma, Handarto, Kazuo Oki, Hiroaki Shirakawa, Evaluation of ASTER GDEM data as the input factor of USLE model ,International Conference on Space, Aeronautical and Navigational Electronics, No. 239, 191-194, 2011
- Ritsuko Hara, Chiharu Hongo, Mitsuo Kanbayashi, Koki Homma ,The possibilities to evaluate crop productivity on the basis of remote sensing of plant canopy temperature, International Conference on Space, Aeronautical and Navigational Electronics, No. 239, 179-184, 2011
- I.W. Nuarsa, F. Nishio and C. Hongo, Rice yield estimation using MODIS data, Proceeding of the 2nd CReSOS International symposium on south east Asia environmental problems and satellite remote sensing, Indonesia, 121-126, 2011
- Nuarsa I Wayan, Fumihiko Nishio, Chiharu Hongo, Modification of input images for improving the accuracy of rice field claasification using MODIS data, International Journal of Remote sensing and Earth Science, Vol.7, 36-52, 2010
- Nuarsa I Wayan, Fumihiko Nishio, Chiharu Hongo, Development of the empirical model for rice field distribution mapping using multi-temporal LANDSAT ETM+ data:Case study in Bali Indonesia, International Archives of the Photogrammetry, Remote Sensing and Spatial Information Science, Volume XXXVIII, Part 8, 482-487, 2010.9
- Masashi Kasuya, Chiharu Hongo、Analysis of rice production and irrigation system in Cianjur, Indonesia 、Proceedings of the 15rd CEReS International Symposium on Remote Sensing, p 78-79,2009

8. Center on Food Availability for Sustainable Improvement (CFASI) was established for global research and education on food security at Udayana University in 2014
   - Workshop on Reduce Risks in Agriculture through Agricultural Insurance for Food Security, Bogor Agricultural University, Feb. 22, 2016
   - 2nd CFASI International Workshop"Agriculture Insurance as Adaptation to Climate Change toward the Sustainable Society", Udayana University, March 12, 2015
   - Workshop on Food Availability for Sustainable Improvement 2014, Udayana University, March 3, 2014

1. Research and Development for Reducing Geo-Hazard Damage in Malaysia caused by Landslide & Flood
2. Center for Environmental Remote Sensing / Professor / Josaphat Tetuko Sri Sumantyo
3. Malaysia / Multimedia University / Dr. Koo voon Chet / Professor
4. From 2010
5. Historical land deformation of Malaysian area and the impact will be analysed using time series satellite data, i.e. JERS-1, ALOS, ASTER etc, then create disaster map of this area. We hold join research with Multimedia University (MMU) to develop CP-SAR onboard unmanned aerial vehicle. We also develop some methods to retrieve disaster area using satellite data and spatial data that match with the environmental

conditions of Malaysian area.

6. Science and Technology Research Partnership for Sustainable Development fund from JST and JICA ,alaysian Government Research funds, etc

7. Main result

- J.T. Sri Sumantyo and Koo Voon Chet, "Development of Unmanned Aerial Vehicle for Synthetic Aperture Radar " Joint Project workshop, 2013, Research Institute of Elecrical Communication, Tohoku University(IEEE-GRSS), (February 2013).
- J.T. Sri Sumantyo and Koo Voon Chet,"Development of Unmanned Aerial Vehicle for Synthetic Aperture Radar Sensor" ICICE General Conference 2013, Comunication Technology and Application of Unmanned Aerial Systems, Gihu University,(March 2013).
- Josaphat Tetuko Sri Sumantyo, Koo Voon Chet, Robertus Heru Triharjanto, "Development of Circularly Polarized Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," WE1.T04.1 : SAR Polarimetry : Theory and Application I Session, Wednesday, July 24, 2013 : 08:20-10:00, International Geoscience and Remote Sensing Symposium (IGARSS 2013), 21-26 July 2013 (Melbourne : Japan)
- Koo Voon Chet, Helmut Essen, Josaphat Tetuko Sri Sumantyo, Lim Tien Sze, Chan Yee Kit and Habibah Lateh, "Development of A Ground-based Synthetic Aperture Radar for Land Deformation Monitoring," 2013 Asia Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 23-27 September 2013 (Tsukuba : APSAR)
- Josaphat Tetuko Sri Sumantyo and Koo Voon Chet, "Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle", 2013 Asia Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 23-27 September 2013 (Tsukuba : APSAR)
- Kyohei Suto, Josaphat Tetuko Sri Sumantyo, Cheaw Wen Guey, and Koo Voon Chet,"FPGA Based Multiple Preset Chirp Pulse Generator for Synthetic Aperture Radar Onboard Unmanned Aerialvehicle System," Symposium on Microsatellites for Remote Sensing (SOMIRES 2013), P07, 8-9 August 2013 (Chiba : CEReS-RISH).
- Josaphat Tetuko Sri Sumantyo, Koo Voon Chet, "Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," TU1.R2.4, Special Session : Polarimetric SAR Methods and Applications I, 2013 Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 24 September 2013 (Tsukuba : IEEE).
- Koo Voon Chet, Helmut Essen, Josaphat Tetuko Sri Sumantyo, Lim Tien-Sze, Chan Yee-Kit, and Habibah Lateh, "Development of a Ground-based Synthetic Aperture Radar for Land Deformation Monitoring," TH2.R4.5, Advanced and Innovative SAR Concepts and Ground Based Systems, 2013 Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 26 September 2013 (Tsukuba : IEEE).
- Kyohei Suto, Josaphat Tetuko Sri Sumantyo, Cheaw Wen Guey, Koo Voon Chet, "FPGA Variable Base Chirp Pulse Generator for Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," The 34th

Asian Conference on Remote Sensing (ACRS 2013), pp. SC01 230 – 235, 20 – 24 October 2013 (Bali : AARS) ISBN: 978-602-9439-33-5

- Lim Tien-Sze, Koo Voon-Chet, Chua Ming Yam, Chan Yee-Kit, and Josaphat Tetuko Sri Sumantyo, "Unmanned Aerial Vehicle Synthetic Aperture Radar for Disaster Monitoring," International Seminar on Landslide Research Malaysia – Japan (JICA Landslide Seminar), 16 November 2013 (Penang : USM)
- Josaphat Tetuko Sri Sumantyo, Koo Voon Chet, Robertus Heru Triharjanto, "Development of Circularly Polarized Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," WE1.T04.1 : SAR Polarimetry : Theory and Application I Session, Wednesday, July 24, 2013 : 08:20-10:00, International Geoscience and Remote Sensing Symposium (IGARSS 2013), 21-26 July 2013 (Melbourne : Japan)
- Koo Voon Chet, Helmut Essen, Josaphat Tetuko Sri Sumantyo, Lim Tien Sze, Chan Yee Kit and Habibah Lateh, "Development of A Ground-based Synthetic Aperture Radar for Land Deformation Monitoring," 2013 Asia Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 23-27 September 2013 (Tsukuba : APSAR)
- Josaphat Tetuko Sri Sumantyo and Koo Voon Chet, "Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle", 2013 Asia Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 23-27 September 2013 (Tsukuba : APSAR)
- Kyohei Suto, Josaphat Tetuko Sri Sumantyo, Cheaw Wen Guey, and Koo Voon Chet,"FPGA Based Multiple Preset Chirp Pulse Generator for Synthetic Aperture Radar Onboard Unmanned Aerialvehicle System," Symposium on Microsatellites for Remote Sensing (SOMIRES 2013), P07, 8-9 August 2013 (Chiba : CEReS-RISH).
- Josaphat Tetuko Sri Sumantyo, Koo Voon Chet, "Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," TU1.R2.4, Special Session : Polarimetric SAR Methods and Applications I, 2013 Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 24 September 2013 (Tsukuba : IEEE).
- Koo Voon Chet, Helmut Essen, Josaphat Tetuko Sri Sumantyo, Lim Tien-Sze, Chan Yee-Kit, and Habibah Lateh, "Development of a Ground-based Synthetic Aperture Radar for Land Deformation Monitoring," TH2.R4.5, Advanced and Innovative SAR Concepts and Ground Based Systems, 2013 Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013), 26 September 2013 (Tsukuba : IEEE).
- Kyohei Suto, Josaphat Tetuko Sri Sumantyo, Cheaw Wen Guey, Koo Voon Chet, "FPGA Variable Base Chirp Pulse Generator for Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," The 34th Asian Conference on Remote Sensing (ACRS 2013), pp. SC01 230 – 235, 20 – 24 October 2013 (Bali : AARS) ISBN: 978-602-9439-33-5
- Lim Tien-Sze, Koo Voon-Chet, Chua Ming Yam, Chan Yee-Kit, and Josaphat Tetuko Sri Sumantyo, "Unmanned Aerial Vehicle Synthetic Aperture Radar for Disaster Monitoring," International Seminar

on Landslide Research Malaysia – Japan (JICA Landslide Seminar), 16 November 2013 (Penang : USM)

- Invited Talk : Josaphat Tetuko Sri Sumantyo, Koo Voon Chet and Robertus Heru Triharjanto, "Development of Circularly Polarized Synthetic Aperture Radar Onboard Unmanned Aerial Vehicle and Microsatellite", Polarimetry Session, The 9th ASAR Workshop, John H. Chapman Space Centre, October 15-18, 2013 (the Canadian Space Agency – CSA)
- Josaphat Tetuko Sri Sumantyo, "Group 1. Construction of Analysis System for Temporal Change and Real Time Condition of Surface Environment by Using RS/GIS Technologies," JICA-JST Program SATREPS JCC Meeting, Multimedia University, Cyberjaya, Kualalumpur, 6 March 2014.
- Book : Autonomous Control Systems and Vehicles : Intelligent Unmanned Systems, Editors : Nonami, K.; Kartidjo, M.; Yoon, K.-J.; Budiyono, A., Josaphat Tetuko Sri Sumantyo, Series: Intelligent Systems, Control and Automation: Science and Engineering, IX, 315 p. 210 illus., 160 illus. in color., ISBN 978-4-431-54275-9, Chapter 12 : Circularly Polarized Synthetic Aperture Radar onboard Unmanned Aerial Vehicle, Vol. 65, 2013,

8. Chiba University Open Research 2013 – Chiba University President Award, Josaphat Tetuko Sri Sumantyo, "Development of Advance Technology on Microsatellite and Large Scale Unmanned Aerial Vehicle in Chiba Prefecture," Chiba University, 25 November 2013.

1. Observation and model simulation in atmospheric remote sensing
2. Center for Environmental Remote Sensing / Professor / Hiroaki Kuze
3. Philippines / University of the Philippines / Dr. Gerry Bagtasa
4. From 2007
5. Dr. Gerry Bagtasa obtained his Dr.Sc. degree from the Graduate School of Chiba University in 2006. From September 2011 to September 2012, he stayed at CEReS, with the financial support from the Hitachi Foundation as well as the budget for CEReS COE researcher. His original affiliation is Institute of Environmental Science and Meteorology, the University of the Philippines, and he is continuing cooperative research with CEReS in the field of atmospheric observation and meteorological model simulation of the atmosphere.
6. The Hitachi Scholarship Foundation, Expenditure for COE researcher
7. Main result
   - Urban air pollution monitoring using differential optical absorption spectroscopy (DOAS) and wind lidar, Hayato Saito, Yutaro Goto,Yusaku Mabuchi, Ilham Alimuddin, Gerry Bagtasa, Naohiro Manago,Hitoshi Irie, Ippei Harada, Toshihiko Ishibashi, Kazunori Yashiro,Shumpei Kameyama, Hiroaki Kuze, Open Journal of Air Pollution, Vol. 3,No.1, pp. 20-32 (March 2014). DOI: 10.4236/ojap.2014.31003
   - Kuze H. Goto Y, Mabuchi Y, Saitoh H, Alimuddin I, Bagtasa G, Harada I, Ishibashi T, Tsujimoto T, Kameyama S, Urban air pollution monitoring using differential optical absorption spectroscopy

(DOAS) and wind lidar, Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International

- Gerry Bagtasa, Nobuo Takeuchi, Hiroaki Kuze, Wavelet Denoising Applied to Cloud Base Height Determination from Portable Automated Lidar Data, Conference on Lasers and Electro-Optics/Pacific Rim Sydney, Australia August 28, 2011
- Gerry Bagtasa, Yutaro Goto, Yasuka Mabuchi1, Hayato Saito, Ippei Harada, Shumpie Kameyama, Hiroaki Kuze, Characterization of urban NO2 transport with a Coherent Doppler Lidar and WRF-Chem model, The 30th LSS, 2012

8. None

1. The cooperative research program for the climate effects of clouds and aerosols in the tropical areas
2. Center for Environmental Remote Sensing / Associate Professor / Hitoshi Irie
3. Thai / Chulalongkorn University / Thanawat Jarupongsakul
4. From 2005
5. The objective of this collaborative program is to assess climatic effects of aerosols and clouds by analyzing data observed at the Phimai observation site. The main target is to better understand their radiative forcing.
6. MEXT-GEOSS program, JST/CREST program
7. Results
   - Takamura, T., S. Karasuyama, T. Nakajima , T. Kato and Y. Miyake, 2005: PAR and Aerosol Observation with a Newly Developed Instrument. Air Pollution and Climate Change Study Workshop, Apr.26-28 2005, BRRAA Phimai Observatory, Phimai Thailand. (Hosted by Chulalongkon Univ. and Univ. Tokyo)
   - Yu Cui*, Yasushi Mitomi* and Tamio Takamura,2006: An Empirical Anisotropy Correction Model for Estimating Albedo at surface for Radiation Budget and Climate Studies, 2nd Asia-Pacific Radiation Symposium (APRS 2006), Kanazawa (JAPAN), August 1, 2006
   - T. Takamura, H. Takenaka, Y. Cui, T.Y. Nakajima, A. Higurashi, S. Fukuda, N. Kikuchi, T. Nakajima, I. Sano and R. Pinker, 2008: Estimation of radiation budget using GLI, and Construction of aerosol and cloud validation system based on SKYNET observations, GLI workshop at ATAMI, Jan.22-24, 2008
   - H. Tsuruta, J. Chotpitayasunon, B. Thana, P. Khatri, T. Takamura, T. Hyasaka, and T. Nakajima, Characterization of atmospheric aerosols at the observatory for atmospheric research at Phimai, Thailand, a station of SKYNET, Proceedings of the 14th CEReS Int'l Symposium and SKYNET Workshop on "Remote Sensing of the Atmosphere for Better Understanding of Climate Change", 22-25, Nov. 13-14 2008, Keyaki-Hall, Chiba University.
   - Thana, B., T. Sudjai, J. Chotpitayasunon, H. Tsuruta, T. Takamura, and T. Nakajima, 2010: Characteristics of atmospheric aerosols at the Observatory for Atmospheric Reaserch at Phimai, Thailand, a station of SKYNET. Proceedings of the 16th CEReS International Symposium on Climate Change Studies through Activities of SKYNET and Virtual Laboratory for Climate Diagnostics, p57-60,

Oct. 21-23, 2010, Okinawa, Japan.

- Khatri, P. and T. Takamura, 2012: Aerosol climatology of the East Asia region studied by using ground-based remote sensor data of SKYNET network, Proc. of the 18th CEReS Int'l. Symposium – Asian Network for Environmental Monitoring and Related Studies, Chiba, Japan, 12-29.

8. Others

SKYNET Phimai site, which is operated by the collaborative frame work, is registered to the ABC/UNEP.

1. Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle and Microsatellite
2. Center for Environmental Remote Sensing / Professor / Josaphat Tetuko Sri Sumantyo
3. Korea / Ajou University / Prof. Kim Jae-Hyun / Professor
4. From 2013
5. Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle and Microsatellite Development for Earth observation
6. Korea Government – Korean Aerospace Research Institute (KARI), Japanese Government – MEXT etc
7. None
8. Other important items to be stated
   - Outstanding Paper Award, Heein Yang, Dal-Guen Lee, Tu-Hwan Kim, Josaphat Tetuko Sri Sumantyo, and Jae-Hyun Kim, "Semi-automatic coastline extraction method using synthetic aperture radar images" The 16th International Conference on Advanced Communication Technology (ICACT 2014), Paper ID 20140473, Phoenix park, Republic of Korea, 16-19 February 2014
   - Chiba University Open Research 2013 – Chiba University President Award, Josaphat Tetuko Sri Sumantyo, "Development of Advance Technology on Microsatellite and Large Scale Unmanned Aerial Vehicle in Chiba Prefecture," Chiba University, 25 November 2013.

1. Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle and Microsatellite
2. Center for Environmental Remote Sensing / Professor / Josaphat Tetuko Sri Sumantyo
3. Indonesia / Indonesian Aerospace Agency (LAPAN) / Robertus Heru Trihardjanto / Head of Satellite Technology Division
4. From 2013～
5. Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle and Microsatellite for Earth monitoring
6. Indonesian Government - Lapan, Japanese Government MEXT, etc
7. Main result
   - Josaphat Tetuko Sri Sumantyo, Koo Voon Chet, Robertus Heru Triharjanto, "Development of Circularly Polarized Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," WE1.T04.1 : SAR Polarimetry : Theory and Application I Session, Wednesday, July 24, 2013 : 08:20-10:00, International Geoscience and Remote Sensing Symposium (IGARSS 2013), 21-26 July 2013 (Melbourne : Japan)
   - Invited Talk : Josaphat Tetuko Sri Sumantyo (Chiba University), Koo Voon Chet (MMU Malaysia), and

Robertus Heru Triharjanto (LAPAN Indonesia), Development of UAV and Microsatellites for Remote Sensing, Symposium on Microsatellites for Remote Sensing (SOMIRES 2013), 8 - 9 August 2013.

- Invited Talk : Josaphat Tetuko Sri Sumantyo, Koo Voon Chet and Robertus Heru Triharjanto, "Development of Circularly Polarized Synthetic Aperture Radar Onboard Unmanned Aerial Vehicle and Microsatellite", Polarimetry Session, The 9th ASAR Workshop, John H. Chapman Space Centre, October 15-18, 2013 (the Canadian Space Agency - CSA)

8. Chiba University Open Research 2013 - Chiba University President Award, Josaphat Tetuko Sri Sumantyo, "Development of Advance Technology on Microsatellite and Large Scale Unmanned Aerial Vehicle in Chiba Prefecture," Chiba University, 25 November 2013.

1. Development of C Band Synthetic Aperture Radar (CB-SAR) for Unmanned Aerial Vehicle Platform
2. Center for Environmental Remote Sensing / Professor / Josaphat Tetuko Sri Sumantyo
3. Indonesia / Bhimasena Research, Technology and Development / Dr. Aris Budiyarto
4. From 2015
5. The purpose of this activity is developing C band Synthetic Aperture Radar (CB-SAR) for Unmanned Aerial Vehicle (UAV) platform for vegetation covered land surface remote sensing. The CB-SAR system utilizes advanced SAR sensor using FPGA to realize lightweight and compact system to onboard the sensor of medium class of UAV in order to penetrate dense vegetation covered area. The research aims to perform organized activities amongst the research teams in Japan and in the Indonesia. The team members will visit each other to find and fit together the missing pieces for a successful program to realize single polarization of CB-SAR onboard UAV that could be operated in height less than 2,000m for remote sensing.
6. Bhimasena Research, Technology and Development
7. Main result

- Conference :

(1) Heein Yang, Josaphat Tetuko Sri Sumantyo, Jin-Hong An, Hae Won Jung, and Jae Hyun Kim, "Phase Error Compensation Method using Polynomial Model for a Direct Digital Synthesizer Based Chirp Signal Generator," IEEE IGARSS 2015, MOP.PP.9, July 26-31, 2015, Milan, Italy.

(2) ヨサファット　テトォコ スリ スマンティヨ、"環境・災害監視用無人航空機・航空機・小型衛星用の合成開口レーダの開発"、千葉エリア産学官連携オープンフォーラム 2015, 日本大学生産工学部・津田沼キャンパス、2015 年 9 月 11 日

(3) Yuta Izumi, Josaphat Tetuko Sri Sumantyo, Heein Yang, and Agus Hendra, "Development of Low Memory Size Chirp Generator for Synthetic Aperture Radar using FPGA," B24, Abstracts of The 59th Autumn Conference of The Remote Sensing Society of Japan, Ryojun Matsumoto Auditorium, Nagasaki University, Japan, November 26-27, 2015.

(4) Yuta Izumi, Mohd Zafri Bin Baharuddin, Josaphat Tetuko Sri Sumantyo, Ghozali Suhariyanto Hadi, Yudi Isvara, Agus Hendra, and Heein Yang, "Experiment of L-Band Synthetic Aperture Radar System Using ISAR Method in Anechoic Chamber," The 3rd Symposium on Microsatellites

for Remote Sensing (SOMIRES 2015), 2A-3, 1 December 2015 (SOMIRES : Chiba)

(5) Mohd Zafri Bin Baharuddin, Yuto Osanai and Josaphat Tetuko Sri Sumantyo, "Suppressed Side-Lobe Beam Steered C Band Circularly Polarized Array Antenna for Synthetic Aperture Radar Measurements," The 3rd Symposium on Microsatellites for Remote Sensing (SOMIRES 2015), 2A-4, 1 December 2015 (SOMIRES : Chiba)

(6) K. Nakamura, Josaphat Tetuko Sri Sumantyo, Yuto Osanai, Heein Yang, and Cahya Edi Santosa, "Design and Fabrication of X Band Antenna for Wideband Synthetic Aperture Radar," the 23rd CEReS International Symposium, P7, 1 December 2015 (CEReS : Chiba)

(7) Masaru Bunya, Kazuteru Namba, and Josaphat Tetuko Sri Sumantyo, "CP-SAR Processing System on FPGA for Multiple Image Size," the 23rd CEReS International Symposium, P22, 1 December 2015 (CEReS : Chiba)

- Invited Talks :

(1) Josaphat Tetuko Sri Sumantyo and Zafri Baharuddin, "Earth observation using the GAIA-1 and GAIA-2 satellite platforms," MIS02-04, Interdisciplinary studies on pre-EQ, Japan Geoscience Union Meeting 2015 (JpGU 2015), Makuhari, Japan, 26 May 2015, 09:45 – 10:00.

(2) Josaphat Tetuko Sri Sumantyo, "Development of GNSS-RO and EDTP Sensors onboard Microsatellite for Ionosphere Monitoring," International Workshop on Earthquake Preparation Process 2015 (IWEP 2015) – Observation, Validation, Modelling and Forecasting, Chiba, Japan, 30 May 2015, 09:00-09:30

(3) Josaphat Tetuko Sri Sumantyo, "Development of Microwave Sensors onboard UAV and Microsatellites for Visualization of Earth Environmental and Its Applications," Main Symposium : Symposium and Workshop on Muon-Optics-Geoneutrino-Radar and Photonics for Earth Studies (MUOGRAPHERS 2015), Tokyo Prince Hotel, 9 June 2015 (Tokyo University)

(4) Invited Talk : Josaphat Tetuko Sri Sumantyo, "Development of Microsatellites for Profiling Lithosphere & Atmosphere Characteristics to Support Human Life and Sustainable Environment," the 14th International Conference on QIR (Quality in Research), Mataram, Lombok, Indonesia, 11 August 2015

(5) Josaphat Tetuko Sri Sumantyo, "Development on Synthetic Aperture Radar onboard Unmanned Aerial Vehicle, Aircraft and Microsatellites," the 11th International Conference on Intelligent Unmanned Systems (ICIUS 2015), Bali, Indonesia, 26 August 2015.

(6) Josaphat Tetuko Sri Sumantyo, "Analysis of Land Deformation Velocity using PSI ALOS PALSAR : Impact of Coastal Sedimentation to Future Jakarta Giant Sea Wall and Waterfront City," The 5th Asia-Pasific Conference on Synthetic Aperture Radar (APSAR 2015), Singapore," 1-4 September 2015.

(7) Josaphat Tetuko Sri Sumantyo, "Development of Advanced Microwave Sensors onboard UAV, Aircraft and Microsatellite for Earth Monitoring – Experience How to Build Laboratory and to be

Researcher – ", The 8th Conference of Indonesian Student Association in Korea (CISAK 2015), Daejeon, Korea, 5-6 September 2015.

(8) Josaphat Tetuko Sri Sumantyo, "合成開口レーダ搭載小型衛星の開発：海洋学への応用"、日本海洋学会ナイトセッションB 「海洋学は小型衛星をどう使う？」、2015 年 9 月 29 日（火） 16：30～19：00、愛媛大学 共通教育講義棟 3 階 講 32 教室

(9) Josaphat Tetuko Sri Sumantyo, "Development of Synthetic Aperture Radar onboard UAV, Aircraft and Microsatellite," The 10th Advanced Synthetic Aperture Radar Workshop (ASAR 2015), John H. Chapman Space Centre 6767 route de l'Aéroport Saint-Hubert, Quebec J3Y 8Y9, Canada, 20-22 October 2015

(10) Josaphat Tetuko Sri Sumantyo, "Potentionality of Aerospace and Aeronautics Smart Technology Development for Maritime Support in Indonesia," International Seminar on Aerospace Science and Technology (ISAST 2015), Kuta, Bali, Indonesia, 27-28 October 2015

(11) Josaphat Tetuko Sri Sumantyo, "Industry and University Cooperation in Innovation on Remote Sensing Technology between Indonesia and Japan," The 3rd Japan Indonesia Rector's Conference, 5 November 2015, Sapporo, Hokkaido

(12) Josaphat Tetuko Sri Sumantyo, "Development of Synthetic Aperture Radar onboard UAV, Aircraft and Microsatellite," IEEE Workshop on Geoscience and Remote Sensing 2015 (IWGRS 2015), Universiti Teknologi Malaysia, Kualalumpur, July 6-7, 2015

(13) Josaphat Tetuko Sri Sumantyo, "Development of Synthetic Aperture Radar onboard UAV, Aircraft and Microsatellite," The 23 CEReS International Symposium, 1 December 2015 (CEReS：Chiba)

(14) Invited Talk ： Josaphat Tetuko Sri Sumantyo, "Advanced Microwave Remote Sensing Technologies for Global Maritime Axis," OISAA Asia – Oceania Symposium 2016, University of Hongkong, 9 April 2016

8. Other important items to be stated

- Josaphat Tetuko Sri Sumantyo, Lembaga Prestasi Indonesia – Dunia (LEPRID) No.105, Josaphat Tetuko Sri Sumantyo, PENEMU RADAR SATELIT PENGAMATAN BUMI BERBASIS MICROWAVE REMOTE SENSING DAN MOBILE SATELLITE COMMUNICATIONS, DAN PEMILIK PATEN DI 118 NEGARA, Jakarta, 15 December 2015
- Josaphat Tetuko Sri Sumantyo, Lembaga Prestasi Indonesia – Dunia (LEPRID) No.106, Josaphat Tetuko Sri Sumantyo, PENEMU CIRCULARLY POLARIZED SYNTHETIC APERTURE RADAR UNTUK PESAWAT TANPA AWAK, PESAWAT BERAWAK DAN MICROSATELLITE, Jakarta, 15 December 2015

Marine Biosystems Research Center

1. Evolution of reproductive strategies and the environmental conditions of habitats in marine green algae
2. Marine Biosystem Research Center / Professor / Tatsuya Togashi Ph.D

3. UK / University of Liverpool / Prof. Geoff A. Parker
   Canada / University of Toronto / Prof. Peter A. Abrams
   USA /Evolutionary Programming / Dr. John L. Bartelt
4. From 2002
5. We are studying the evolution of reproductive strategies and the environmental conditions of habitats in marine green algae based on laboratory observations and theoretical approaches.
6. JSPS Scientific research funds
7. Main result
   - Togashi, T., Y. Horinouchi, H. Sasaki and J. Yoshimura. 2015.
     Evidence for equal size cell divisions during gametogenesis in a marine green alga, *Monostroma angicava* .Scientific Reports (Sci. Rep.) 5, 13672; DOI:10.1038/srep13672
   - Togashi, T., H. Sasaki and J. Yoshimura. 2014.
     A geometrical approach explains Lake Ball (Marimo) formations in the green alga, Aegagropila linnaei. Scientific Reports (Sci. Rep.) 4, 3761; DOI:10.1038/srep03761
   - Togashi T., K. Sakakibara, M. Nozawa and P.A. Cox. 2012
     Sexual fusion of protoplasts in a marine green alga, Bryopsis plumose
     Sexual Plant Reproduction **25**: 71-76.
   - Togashi T., J.L. Bartelt, J. Yoshimura, K. Tainaka and P.A. Cox. 2012
     Evolutionary trajectories explain the diversified evolution of isogamy and anisogamy in marine green algae.
     Proceedings of the National Academy of Sciences of the United States of America (PNAS) **109**: 13692-13697.
   - Togashi, T. and J.L. Bartelt. 2011.
     Evolution of anisogamy and related phenomena in marine green algae In: Togashi, T. and P.A. Cox (eds) *The Evolution of Anisogamy: A Fundamental Phenomenon Underlying Sexual Selection* (Cambridge University Press) pp. 194-242.
   - Togashi, T., M. Nagisa, T. Miyazaki, J. Yoshimura, K. Tainaka, J.L. Bartelt and P.A. Cox. 2008.
     Effects of gamete behavior and density on fertilization success in marine green algae: insights from three-dimensional numerical simulations. Aquatic Ecology **42:** 355-362.
   - Togashi, T., Y. Sakisaka, T. Miyazaki, M. Nagisa, N. Nakagiri, J. Yoshimura, K. Tainaka, P.A. Cox and J.L. Bartelt. 2009. Evolution of gamete size in primitive taxa without mating types. Population Ecology **51**: 83-88.
8. We have received the Ecological Research Award 2005 and organized an international symposium at the International Botanical Congress 2005 in Vienna, Austria.

Medical Mycology Research Center (MMRC)

1. The Project for New Diagnostic Approaches in the Management of Fungal Infections in AIDS and Other Immunocompromised Patients
2. Medical Mycology Research Center / Professor / Katsuhiko Kamei
3. Brazil / School of Medicine, Sao Paulo State University of Campinas / Professor / Maria Luiza Moretti
4. From 2009～
5. Mycosis is a serious threat to immunocompromised or aged people causing low Quality of Life (QOL) and sometimes results in fatal outcome of the patients. The situation is even worse for the patients in Brazil, where highly virulent endemic mycoses are prevalent. This project covers a wide range of activities including studies on local epidemiology and the development of new diagnostic and identification methods such as a newly designed DNA chip system and the genetic analysis of causative fungi. Based on these studies, this project aims to control mycosis among immunocompromised patients including AIDS patients not only in Brazil but also in Portuguese-spoken African countries, Central and South American countries, and Japan.
6. This project was started as a part of JST-JICA, Science and Technology Research Partnership for Sustainable Development (SATREPS). The project was highly evaluated (score A+) and was completed in 2013. The collaboration between the universities still continues publishing scientific paper, which is to be further enhanced in FY2016 with a new project.
7. Main result
   (1) Muraosa Y, Schreiber AZ, Trabasso P, Matsuzawa T, Taguchi H, Moretti ML, Mikami Y, Kamei K: Development of cycling probe-based real-time PCR system to detect *Fusarium* species and *Fusarium solani* species complex (FSSC). Int J Med Microbiol 304: 505-511, 2014.
   (2) De Luca Ferrari M, Ribeiro Resende M, Sakai K, Muraosa Y, Lyra L, Gonoi T, Mikami Y, Tominaga K, Kamei K, Zaninelli Schreiber A, Trabasso P, Moretti ML: Visual analysis of DNA microarray data for accurate molecular identification of non-*albicans* Candida isolates from patients with candidemia episodes. J Clin Microbiol 51(11): 3826-3829, 2013.
   (3) de Souza M, Matsuzawa T, Lyra L, Busso-Lopes AF, Gonoi T, Schreiber AZ, Kamei K, Moretti ML, Trabasso P: *Fusarium napiforme* systemic infection: case report with molecular characterization and antifungal susceptibility tests. Springerplus 3: 492, 2014.
   (4) Sakai K, Trabasso P, Moretti ML, Mikami Y, Kamei K, Gonoi T: Identification of fungal pathogens by visible microarray system in combination with isothermal gene amplification. Mycopathologia 178(1-2): 11-26, 2014.
   (5) Fagnani R, Resende MR, Trabasso P, Mikami Y, Schreiber AZ, Lopes AF, Muraosa Y, Kamei K, Moretti ML: Mortality related to candidemia and risk factors associated with non-*Candida albicans*. Infect Dis (Lond) 47(12): 930-931, 2015.
   (6) Trabasso P, Matsuzawa T, Fagnani R, Muraosa Y, Tominaga K, Resende MR, Kamei K, Mikami Y, Schreiber AZ, Moretti ML: Isolation and drug susceptibility of *Candida parapsilosis* sensu lato and other species of *C. parapsilosis* complex from patients with blood stream infections and proposal of a

novel LAMP identification method for the species. Mycopathologia 179(1-2): 53-62, 2015.

8. None

1. Three-dimensional observation of deep-sea microorganisms
2. Medical Mycology Research Center／Grand fellow／Masashi Yamaguchi
3. Bangladesh／Professor Uddin
4. 2013～2016
5. To visualize three-dimensional ultrastructure of deep-sea microorganisms, the specimens were freeze-substituted, thick sections were cut, and observed with high-voltage electron microscopy tomography
6. Japan Society for the Promotion of Science
7. Yamaguchi M, Yamada H, Higuchi K, Yamamoto Y, Arai S, Murata K, Mori Y, Furukawa H, Uddin MS, Chibana H: High-voltage electron microscopy tomography and structome analysis of unique spiral bacteria from the deep sea. Microscopy 2016 (in press).
8. None

1. Cell biology of cytoskeletons of fungi
2. Medical Mycology Research Center／Grand fellow／Masashi Yamaguchi
3. Czech Republic／Professor Kopecka
4. 2004～2016
5. We analyzed cytoskeletons of pathogenic yeast with electron microscopy and fluorescent microscopy
6. None
7. Main result
   (1) Kopecká M, Ilkovics L, Ramikova V, Yamaguchi M: Effect of cytoskeleton inhibitors on conidiogenesis and capsule in the long neck yeast *Fellomyces* examined by scanning electron microscopy. Chemotherapy 56: 197-202, 2010.
   (2) Yamaguchi M, Kopecká M: Ultrastructural disorder of the secretory pathway in temperature-sensitive actin mutants of *Saccharomyces cerevisiae*. J Electron Microsc. 59: 141-152, 2010.
   (3) Kopecká M, Yamaguchi M: Ultrastructural disorder of actin mutant suggests uncoupling of actin-dependent pathway from microtubule-dependent pathway in budding yeast. J Electron Microsc. 60: 379-391. 2011.
   (4) Kopecká M, Yoshida S, Yamaguchi M: Actin ring formation around the cell nucleus of long-neck yeast. J Electron Microsc. 61: 249-255, 2012.
   (5) Kopecká M, Kawamoto S, Yamaguchi M: A new F-actin structure in fungi: actin ring formation around the cell nucleus of Cryptococcus neoformans. Microscopy 62: 295-301, 2013.
   (6) Kopecká M, Yamaguchi M, Kawamoto S: The effect of the F-actin inhibitor latrunculin A on the pathogenic yeast *Cryptococcus neoformans.* Chemotherapy 60: 185-190, 2014.
   (7) Kopecka M, Yamaguchi M, Kawamoto S: The effects of the F-actin inhibitor latrunculin A on the budding yeast *Saccharomyces cerevisiae*. Microbiology 161: 1348-1355, 2015.
8. None

1. Electron microscopy of pathogenic fungi
2. Medical Mycology Research Center／Grand fellow／Masashi Yamaguchi
3. Russia／Professor Stepanova
4. 2013～
5. Ultrastructures of pathogenic fungi are studied with electron microscopy
6. None
7. Main result
   (1) Yamaguchi M, Shimizu K, Kawamoto S, Stepanova AA, Vasiyeva NV: Dynamics of cell components during budding of *Cryptococcus albidus* yeast cells. Problems in Medical Mycology 16: 29-35, 2014.
   (2) Yamaguchi M, Shimizu K, Kawamoto S, Stepanova AA, Vasiyeva NV: Ultrastructural observation of cell components during budding in yeast *Malassezia pachydermatis*. Problems in Medical Mycology Vol. 16, No. 4: 13-18, 2014.
   (3) Yamaguchi M., Shimizu K., Kawamoto S., Stepanova A.A., Vasilyeva N.V. Electronmicroscopic investigation of the mother cell of the *Rhodotorula minuta* // VII Kashkin Reading, Saint-Petersburg, 2014, 9-11 April, in Probl. Med. Mycol. – 2014. – Vol. 16, №2. – P. 153.
   (4) Stepanova AA, Vasilyeva NV, Yamaguchi M, Shimizu K, Kawamoto S: Electron microscopy of autopsy material from the human brain Cryptococcosis and AIDS. Problems in Medical Mycology17: 35-40, 2015.
   (5) Stepanova AA, Vasilyeva NV, Yamaguchi M, Chibana H, Bosak IA: The *Aspergillus fumigatus* penetration through the cells of murine tracheobronchial epithelium cells. Problems in Medical Mycology17: 45-50, 2015.
   (6) Stepanova AA, Vasilyeva NV, Yamaguchi M, Chibana H, Bosak IA: Ultrastructural aspects of the interactions between the murine lung macrophages and the *Aspergillus fumigatus* hyphal cells. Problems in Medical Mycology 18: 20-25, 2016.
8. None

Institute of Management and Information Technologies

1. PDE-based numerical image analysis
2. Institute of Management and Information Technologies / Professor / Atsushi IMIYA
3. Partner abroad
   (1) Germany / Institute of Mathematics and Computer Science, Universitaet des Saarlands / Professor / Dr. Joachim Weickert
   (2) Kingdome of the Netherlands / Dept. of Biomedical Engineering, Techniches Universtaet Einthoven / Professor / Dr. Ing Bart ter Haar Romeny
   (3) Canada / Computer Science Department, University of Western Ontario / Professor / John Barron
4. Implementation period

(1) 2000～

(2) 2003～

(3) 1998～

5. For the construction of temporal atrs of human being, design of the motion of normalized beating is a fundamental problem. In this research we are focusing on the detection nand computation of motion form beating heart form gated MRI image sequence using PDE-based image analysis technique.

6. None

7. Some results will appear at Dagatuhl　Seminar on June 2006

8. None

1. Digital and Discrete Geometry and their Applications

2. Institute of Management and Information Technologies / Professor / Atsushi IMIYA

3. Partner abroad

(1) USA / State University of New York / Professor / Valentin Brimkov

(2) Kingdom of Sweden / CBA, University of Uppsala / Professor / Gunilla Borgefords

(3) New Zealand / Dept. Computer Science, The University of Auckland / Professor / Dr. Reinhard Klette

(4) France / ESIEE / Professor / Gilles Bertrand

4. Implemetation period

(1) 2005～

(2) 2003～

(3) 1997～

(4) 2005～

5. In the project, we are focusing of the geometrical and topological treatment of voxels data in the higher-dimensional discrete space as a tool for topological analysis of MRI high-resolution brain imaging

6. None

7. In 2nd International Symposium on Visual Computing November 2006, Nevada, USA, we will organise Special Track: Discrete and Computational Geometry and their Applications in Visual Computing.

8. None

Center for Frontier Medical Engineering

1. Fusion and Enrichment of Medical Images for High Quality Diagnosis and Treatment (FERMI)
(Some sub-subjects of this project are conducted as international collaboration research

2. Center for Frontier Medical Engineering, Professor, Hideaki Haneishi

3. Partner abroad

(1) Switzerland, University of Bern, Prof. Stefan Weber

(2) USA, Harvard Medical School/ Massachusetts General Hospital, Dr. Yukako Yagi

(3) Germany, Technische Universität München, Prof. Nassir Navab

(4) Thailand, Thammasat University, Prof. Stanislav Makhanov, Assoc. Prof. Toshiaki Kondo

4. Start year of collaboration

(1) U Bern, FY 2012

(2) Harvard/MGH FY2012

(3) TUM, FY2014

(4) Thailand, FY2014

5. Technological innovation in medical imaging engineering from multiple perspectives is crucial in order to improve the quality of diagnosis and treatment. In this research area, we are focused particularly on the research and development of novel technologies for increasing the dimensionality and definition of medical images, the new acquisition of various in vivo physical and physiological quantities and improvement in quantitative performance, and the merging of multiple medical images.

6. Funds,grants, etc.

(1) U Bern, FY2012 Travel support of students' stay by Chiba University COE Startup program

(2) Haravard/MGH MEXT grant, Challenging Exploratory Research, Three dimensional reconstruction of pathological images and fusion with MRI for multimodal analysis of brain tumor, FY2013-2015, 3,000KYen (1,200, 900, 900), 25560189

7. Main result

- Tetsuya Shinaji, Grzegorz Toporek, Daphné Wallach, Joachim Kettenbach, Stefan Weber, Hideaki Haneishi: Navigated needle insertion using a robotic aiming device: preliminary phantom evaluation, Computer Assisted Radiology and Surgery 2013, Heidelberg, June 2013
- Y. Nakamura, T.Tanaka, T.Ohnishi, N. Hashimoto, H. Haneishi, J.Taylor, M.Snuderl, Y.Yagi: Registration Between Pathological Image and MR Image for Comparing Different Modality Images of Brain Tumor, 2nd Congress of International Academy of Digital Pathology(IADP), Joseph B. Martin Conference Center at Harvard Medical School, Boston, Massachusetts, USA, November 3-7, 2014, Analytical Cellular Pathology, Volume 2014, Article ID 430762 (Meeting Abstract), 3 pages
- T.Ohnishi, T.Tanaka, Y.Nakamura, N.Hashimoto, H.Haneishi, J.Taylor, M.Snuderl, Y.Yagi: Connection and Deformation of Pathological Images via a Macro Image for Comparing Different Modality Images of Brain Tumor, 2nd Congress of International Academy of Digital Pathology(IADP), Joseph B. Martin Conference Center at Harvard Medical School, Boston, Massachusetts, USA, November 3-7, 2014, Analytical Cellular Pathology, Volume 2014, Article ID 368951 (Meeting Abstract), 3 pages
- Takashi Ohnishi, Yuya Takano, Takayuki Okamoto, Hideyuki Kato, Yoshihiko Ooka, Nassir Navab, Hideaki Haneishi: Automated Respiratory Phase Classification For Generating of Respiration Synchronized DSA Using Random Forest, CARS 2015, Barcelona
- Chanya Lueangwattana, Toshiaki Kondo, Hideaki Haneishi: A comparative study of video signals for non-contact heart rate measurement, 12th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, Hua Hian,

Thailand (2015.6.24-27)

8. Other important items to be stated

- International Workshop on Chiba University COE Startup program: HALIDAT-GC

  1st. March 8th, 2012, Chiba University (Invited Prof. Stefan Weber, U. Bern, etc)

  2nd March 8th, 2013, Chiba University (Invited Prof. Nobuhiko Hata, Harvard/BWH, etc)

  3rd, March 14th, 2014, Keisei Hotel Miramare, (Invited Prof. Hiro Yoshida, Harvard/BWH, etc)

  4th, March 6th, 2015, Chiba University (Invited Prof. Pierre Jannin, U. Renne, etc)

- We have communication with Sirindhorn International Institute of Technology (SIIT), Thammasat University as follows

  Our visit

  Feb. 2014, meet the director of SIIT

  Jan. 2015 Workshop at SIIT

  Nov. 2015 We sent six students based on Super global program

  Acceptance

  Apr. 2014 lecture and meeting for future exchange

  May to July 2014 Acceptance of internship student and collaboration research

1. Development the quantitative evaluation system of liver disease using high-frequency ultrasound
2. Center for Frontier Medical Engineering / Professor / Tadashi Yamaguchi
3. USA / Riverside Research / Dr. Jonathan Mamou, Dr. Jeffrey Ketterling, Dr. Ernest Feleppa,
4. 2012
5. The aim of this research is elucidation of the biological changes in the physical properties of liver by several diseases by using ultrasound that has higher frequency than clinical use.
6. 2012 Chiba University research support program "application support for Kakenhi"

   2013 Chiba University research support program "application support for Kakenhi"

   2014 Chiba University Invitation Fellowship program

   KAKENHI, Grant-in-Aid for Scientific Research（B）

   KAKENHI, Grant-in-Aid for Scientific Research on Innovative Areas
7. Main result

- Speed of sound in diseased liver observed by scanning acoustic microscopy with 80 MHz and 250 MHz: So Irie, Kenta Inoue, Kenji Yoshida, Jonathan Mamou, Kazuto Kobayashi, Hitoshi Maruyama, Tadashi Yamaguchi, J. Acoust. Soc. Am., vol. 139, Issue 1, pp. 512-519 (2016.1)
- Estimation of scatterer size and acoustic concentration in sound field produced by linear phased array transducer: Takuma Oguri, Kazuki Tamura, Kenji Yoshida, Jonathan Mamou, Hideyuki Hasegawa, Hitoshi Maruyama, Hiroyuki Hachiya, Tadashi Yamaguchi, Japanese Journal of Applied Physics, vol. 54, no. 7S1, 07HF14 (2015.7)
- Verification of Ultrasonic Image Fusion Technique for Laparoscopic Surgery: Satoki Zenbutsu, Tatsuo

Igarashi, Jonathan Mamou, Tadashi Yamaguchi: Japanese Journal of Applied Physics, Vol. 51, No. 7, 07GF04 (2012.7)

- Speed of sound of fatty and fibrosis liver measured by 80-MHz and 250-MHz scanning acoustic microscopy: Tadashi Yamaguchi: Jonathan Mamou, Kazuto Kobayashi, Yoshifumi Saijo: ICA2013, the journal of the Acoustical society of America, Vol. 133, No. 5, p.3260, Montreal, Canada (2013.7)

  Acoustic characteristics measurement of rat liver by multi-frequency ultrasound microscopy: Tadashi Yamaguchi, Kenta Inoue, Yoshifumi Saijo, Kazuto Kobayashi, Jonathan Mamou,: Acoustics 2012 in Hong Kong, Hong King, pp.376 (2012.5)
- Estimation of scatterer size and acoustic concentration in sound field produced by linear phased array transducer, T. Oguri, K. Tamura, K. Yoshida, J. Mamou, H. Hasegawa, H. Maruyama, H. Hachiya, T. Yamaguchi, Japanese Journal of Applied Physics, accepted

8. Other important items to be stated
   - Invited Dr. Mamou in two weeks from Riverside Research (USA) (2012).
   - Invited Dr. Ketterling and Dr. Mamou in two weeks from Riverside Research (USA) in each (2012).
   - Dispatched a master degree student in one month to Riverside Research (USA) (2013).

1. Development of ultrasonic metastasis evaluation system for lymph nodes
2. Center for Frontier Medical Engineering / Professor / Tadashi Yamaguchi
3. USA / Riverside Research / Dr. Jonathan Mamou, Dr. Ernest Feleppa

   USA / University of Hawaii / Prof. Junji Machi

   France / Centre national de la recherche scientifique (CNRS) Biomedical Imaging Lab./ Dr. Pascal Laugier, Dr. Alain Coron
4. 2012
5. In order to realize a system for evaluating the cancer metastasis to lymph nodes in a non-invasive, we are developing a quantitative ultrasonic tissue evaluation system of changes in the biological tissue structure by cancer metastasis.
6. NIH/NBIB grant　JSPS Invitation Fellowship

   KAKENHI Grant-in-Aid for Exploratory　Research

   The Canon Foundation Research Grant
7. Main result
   - Quantitative-ultrasound detection of cancer in human lymph nodes based on support vector machines: Jonathan Mamou, Daniel Rohrbach, Alain Coron, Emi Saegusa-Beecroft, Thanh Minh Bui, Michael L. Oelze, Eugene Yanagihara, Lori Bridal, Tadashi Yamaguchi, Junji Machi, Ernest J. Feleppa, J. Acoust. Soc. Am. vol.136, pp. 2123 (2014.4)
   - Modeling the envelope statistics of three-dimensional high-frequency ultrasound echo signals from dissected human lymph nodes: Thanh Minh Bui, Alain Coron, Jonathan Mamou, Emi Saegusa-Beecroft, Tadashi Yamaguchi, Eugene Yanagihara, Junji Machi, S. Lori Bridal, Ernest J.

Feleppa, Japanese Journal of Applied Physics, vol. 53, no. 7, 07KF22 (2014.7)

- Three-dimentional high-frequency quantitative ultrasound for detecting lymph-node metastases: Emi Saegusa-Beecroft, Junji Machi, Jonathan Mamou, Masaki Hata, Alain Coron, Eugene Yanagihara, Tadashi Yamaguchi, Michael L. Oelze, Pascal Laugier, Ernest Feleppa: Journal of Surgical Research, vol. 183, no. 1, pp. 258-269 (2013.7)
- Modeling the envelope statistics of three-dimensional high-frequency ultrasound echo signals from dissected human lymph nodes: Thanh Minh Bui, Alain Coron, Jonathan Mamou, Emi Saegusa-Beecroft, Tadashi Yamaguchi, Eugene Yanagihara, Junji Machi, S. Lori Bridal, Ernest J. Feleppa, Japanese Journal of Applied Physics, vol. 53, no. 7, 07KF22 (2014.7)

8. Other important items to be stated
   - The 32th Symposium of Ultrasonic Electronics, Young Investigator Award "Three-dimensional Quantitative High-frequency Characterization of Freshily-excized Human Lymph Nodes", Jonathan Mamou, Masaki Hata, Alain Coron, Eugene Yanagihara, Tadashi Yamaguchi, Michael L. Oelze, Pascal Laugier, Ernest Feleppa (2012.11)
   - Invited Dr. Coron in two months from CNRS (France) as JSPS invited fellowship researcher (2013).
   - Dispatched a master degree student in one month to Riverside Research (USA) (2013).
   - Invited Dr. Coron in two weeks from CNRS (France) (2015).
   - Dispatched a master degree student in two weeks to Riverside Research (USA) (2015).

1. Study of the relationship of the acoustic characteristics and tisue structure of the liver cancer tissue
2. Center for Frontier Medical Engineering / Professor / Tadashi Yamaguchi
3. France / Centre national de la recherche scientifique (CNRS) Mechanics and Acoustics Lab./ Dr. Emilie Franceshini
4. 2015
5. The relationship between the scattering characteristics and the acoustical characteristics of liver cancer tissues will be confirmed in micro scale. The scattering characteristics will be estimated by mathematical analysis if backscattered signal. The acoustical characteristics will be computed from observation results by scanning acoustic microscopy.
6.
7. JSPS invited fellowship program
8. Other important items to be stated
   - Invited Dr. Franceshini in one month from CNRS (France) as JSPS invited fellowship researcher (2015).
   - Will dispatched a master degree student in one month to CNRS (France) (2016).

1. Creation of ophthalmic disease diagnostic technology based on high-frequency ultrasonic measurement
2. Center for Frontier Medical Engineering / Professor / Tadashi Yamaguchi
3. USA / Ophthalmic Science, Columbia University Medical Center / Prof. Ronald H. Silverman

4. USA / Riverside Research / Dr. Jonathan Mamou, Dr. Daniel Rohrbach, Dr. Ernest Feleppa 4 . 2015
5. To realyze the early diagnosis of keratoconus, acoustic impedance, attenuation, and speed of sound of the corneal epithelium and stroma were independently measured using a scanning acoustic microscope (S
6.
7. Two papers were submitted.
8. Other important items to be stated
   - Invited Dr. Rohrbach and Dr. Mamou in two weeks each from Riverside Research (USA) (2015).
   - Dispatched a master degree student in one month to Columbia University (USA) (2015).
   - Will dispatched a Ph.D student in two weeks to Riverside Research (USA) (2016).

1. Development of ultrasonic metastasis evaluation system for lymph nodes
2. Center for Frontier Medical Engineering / Professor / Tadashi Yamaguchi
3. France / Centre national de la recherche scientifique (CNRS) Biomedical Imaging Lab./ Dr. Alain Coron, Fr. Lori Bridal
4. 2015
5. To characterize the skin ulcer for bacterial infection, quantitative ultrasound (QUS) parameters were estimated by multiple statistical analysis of the echo amplitude envelope. It was possible to detect the typical tissue characteristics such as infection by focusing on the relationship of estimated QUS parameters, and indicate the characteristic difference that were consistent with the scatterer structure.
6. Toyohashi-shi Innovation support program.
7. Tissue characterization of skin ulcer for bacterial infection based on multiple statistical analysis of echo amplitude envelope, Masaaki Omura1, Kenji Yoshida, Masushi Kohta, Takabumi Kubo, Toshimichi Ishiguro, Kazuto Kobayashi, Naohiro Hozumi, Tadashi Yamaguchi, Japanese Journal of Applied Physics. (Accepted)
8. Will Dispatched a master degree student in one month to CNRS (France) (2016).

1. Study on Image Processing Technology for Assisting Endoscopic Surgery
2. Center for Frontier Medical Engineering / Professor / Toshiya Nakaguchi
3. Egypt / Menofia University / Ahmed Afifi
4. 2010
5. We aim to develop a novel navigation system for visually assisting endoscopic surgery by projecting patient's anatomical image onto patient's body directly to realize a virtually transparent surgery. In order to capture the highly accurate inner body structure intraoperatively, we currently study to propose a new measurement method by fusing volumetric data taken pre-operatively and endoscopic image data taken intraoperatively.
6. Egyptian Government Scholarship, JSPS Invitation Fellowships for Research in Japan
7. Main result
   - Journal paper: Hiroyuki Watabe, Toshiya Nakaguchi, Toshiyuki Natsume, Hiromichi Aoyama, Hiroshi Kawahira, Ahmed Afifi, Norimichi Tsumura, "Computer-Assisted System for Detecting Infiltration of Gastric Cancer" Journal of Signal Processing, Vol.15, No.4, pp.307-310, July, 2011

- Journal paper: Ahmed Afifi, Toshiya Nakaguchi, Norimichi Tsumura, Yoichi Miyake, "A Model Optimization Approach to the Automatic Segmentation of Medical Images" IEICE Trans. on Information and Systems, Vol.E93-D, No.4, pp.882-889, Apr. 2010
- Journal paper: Ahmed Afifi, Toshiya Nakaguchi, Norimichi Tsumura, Yoichi Miyake, "Shape and Texture Priors for Liver Segmentation in Abdominal Computed Tomography Scans Using the Particle Swarm Optimization Algorithm", Medical Imaging Technology, Vol.28, No.1, pp.53-62, 2010
- International conference: Ahmed Afifi, Toshiya Nakaguchi "A Knowledge-based Liver Segmentation Approach using Graph Cuts," Proc. of MICCAI 2012, We-2-AG-07, Nice, France, 3 Oct. 2012
- International conference: Hiroyuki Watabe, Toshiya Nakaguchi, Toshiyuki Natsume, Hiromichi Aoyama, Hiroshi Kawahira, Ahmed Afifi, Norimichi Tsumura, "Computer-Assisted System for Detecting Infiltration of Gastric Cancer," 2011 RISP International Workshop on Nonlinear Circuits, Communications and Signal Processing (NCSP'11), Tianjin, China, (Mar. 2011)
- International conference: Ahmed Afifi, Toshiya Nakaguchi, Norimichi Tsumura, "A liver segmentation approach in contrast-enhanced CT images with patient specific knowledge," SPIE Medical Imaging, P.7962-109, Orlando, U.S.A. (Feb. 2011)
- International conference: Ahmed Afifi, Toshiya Nakaguchi, Norimichi Tsumura, "Segmentation of Deformable Organs from Medical Images Using Particle Swarm Optimization and Nonlinear Shape Priors" SPIE Medical Imaging 2010, 7623-153, SanDiego, U.S.A., Feb., 2010

8. Other important items to be sataed
   - Award: Student Paper Award at NCSP 2011, Computer-Assisted System for Detecting Infiltration of Gastric Cancer, March 2011
   - Award: "Cum Laude" poster award at SPIE Medical Imaging 2010 Segmentation of Deformable Organs from Medical Images using Particle Swarm Optimization and Nonlinear Shape Priors, Feb. 2010

Center for Environment, Health and Field Sciences

1. Effects of plant hormones on fruit set and growth in fruit tree
2. Center for Environment, Health and Field Sciences / Professor / Hitoshi Ohara
   Faculty of Horticulture / Professor emeritus / Hiroyuki Matsui
3. USA / Michigan State University / Martin J. Bukovac, Distinguished Professor emeritus
4. 1994～
5. The objectives of this project are to develop cultivation methods for steady fruit production and high-quality fruits production, through the following investigations, relationship between fruit set and growth and plant hormones.
6. Academic Expense
7. Main result
   (1) N-substituted phthalimide-induced of parthenocarpy in sour cherry (*Prunus cerasus* L.

'Montm-orency') enhanced by auxin. 1994. 24th International Horticultural Congress, Abstracts: 269.

(2) Gibberellins in immature seed of *Prunus cerasus*: Structure determination and synthesis of gibberellins, GA95 (1,2-didehydro-GA20). 1996. Phytochemistry, 42(4): 913–920.

(3) GA95 is a genuine precursor of GA3 in immature seed of *Prunus cerasus* L.. 1998. 16th International Conference on Plant Growth Substances, Abstracts: 146.

(4) Induction of fruit set and growth of parthenocarpic 'Hayward' kiwifruit with plant growth regulators. 1997. J. Japan. Soc. Hort. Sci. 66(3, 4): 467–473.

(5) Endogenous gibberellin-induced parthenocarpy in grape berries. 2000. Acta Hortic. 514: 69–74.

(6) Endogenous gibberellins in immature seeds of *Prunus persica* L.: identification of GA118, GA119, GA120, GA121, GA122 and GA126. 2001. Phytochemistry 57: 749–758.

(7) Effects of the combination of gibberellic acid and ammonium nitrate on the growth and quality of seedless berries in 'Delaware' grape. 2001. J. Japan. Soc. Hort. Sci. 72(5): 366–371.

(8) Effect of gibberellins on induction of parthenocarpic berry growth of three grape cultivars and their endogenous gibberellins. 2001. 52nd ASEV Annual Meeting, Technical Abstracts: 81.

(9) Effects of gibberellin A3 and ammonium sulfate of growth and quality of seedless Delaware grapes. 2003. J. ASEV Jpn. 14(2): 58–63.

(10) Induction of parthenocarpic fruit growth with endogenous gibberellins of loquat. 2004. Acta Hortic. 653: 67–70.

(11) Production of seedless loquat fruits. 2004. Regulation of Plant Growth and Development 39(1): 106–113.

(12) Effects of grape berry development stages on ammonium nitrate-enhanced penetration of gibberellin A3. 2004. 101st Abstracts ASHS Annual Conference, HortScience 39(4): 793.

(13) Effects of applications of exogenous gibberellins, forchlorfenuron, streptomycin and endogenous gibberellin-like substances on induction of seedless berries in Koshu grapes. 2005. J. ASEV Jpn. 16(2): 68–79.

(14) Induction of seedlessness in Koshu, Concord and Niagara grapes. 2006. J. ASEV Jpn. 17(1): 14–20.

(15) Effect of ethychlozate in combination with ammonium nitrate on fruit thinning in 'Takabayashi-wase' satsuma mandarin (*Citrus unshu* Marc.). 2006. 27th International Horticultural Congress, Abstracts: 310.

(16) Effect of application of gibberellins in combination with forchlorfenuron (CPPU) on induction of seedless fruit set and growth in triploid loquat. 2006. Acta Hortic. 727: 263–267.

(17) Techniques for induction of seedlessness in seeded grape cultivars. 2008. J. ASEV Jpn., 19(3): 119–126.

(18) Effects of application of exogenous plant growth substances on induction of seedless berries in Concord and Niagara grapes. 2012. J. ASEV Jpn. 23(2): 74–75.

(19) Effect of streptomycin in combination with gibberellin A3 and forchlorfenuron on induction of seedless Concord and Niagara grape berries. 2014. J. ASEV Jpn. 24(2): 71–72.

8. None

1. Physiological effects of nature therapy
2. Center for Environment, Health and Field Sciences / Professor / Yoshifumi Miyazaki
3. Korea / Chungnam National University / Bom-Jin Park(Associate Professor)
4. From 2011
5. The purpose of this study was conducted to clarify the physiological effect of nature therapy. It is widely believed that coming into contact with forest environments is somehow beneficial to human comfort. The subjects are male university students in their twenties. For the clarify the physiological effect of nature therapy, we measure prefrontal cortex activity, heart rate variability (HRV), heart rate, blood pressure and saliva cortisol concentration in this study.
6. Academic Expense
7. Main result

- Papers

(1) D. Joung, Y.H. Choi, C.W. Kwoun, D. Yoem, G.W. Kim, K.N. Kang, Y.T. Kim, D.H. Ji, Y. Miyazaki, B.J. Park (2013) Effect of thermal environment of forest and grass area on human physiological response -Focused on the university students at Keumkang Arboretum- Korean Institute of Forest Recreation, 17(4): 143-148

(2) J. Lee, Y. Tsunetsugu, N. Takayama, B.J. Park, Q. Li, C.R. Song, M. Komatsu, H. Ikei, L. Tyrväinen T. Kagawa and Y. Miyazaki (2013) Influence of forest therapy on cardiovascular relaxation in young adults. Evidence-Based Complementary and Alternative Medicine 2014; 2014: 834360

(3) C.R. Song, D. Joung, H. Ikei, M. Igarashi, M. Aga, B.J. Park, M. Miwa, M. Takagaki and Y.Miyazaki. (2013) Physiological and psychological effects of walking on young males in urban parks in winter. Journal of PHYSIOLOGICAL ANTHROPOLOGY 32:18

(4) M.S. Lee, B.J. Park, J. Lee, K.T. Park, J.H. Ku, J.W. Lee, K.O. Oh and Y. Miyazaki. (2013) Physiological relaxation induced by horticultural activity: transplanting work using flowering plants. Journal of PHYSIOLOGICAL ANTHROPOLOGY 32:15

(5) C.R. Song, H. Ikei, J. Lee, B.J. Park, T. Kagawa and Y. Miyazaki. (2013) Individual differences in the physiological effects of forest therapy based on Type A and Type B behavior patterns. Journal of PHYSIOLOGICAL ANTHROPOLOGY 32:14

(6) Y.H. Choi, H.J. Lim, G.W. Kim, D.W. Joung, J.D. Lee, Y. Miyazaki and B.J. Park. (2013) Optimum walk speed for health promotion in forest road -Target heart rate control to use walk speed- Korean Institute of Forest Recreation. 17(1) 27-32 2013

(7) Yuko TSUNETSUGU, Juyoung LEE, Bum-Jin PARK, Liisa TYRVÄINEN, Takahide KAGAWA, Y. MIYAZAKI (2013)
Physiological and psychological effects of viewing urban forest landscapes assessed by multiple

measurements. Landscape and Urban Planning, 113 90-93

(8) S. Goto, B.J. Park, K. Herrup, Y. Miyazaki (2013) The Effect of Garden Designs on Mood States and Heart Rate in Older Adults Residing in an Assisted Living Facility. Health Environments Research & Design Journal,
DOI:10.1016/j.landurbplan.2013.01.014.

(9) Hyunju Jo, Susan Rodiek, Eijiro Fujii, Y. Miyazaki, Bum-Jin Park, and Seoung-Won Ann (2013) Physiological and Psychological Response to Floral Scent. HortScience, 48(1) 82-88.

(10) H. Kobayashi, B.J. Park, Y. Miyazaki (2012) Normative References of Heart Rate Variability and Salivary Alpha-Amylase in a Healthy Young Male Population. J. PHYSIOLOGICAL ANTHROPOLOGY 31(9), doi: 10. 1186/1880-6805-31-9

(11) J. Y. Lee, K. T. Park, M. S. Lee, B. J. Park, J. H. Ku, J. W. Lee, K. O. Oh, K. W. An and Y. Miyazaki (2011) Evidence-based field research on health benefits of urban green area. Journal of the Korean Institute of Landscape Architecture 39(5), 111-118.

(12) C.R. Song, J. Y. Lee, B. J. Park, M. S. Lee, N. Matsuba and Y. Miyazaki (2011) Psychological effects of walking in the urban forest - Results of field tests in Shinjuku-gyoen, Japan. Journal of Korean Forestry Society, 100(3), 111-118 (in Korean)

(13) K. Matsunaga, B.J. Park, H. Kobayashi, Y. Miyazaki (2011) Physiologically Relaxing Effect of a Hospital Rooftop Forest on Elderly Women Requiring Care. Journal of the American Geriatrics Society, 59(11), 2162-2163.

(14) B.J. Park, K. Furuya, T. Kasetani, N, Takayama. T. Kagawa and Y. Miyazaki (2011) Relationship between psychological responses and physical environment in forest settings. Landscape and Urban Planning, 102, 24-32.

(15) J. Lee, B.J. Park, Y. Tsunetsugu, T. Ohira, T. Kagawa and Y. Miyazaki (2011) Effect of forest bathing on physiological and psychological responses in young Japanese male subjects. Public Health, 125 93-100.

- Books

(1) H. Ikei, C. Song, J. Lee, B-J Park, T. Kagawa, and Y. Miyazaki. (2013) Inhibitory effect of anger in a forest environment and its individual differences. Psychology of Anger: New Research Nova Science Publishers, NY, pp.133-142

(2) J. Lee, Q. Li, L. Tyrväinen, Y. Tsunetsugu, B.J. Park, T. kagawa, Y. Miyazaki (2012) Nature therapy and preventive medicine. In: Public Health－social and Behavioral Health. Ed by J. Maddock. InTech publisher. in press

(3) B.J. Park, T. Kagawa and Y. Miyazaki (2011) Psychological evaluations of forest environment and the physical variables. In: Forest Medicine. Ed by Q. Li. Nova science publishers, 35-51.

(4) B.J. Park, Y. Tsunetsugu, J. Lee, T. Kagawa and Y. Miyazaki (2011) Effect of the forest environment on physiological relaxation -Using the Results of Field Tests at 35 Sites throughout

Japan. In: Forest Medicine. Ed by Q. Li. Nova science publishers, 55-65.

(5) Y. Tsunetsugu, B.J. Park and Y. Miyazaki (2011) Physiological effects of visual, olfactory, auditory, and tactile factors of forest environments. In: Forest Medicine. Ed by Q. Li. Nova science publishers, 169-181.

(6) J. Lee, B.J. Park, Y. Tsunetsugu and Y. Miyazaki (2011) Forests and human health - recent trends in Japan. In: Forest Medicine. Ed by Q. Li. Nova science publishers, 243-257.

(7) Y. Miyazaki, B.J. Park, J. Lee (2011) Nature therapy. In: Designing our future: Perspectives on bioproduction, ecosystems and humanity (Sustainability Science Vol. 4). Eds.by M. Osaki, A. Braimoh and K. Nakagami. United Nations University Press 407-412.

8. None

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1. Synthetic studies towards strictamine
2. Center for Environment, Health and Field Sciences / Assistant Professor / Natsuko Kagawa
3. USA / The University of Chicago / Prof. Viresh H. Rawal
4. 2014
5. Development of the molecular synthesis using chemical methods for the sake of identifying a phytochemical, strictamine, that possesses antidepressant properties.
6. KAKENHI, Grant-in-Aid for Young Scientists (B) (26870101)
7. Main result

(1) T. D. Montgomery, Y. Zhu, N. Kagawa, V. H. Rawal, Palladium-catalyzed decarboxylative allylation and benzylation of N-alloc and N-cbz indoles. Organic Letters 2013, 15, 1140-1143.

(2) N. Kagawa, J. P. Malerich, V. H. Rawal, Palladium-catalyzed allylation of 2,3-disubstituted indoles. Organic Letters 2008, 10, 2381-2384.

8. None

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1. Synthetic studies towards strictamine
2. Center for Environment, Health and Field Sciences / Assistant Professor / Natsuko Kagawa
3. USA / The University of Chicago / Prof. Viresh H. Rawal
4. 2014
5. Development of the molecular synthesis using chemical methods for the sake of identifying a phytochemical, strictamine, that possesses antidepressant properties.
6. KAKENHI, Grant-in-Aid for Young Scientists (B) (26870101)
7. Main result

(1) N. Kagawa, A. E. Nibbs, V. H. Rawal, One-carbon homologation of primary alcohols to carboxylic acids, esters, and amides via Mitsunobu reactions with MAC reagents. Organic Letters 2016, ASAP. DOI: 10.1021/acs.orglett.6b00790

(2) T. D. Montgomery, Y. Zhu, N. Kagawa, V. H. Rawal, Palladium-catalyzed decarboxylative allylation and benzylation of N-alloc and N-cbz indoles. Organic Letters 2013, 15, 1140-1143.

(3) N. Kagawa, J. P. Malerich, V. H. Rawal, Palladium-catalyzed □allylation of 2,3-disubstituted indoles. Organic Letters 2008, 10, 2381-2384.

8. Postdoctoral Research Fellowship in Synthetic Organic Chemistry 2006 (Merck & Co., Inc.)

Shanghai Jiao Tong University and Chiba University International Cooperative Research Center (SJTU-CU ICRC)

1. Creation of International and Interdisciplinary Education Hub for Bio-inspired Engineering
2. Shanghai Jiao Tong University and Chiba University International Research Center / Professor / Hao Liu
3. China / Shanghai Jiao Tong University / Lixu Gu, Professor
   China / Shanghai Jiao Tong University / Tao Han, Professor
   China / Shanghai Jiao Tong University / Xiaobo Gong, Associate Professor
   China / Shanghai Jiao Tong University / Wenrong u, Associate Professor
   China / Shanghai Jiao Tong University / Lu Shi, Associate Professor
   China / Shanghai Jiao Tong University / Fuyou Liang, Associate Professor
   China / Shanghai Jiao Tong University / Xiahai Zhuang, Associate Professor
4. 2011～present
5. We aim to bring inspiration and innovation to bio-robotics/mechanics engineering and medical engineering by exploring highly-diverse physical phenomena of biological systems. We bring together faculty, researchers, and graduate students from Chiba University and Shanghai Jiao Tong University to conduct cutting-edge academic researches and university-industry collaborative research and development. We also promote fostering of young talented researchers and international interaction of academic researches.
6. Funds, grants, etc.
   - Chiba University : ICRC Special expenses(2011-2013)
   - Shanghai Jiao Tong University: ICRC Special expenses(2011-2013)
   - Competitive Research Funds
     - MITI Funding Program for International Standardization, International Standardization of Sensor Using Piezoelectric Devices" (Ken-ya Hashimoto, Principal Investigator)
     - JSPS Grant-in-Aid for Scientific Research (B), Development of Individual Adaptive Interface for Bimanual Cooperation between Shoulder Prostheses and Their Users, 2014-2016 (Wenwei Yu, Principal Investigator)
     - JSPS Grant-in-Aid for Scientific Research (B), Investigation of novel mechanisms involving blood cell motion, deformation, activation and break-down with a fluid- structure interaction mechanical model, 2015-2017 (Ken-ichi Tsubota, Principal Investigator)
     - JSPS Grant-in-Aid for Scientific Research on Innovative Areas, Selected Research Group, Research on decision-making algorithm for game-playing robots based on prediction of opposing player's motions, 2014-2015 (Akio Namiki, , Principal Investigator)

- International Cooperation on Sensory Feedback for Low-Invasive Surgery Support Robotic Systems, [NSFC (The National Natural Science Foundation of China)-JSPS (Japanese Society for Promotion of Science), Bilateral Cooperation Project], 2013 - 2015 (Wenwei YU, Principal Investigator)
- JSPS Grant-in-Aid for Scientific Research on Innovative Areas, "Bio-inspired Mechanical System," 2012-2016 (Hao Liu, Principal Investigator)
- "Development of Bio-inspired Flexible Robust Rotary Wings", *Tough Robotics Challenge - Impulsing Paradigm Change through Disruptive Technologies Program* (Cabinet Office, Government of Japan), Japan Science and Technology Corporation (JST) 2015-2017 (Hao Liu, Principal Investigator)
- Interchange Association Japan Summer Program, "High Performance Acoustic Wave Devices Using Phononic Structures." (Ken-ya Hashimoto, Principal Investigator)
- JSPS Grant-in-Aid for Young Scientists(S), Research of the Next Generation of High-speed Advanced Robot Hand System (Akio Namiki, Principal Investigator)

➢ University-Industry Cooperative Research

- Cooperative Research (Maruyasu Kogyo), "Development of SAW Simulation Tools" (Ken-ya Hashimoto, Principal Investigator)
- Cooperative Research (MAYEKAWA MFG. CO., LTD.), Research of autonomous recognition on Meat processing, 2014-2015 (Akio Namiki, Principal Investigator)
- Cooperative Research (NSK), Research of devices for object recognition and grasp motion, 2014-2015 (Akio Namiki, Principal Investigator)
- Cooperative Research (Sumitomo Mining), "Evaluation of Piezoelectric Properties of New MaterialsTBD" (Ken-ya Hashimoto, Principal Investigator)
- Chiba University and Teral Cooperative Research Course "Bioinspired Fluid Machinery," 2012-2016, (Hao Liu, Principal Investigator)
- Cooperative Research (Citizen Holding), "SAW Wireless Sensors" (Ken-ya Hashimoto, Principal Investigator)
- Cooperative Research (Sumitomo Electric Industries), "Evaluation of Temperature Compensated SAW Devices" (Ken-ya Hashimoto, Principal Investigator)
- Cooperative Research (Murata Manufacturing), "High Speed and Accurate SAW Device Simulation Technologies" (Ken-ya Hashimoto, Principal Investigator)
- Cooperative Research (Taiyo Yuden), "Performance Enhancement of Acoustic Wave Devices" (Ken-ya Hashimoto, Principal Investigator)
- Cooperative Research (Panasonic), "Visualization of SAW Field Distribution" (Ken-ya Hashimoto, Principal Investigator)

7. Main result

- International Journals
  - Koichi Sughimoto, Ken-ichi Tsubota, Kazuki Okauchi, Christian Brizard, Fuyou Liang and Hao Liu. Total Cavopulmonary Connection is Superior to Atriopulmonary Connection Fontan in Preventing Thrombus Formation: Computer Simulation of Flow-Related Blood Coagulation. Pediatric Cardiology, 2015.
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  - R. Noda, T. Nakata, H. Liu, Body flexion effect on the flight dynamics of a hovering hawkmoth. Journal of Biomechanical Science and Engineering (JBSE), Vol.9, No.3, 2014.
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  - R.Nakagawa, H.Kyoya, H.Shimizu, T.Kihara, and K.Hashimoto, “Study on Generation

Mechanisms of Second-Order Non-linear Signals in SAW Devices and Their Suppression," Jpn. J. Appl. Phys., 54, 7 (2015) [to be published].

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➢ Domestic Journals

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- M. Nergui, Y. Yoshida, J. Gonzalez, N. Imamoglu and W. Yu, "Human Activity Recognition by a Bio-monitoring Mobile Robot," Springer, Communications in Computer and Information Science, 2012
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8. Other important items to be stated

➢ University Exchange Agreement

- June 8, 2013, University Exchange Agreement between Chiba University and Hong Kong University of Science and Technology.

➢ Awards

- April 23, 2015, 47th Ichimura Industrial Award, “Development of Optimal Piezoelectric substrate 42-LT for High Frequency Surface Acoustic Wave Devices,” Ken-ya Hashimoto
- JSME, Robotics and Mechatronics Division, Certificate of Merit for ROBOMEC Outstanding Research Activity (Akio Namiki, Associate Professor)
- Myagmarbayar Nergui, Yuki Yoshida, Nevrez Imamoglu, Jose Gonzalez, Masashi Sekine, Wenwei Yu, The Second EvAAL (Evaluating Ambient Assisted Living): Evaluating AAL Systems through Competitive Benchmarking, the 3rd place
- 2012 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Best Jubilee Video Award (Akio Namiki, Associate Professor)
- Symposium and Workshop
- March 3-4, 2013, Joint Workshop on Bio-inspired Engineering and Bio-supercomputing in Chiba University.
- October 31, 2013, Workshop on Bio-inspired Mechanical Systems for Robotic Design, in Chiba University.
- April 25, 26, 2013, Joint Scientific Symposium of The Hong Kong University of Science and Technology, Shanghai Jiao Tong University and Chiba University (JSSHSC2013) -Advances in Bioinspired Engineering and Biomedical Engineering- in The Hong Kong University of Science and Technology, China.
- December 6-7, 2012, International Symposium on Acoustic Wave Devices for Future Mobile Communication Systems in Chiba University, Japan.

Center for General Education

1. International Labor Migration and Well-being: Effect on Indonesian Candidates of Care Workers and their Family
2. Center for General Education/Associate Professor/Ayako Sasaki
3. Indonesia / University of Indonesia / Fentiny Nugroho
4. 2014
5. Based on outcomes of the “International joint research on the Indonesian migration and community transformation,” explored how migrant families and communities in Indonesia have been transformed or

affected by international migration of Indonesians, the study will focus on Indonesian care workers under the EPA (including candidates), examine their economic, psychological, and social well-beings. Also it will consider its effects and transformation of their family and community in Indonesia.

6. Grant-in-Aid for Young Scientists（B）
7. Ayako SASAKI, 【Report of Research Meetings】Effects of Indonesian Migration on Their Family, Community, and Society, In Tomoko, FUKUDA (Ed.), "International Migration and Its Social Effect: Research Project Report No.282," Chiba University Graduate School of Humanities and Social Sciences, 2014, pp.40-53.
8. Invited Dr. Nugroho in November 2013 to Chiba University and conducted a joint research meeting, "Effects of Indonesian Migration on Their Family, Community, and Society," with assistant professor Fukuda at Graduate School of Humanities and Social Sciences, Chiba University. Also, presented outcomes of the past two years as "Indonesian Care Workers' Career Path: Global Career Education in Japanese Care Work," in the special session titled "Considering Employment of Foreign Workers and International Cooperation in Care Work," heled in the 62th Fall Conference of the Japanese Society for the Study of Social Welfare. Will present outcomes of the fiscal year of 2015 on the 13th East Asian Social Policy annual conference (will be held in Ehwa Women's University in South Korea).

University Hospital

1. Preclinical activity of a novel EZH2 inhibitor in multiple myeloma
2. Department of Transfusion Medicine and Cell Therapy, Chiba University Hospital / Assistant Professor / Naoya Mimura
3. Jian Jin, Professor, Icahn School of Medicine at Mount Sinai, New York, NY, USA
4. Since 2014
5. The aim of this project: To elucidate the efficacy of UNC1999, a novel EZH2 inhibitor, on multiple myeloma, using in-vitro and in-vivo models.
6. KAKENHI (Grant-in-Aid for Scientific Research　C)
7. Presented in the Annual Meeting of Japanese Society of Myeloma in 2015 and the Annual Meeting of Japanese society of Hematology in 2015
8. Research grant from the KANAE foundation in 2015

1. Intracellular signaling molecules as therapeutic targets for glioblastoma
2. Yauso Iwadate, Associate Professor, Neurological Surgery, Chiba University Graduate School of Medicine.
3. Paul S Mischel, Ludwig Institute for Cancer Research, CA, USA
4. 2013 年
5. Abberation of epidermal growth factor receptor (EGFR) and activation of mTOR kinase are important for glioblastoma initiation and progression. We are searching for a new strategy to enhance the molecular targeting therapy against the pathway.

6. none
7. Wei W, Shin YS, Xue M, Matsutani T, Ikegami S, Mischel PS, et al. Single-cell phosphoproteomics resolves adaptive signaling dynamics and informs targeted combination therapy in glioblastoma. Cancer Cell 29; 563-573, 2016.
8. none

Safety and Health Organization

1. Study of the association between white matter properties and clinical symptoms in patients with chronic and first episode schizophrenia.
2. Safety and Health Organization / Associate Professor / Toshiyuki Ohtani
3. U.S.A. / Psychiatry Neuroimaging Laboratory, Harvard Medical School / Professor / Martha E. Shenton
   U.S.A. / Psychiatry Neuroimaging Laboratory, Harvard Medical School / Associate Professor / Marek Kubicki
4. 2008 -
5. In this project, we are investigating the white matter properties of patients with chronic and first episode schizophrenia using stochastic tractography methodology. Furthermore, we also analyze the association between white matter properties and the severity of patients' clinical symptoms.
6. None.
7. Main result
   - Ohtani T, Bouix S, Lyall AE, Hosokawa T, Saito Y, Melonakos E, Westin CF, Seidman LJ, Goldstein J, Mesholam-Gately R, Petryshen T, Wojcik J, Kubicki M. Abnormal white matter connections between medial frontal regions predict symptoms in patients with first episode schizophrenia. *Cortex.* 2015; 71: 264-76.
   - Ohtani T, Bouix S, Hosokawa T, Saito Y, Eckbo R, Ballinger T, Rausch A, Melonakos E, Kubicki M. Abnormalities in white matter connections between orbitofrontal cortex and anterior cingulate cortex and their associations with negative symptoms in schizophrenia: a DTI study. *Schizophr Res.* 2014; 157(1-3): 190-7.
8. Top 30 poster at the 65th Society of Biological Psychiatry Annual Meeting, New Orleans, 2010.

1. Study of gray matter volumes in the prefrontal cortex and the association between gray matter volumes and clinical symptoms in patients with chronic schizophrenia, first-episode schizophrenia and affective psychosis.
2. Safety and Health Organization / Associate Professor / Toshiyuki Ohtani
3. U.S.A. / Department of Psychiatry, Harvard Medical School / Professor / Robert W McCarley
   U.S.A. / Department of Psychiatry, Harvard Medical School / Associate Professor / James J Levitt
4. 2009 -
5. In this project, we are investigating the gray matter volumes of the prefrontal cortex regions of interest

using manual parcellation and Freesurfer. Furthermore, the association between gray matter volumes and clinical symptoms' severity in patients with chronic schizophrenia, first-episode schizophrenia and affective psychosis are also examined.

6. None.

7. Main result

   - Ohtani T, Levitt JJ, Nestor PG, Kawashima T, Asami T, Shenton ME, Niznikiewicz M, McCarley RW. Prefrontal cortex volume deficit in schizophrenia: a new look using 3T MRI with manual parcellation. *Schizophr Res*. 2014; 152(1): 184-90.
   - We are preparing one more paper for submission.

8. None.

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1. Study of brain structure and cognitive performance in healthy subjects.
2. Safety and Health Organization / Associate Professor / Toshiyuki Ohtani
3. U.S.A. / Department of Psychology, University of Massachusetts / Professor / Paul G Nestor
4. 2008 -
5. In this project, we are investigating the gray matter volumes in orbitofrontal cortex and anterior cingulate cortex and white matter properties between these gray matter structures, and analyzing the association between these volumes or properties and the cognitive performance of healthy subjects.
6. None.
7. Main result
   - Nestor PG, Ohtani T, Bouix S, Hosokawa T, Saito Y, Newell DT, Kubicki M. Dissociating prefrontal circuitry in intelligence and memory: neuropsychological correlates of magnetic resonance and diffusion tensor imaging. *Brain Imaging Behav*. 2015; 9(4): 839-47.
   - Ohtani T, Nestor PG, Bouix S, Saito Y, Hosokawa T, Kubicki M. Medial frontal white and gray matter contributions to general intelligence. *PLoS One*. 2014; 9(12): :e112691.
   - We are preparing two more papers for submission.
8. None.