TOHOKU
UNIVERSITY

Annual Report 2017

Tohoku Forum for Creativity

TOKYO ELECTRON House of Creativity

Message from the President

In Issuing the Annual Report

During the 111 years since its establishment in 1907, Tohoku University has continued its tradition of “Research First”, its philosophy of “Open Doors”, and its ethos of “Practice-Oriented Research and Education”, all of which have enabled us to produce leading figures and numerous research achievements. As one of the research universities that represent our country, Tohoku University was officially named a Designated National University in June 2017, which means our university was recognized as one of the country's top three higher-learning institutions, along with the University of Tokyo and Kyoto University, by the Japanese government. By not merely adhering to our past accomplishments, we will continue to advance our goals to “lead creation and innovation to world-class standards”, “provide opportunities to open up the future”, and by doing so “become one of the world’s 30 most respected universities”.

As one of the strategies to fulfil these aims, we have established Thematic Programs organized by the Tohoku Forum for Creativity (TFC). These programs act as international collaborative research initiatives, which are carried out with support from the Program for Promoting the Enhancement of Research Universities from the Ministry of Education, Culture, Sports, Science and Technology.

The Thematic Programs held by the TFC have invited world-leading scientists, including Nobel Laureates, to Tohoku University for extended stays in order to engage in joint research with junior researchers, and to participate in daily discussions with students. The aim of these programs is to contribute to the solution of the most important problems facing humanity through the creation of new interdisciplinary research fields. Therefore, the TFC’s activities are positioned at the core of the university’s strategic international research initiative.

Since its establishment in October 2013 and the construction of the “TOKYO ELECTRON House of Creativity” in March 2015, the TFC has hosted three or four Thematic Programs per year beginning in 2014 as Japan’s first international visitor research institute. In addition to the Thematic Programs, the TFC instituted a Junior Research Program in 2015. Other outreach activities since 2016 have seen significant progress as well. As the results of its activities in the past five years, the TFC holds an extremely important position within the research activities of Tohoku University. There are great expectations, both from within and outside the university, for what we can achieve in the near future. Therefore, we create this annual report to provide all stakeholders with an overview of the activities of the TFC, which is also available on the TFC website.

Accordingly, we ask for your continued appreciation and cooperation with the Tohoku Forum for Creativity in the future.

Tohoku University President

Hideo Ohno

Message from the Director

For Promoting the Tohoku Forum for Creativity's Programs

The Tohoku Forum for Creativity (TFC) holds many scientific programs every year in order to contributing to "the creation of the world's highest standard of knowledge" and "leading the change to open up the future", as outlined in the vision of President Hideo Ohno, the new President of Tohoku University.

The Tohoku Forum for Creativity's Thematic Programs operate a number of academic activities in various fields of study based on fundamental research which are necessary for the existing of human society, in order to solving the challenge for creating the better future, and responding for the global development of academic knowledges. In each Thematic Program, invited world-leading researchers visit Tohoku University for a period of between one and three months to conduct collaborative research and present in workshops, conferences, and symposiums at the TOKYO ELECTRON House of Creativity and other campus of the university. In this way, the TFC provides a highly suitable environment for researchers to collaborate at Japan's first international visitor research institute. The TFC's activities also aim to develop the next generation of global research leaders by creating a wide array of opportunities for talented junior researchers, including students, allowing them to interact and discuss their ideas with eminent scholars.

In 2017, the TFC hosted three Thematic Programs: "Aging Science: from Molecules to Society", aimed at developing innovative ways to achieve Smart Aging; "New Horizons in Food Science via Agricultural Immunology", on the development of the theoretical foundations of agricultural immunology; and "Non-linear Partial Differential Equations for Future Applications", focusing on non-linear partial differential equations arising in fluid mechanics, reaction-diffusion, optimal control, modern physics, material sciences and geometry.

The TFC has also implemented a Junior Research Program, which provides talented young researchers with the opportunity to organize workshops. In 2017, the TFC hosted programs entitled "Nanostructured Magnetic Materials: Challenges for Next-Generation Materials" and "Political and Social Dynamics of Crisis and Innovation in Japan, Asia and the World".

In addition, the TFC organized "the Falling Walls Lab Sendai 2017" in collaboration with the Falling Walls Foundation of Germany and the "Special Lecture from the Nobel Laureate Prof. Takaaki Kajita" for high school students and the general public.

Since its establishment in 2013, the TFC has steadily progressed in carrying out its research mission for the last five years. We constantly reflect on the implementation of our strategies by considering what has been successful with up to this point and what we wish to create in the future.

I would like to take this opportunity to express my gratitude, not only for the great efforts of those involved in the promotion of these programs, but also for the invaluable support and cooperation that we have received from Tokyo Electron Limited since the very beginning of this project.

In the future, Tohoku University aims to contribute even more to facilitate international research and education. The TFC is expected to play a central role in this endeavor, and we will continue to work towards achieving that goal while soliciting opinions and advice from all of our stakeholders. Accordingly, I ask for your continued cooperation and support.

Tohoku Forum for Creativity Director
Tohoku University Executive Vice President (for research)

Tadahiro Hayasaka

Overview of the Tohoku Forum for Creativity

Mission

The Tohoku Forum for Creativity (TFC) is an international visitor research institute which was established in 2013 at Tohoku University to facilitate collaborative research. In order to identify important problems across all of the sciences and humanities, the TFC brings together both junior and senior researchers in a stimulating environment that promotes creative approaches to new and interdisciplinary research areas.

The TFC especially encourages junior researchers, such as graduate students and postdoctoral fellows, to participate in the thematic programs. Through discussions and close contact with distinguished researchers, including Fields Medalists and Nobel Laureates, junior researchers will be stimulated to develop their own original ideas and to eventually become pioneers in new research areas.

A Fellowship of Knowledge which Contributes to the Solution of the Major Issues Faced by Humanity

The TFC calls for thematic programs from throughout the world covering all academic domains, from the humanities and social sciences to the natural sciences. The TFC then selects themes for concentrated discussions over a three-month period, for which leading international researchers are invited to Tohoku University to develop new areas of research and to contribute to the solution of the major problems facing humanity, through joint research and the hosting of international symposiums. Furthermore, the TFC provides an ideal location for the promotion of interdisciplinary cooperation across a diverse range of research areas in order to tackle the increasingly advanced and complex issues facing society.

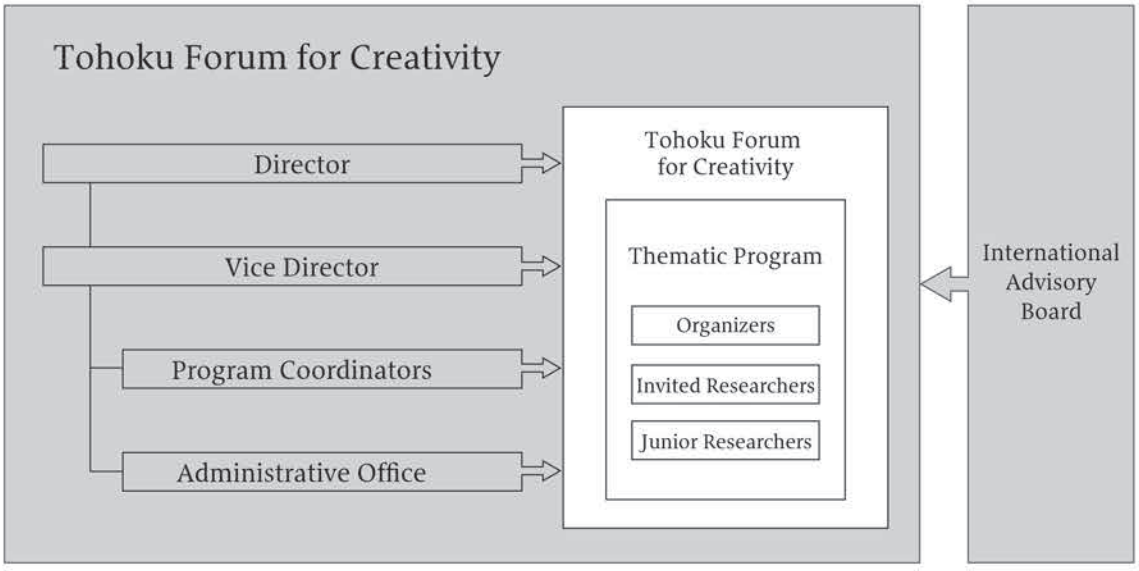
Educating Global Leaders to Build the Future of Humanity

The TFC will establish itself as a center for the cultivation of international research leaders, by promoting the participation of junior researchers from throughout the world in our thematic programs. In this way, the TFC will foster an environment in which young researchers can interact closely with world class researchers.

Contributing to Society by Sharing Academic Advances

The TFC provides opportunities for intellectual exchange between participating researchers and the general public, including the children who will lead society in the future, through the planning and hosting of public events. This initiative aims to promote the sharing of knowledge, further internationalization, and the development of a prosperous society, by providing opportunities for the public to interact directly with world-leading researchers.

Organization



International Advisory Board

The International Advisory Board was established as an organization to evaluated the proposed thematic programs gathered from throughout the world, and to provide advice on the activities of the TFC.

Jean-Pierre Bourguignon	Former Director and Honorary Professor at IHÉS Institut des Hautes Études Scientifiques
Arjen Doelman	Director of the Lorentz Center Lorentz Center, International Center for workshops in the Sciences
Peter Gruss	President/CEO Okinawa Institute of Science and Technology Graduate University
Makoto Kobayashi	Nobel Laureate in Physics 2008 Honorary Professor Emeritus High Energy Accelerator Research Organization
Kiyoshi Kurokawa	Professor Emeritus National Graduate Institute for Policy Studies
Takamitsu Sawa	Distinguished Professor Shiga University

Observer of the Tohoku Forum for Creativity

Yuko Harayama	Executive Member of the Council for Science, Technology and Innovation Council for Science, Technology and Innovation

Support for the Tohoku Forum for Creativity

This project hosts approximately three thematic programs per year, with support from the program for promoting the enhancement of research universities from the Ministry of Education, Culture, Sports, Science and Technology (MEXT). In order for this program to continue to aggressively tackle the challenges faced by society, we must create opportunities to communicate with society and our supporters in the private sector in order to gain their assistance in promoting our activities.

The TFC will continue to publish information widely throughout the world, and work to gain the understanding and support of numerous individuals and organizations.

Support was provided by the following corporations in FY2017.

FY2017

Comprehensive Support for the TFC

Tokyo Electron Limited

Support for the "Aging Science: from Molecules to Society" Thematic Program

Curves Japan Co., Ltd.
JINS Inc.
Kumon Institute of Education Co., Ltd.
Nintendo Co., Ltd.
Sendai Television Enterprise Co., Ltd.

Support for the "Nonlinear Partial Differential Equations for Future Applications" Thematic Program

JSPS Grant in Aid for Scientific Research S #16H06339 (Hideo Kozono)*
JSPS Grant in Aid for Scientific Research S #25220702 (Takayoshi Ogawa)*
* Partial support

Support for the "New Horizons in Food Science via Agricultural Immunology" Thematic Program

JSPS Core-to-Core Program "Establishment of international agricultural immunology research-core for a quantum improvement in food safety"
Scientific Research on Innovative Area from MEXT of Japan "Neo-Virology: the raison d'etre of viruses"
Forum co-hosted by 5 universities

A Message from our Sponsor

To develop a dream-inspiring society

Technological advancements in recent years has made our lives even more convenient and abundant. With the arrival of the IoT (Internet of Things) age, a wide range of devices have become connected over the internet, and it is expected this trend will continue to accelerate in the coming years.

At the same time, however, a number of global-scale problems faced by our society continue to deepen in severity, such as abnormal weather, natural disasters, international war and terror, water and food shortages, the population problem, and cyber-attacks. In 2015, the United Nations adopted the SDGs (Sustainable Development Goals), and while initiatives are spreading to tackle these various challenges at the global level, the world also looks to private enterprise to effectively leverage their economic resources with a mid-to-long term perspective, and contribute to the achievement of the SDGs through their business activities.

Tokyo Electron (TEL) has been a leading company of semiconductor and flat panel display (FPD) production equipment since its founding in 1963, and has continued to grow over the years. We have also continuously engaged with Tohoku University over many years in an industry-academic collaboration to develop both human resources and technology, focused on the semiconductor field. TEL also feels profound agreement with the goals of Tohoku Forum for Creativity (TFC) of Tohoku University, the first large-scale visitor research institute founded at a Japanese university, and has been a sponsor since its founding in 2013.

The TFC gathers top researchers from around the world, including winners of the Nobel Prize and the Fields Medal, and has advanced research in a variety of fields that seek to support a sustainable society. Based on the TEL's corporate philosophy of, "We strive to contribute to the development of a dream-inspiring society through our leading-edge technologies and reliable service and support," we will leverage our partnership with the TFC, and by fusing highly diverse academic expertise with the resources of our company, create new value in society to further achieve our mission.

With this program serving as forum to create opportunities for leading young researchers to connect with the world, we will contribute to the development of globally aware human resources.

It is our sincere wish that by serving as a highly influential forum gathering world-class knowledge from around world, the Tohoku Forum for Creativity of Tohoku University will make a major contribution to the development of an abundant society.

Tokyo Electron Limited
Representative Director, President & CEO

Toshiki Kawai

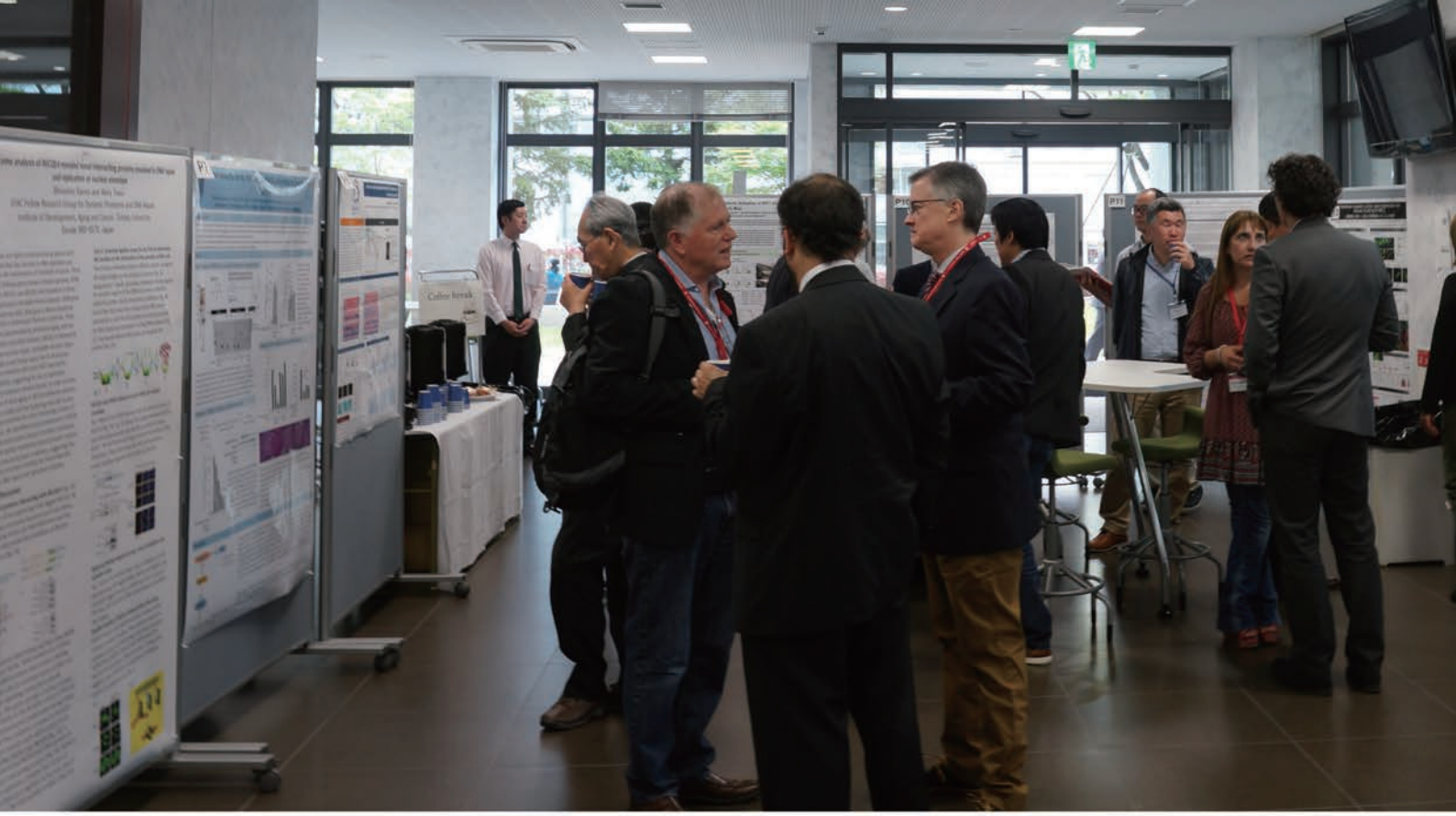
TOKYO ELECTRON House of Creativity

Construction was completed on the TOKYO ELECTRON House of Creativity in March 2015 at the Tohoku University Katahira Campus, to serve as the center for the TFC. The TFC aims to use this center as the principle location for the realization of "building a community of wisdom where people gather together, learn, and create, with an open doors to the world."

*Tokyo Electron Limited provided immeasurable support for the construction of this facility.




Activity Report 2017



Thematic Program | April 2017 – June 2017

Aging Science: from Molecules to Society

A long-lasting question why we age draws more and more attention in the super-aging society that we are now facing. The most critical issue of the super aging society is the achievement of "Smart Aging". Smart Aging is the state where people maintain physical and mental fitness and keep developing their intellectual activities and social relations. Scientists are strongly encouraged to create new approaches and strategies to achieve Smart Aging by solving various problems and obstacles. To this end, we organized TFC conference "Aging Science: from Molecules to Society" to consolidate wide-ranging research fields covering biological, medical, and social sciences and create a new interdisciplinary science focusing on aging by planning this forum. We set three goals in this forum. The first goal was to understand molecular mechanisms of aging at cellular and organismal levels. The second goal was to understand brain aging. The third goal was to understand the social and economic problems surrounding aged people. We are quite sure that three symposia that were held under these themes inspired all participants by exposing them to new interdisciplinary perspectives of aging science and encouraged them, particularly young investigators working on aging science, to develop their science for the achievement of the Smart Aging.

Important Goals and Degree of Achievement

We set three goals in this forum.

The first goal was to understand molecular mechanisms of aging at cellular and organismal levels. We were exposed to the frontiers of basic aging science research, and several international and domestic collaborations have started between IDAC members and invited speakers of the symposium.

The second goal was to understand brain aging and to develop preventive medicine strategies for coping with aging related disorders. Tight relations between IDAC and Tohoku Medical Megabank Organization have been established for productive human biology.

The third goal was to understand the social and economic problems surrounding aged people. Graduate students and young investigators had very active discussions with the speakers.

Program Organizers

Ryuta Kawashima (Professor, Institute of Development, Aging and Cancer, Tohoku University)

Prof. Kawashima is the Director of the Institute of Development, Aging and Cancer (IDAC), Tohoku University since 2014, as well as the Director of Smart Aging Research Center, Tohoku University since 2017. Throughout the years, Prof. Kawashima studied at the Tohoku University School of Medicine, and the Graduate School of Medicine where he earned his M.D. He also spent some time in Sweden as a guest researcher at the famed Karolinska Institute.

Kozo Tanaka (Professor, Institute of Development, Aging and Cancer, Tohoku University)

Prof. Tanaka completed his doctorate course at the Graduate School of Medicine, University of Tokyo. He took his current position in 2012 after working as a research associate at the Research Institute for Radiation Biology and Medicine, Hiroshima University, as a postdoctoral fellow at University of Dundee, and as an associate professor at the Institute of Development, Aging and Cancer, Tohoku University. He has been studying chromosomal instability associated with cancer and aging.

Koetsu Ogasawara (Professor, Institute of Development, Aging and Cancer, Tohoku University)

Prof. Ogasawara completed his doctorate course at the Graduate School of Dentistry, Tohoku University. He took his current position after working as a postdoctoral fellow at the University of Tokyo and at the University of California, San Francisco, and as a chief researcher of the National Institute of International Medical Centers. Prof. Ogasawara was awarded the prize for young scientists of Minister of Education, Culture, Sports, Science and Technology in 2006.

Yasuyuki Taki (Professor, Institute of Development, Aging and Cancer, Tohoku University)

Prof. Taki completed his doctorate course at the Tohoku University Graduate School of Medicine. He studied at the Tohoku University School of Medicine, and the Graduate School of Medicine where he earned his M.D. He worked and studied in the Institute of Development, Aging and Cancer, Tohoku University and in Tohoku University Hospital as a radiologist. He has been in current position in IDAC since 2013.

Motoaki Sugiura (Professor, Institute of Development, Aging and Cancer / International Research Institute of Disaster Science, Tohoku University)

Prof. Sugiura completed his doctorate course at the Tohoku University Graduate School of Medicine. He took his current position after working as a postdoctoral fellow at Juelich Research Center, and as an associate professor of the Miyagi University of Education, National Institute for Physiological Sciences, and Tohoku University. Prof. Sugiura was awarded the Commendation for Science and Technology by the Ministry of Education, Culture, Sports, Science and Technology in 2010.

Hozumi Motohashi (Professor, Institute of Development, Aging and Cancer, Tohoku University)

Prof. Motohashi graduated from the Tohoku University School of Medicine in 1990. After getting Ph.D from the Tohoku University Graduate School of Medicine in 1996, she obtained a job at the University of Tsukuba. In 2006, she came back to Tohoku University as an associate professor and has been in the current position in IDAC since 2013. She was awarded the Young Investigator's Award and Kakiuchi Saburou Memorial Award from Japan Biochemistry Society in 2001 and 2013, respectively.

Program Highlights

In the first symposium, "Aging Biology", we focused on the biology of aging as a basis to realize "Smart-Aging", the motto of Institute of Development, Aging and Cancer (IDAC). In 10 sessions over three days, 18 invited speakers and eight speakers from IDAC presented their cutting-edge findings. The topics covered various aspects of aging science including cellular senescence, stem cells, stress response, genomic instability, and immune response, and the mechanisms of aging were actively discussed from the molecular to cellular and organismal levels. Moreover, approaches to mitigate aging and aging-related diseases were introduced, such as removal of senescent cells. On the second day afternoon, 12 topics were also presented in the poster session.

In the second symposium "Bioinformatics and Preventive Medicine", we focused on brain aging and related diseases such as Alzheimer's disease from the viewpoint of the bioinformatics and preventive medicine. In five sessions over three days, eight invited speakers and three speakers from IDAC presented their cutting-edge findings. The topics cover several aspects of aging science including molecular biology, bioinformatics, big-data medicine, epidemiology, and gerontology.

"How can we age smartly?" The third symposium "Smart Aging" tried to answer this big question, by discussing three themes: 1) what is Smart-Aging, 2) how can each individual achieve it, and 3) how do we implement such measures in society by collecting a wide range of perspectives, including evolution, history, demography, literature, psychology, and thanatology.

Specific Strategies for International Research Exchange

As an international research exchange event, we set a goal for young researchers to understand the research contents of outstanding researchers. To assess the achievement level, we asked young researchers to submit a report after the conference. Young researchers studied the research contents of the invited speakers in advance and asked some questions at the meeting.

Representative reports by the young researchers are shown below.

Topic 1 "Aging Biology" : Professor Tom Misteli (National Cancer Institute, NIH) aims to apply those mechanistic insights to develop a therapeutic strategy for cancer and aging. In this symposium, he talked about recent novel knowledge about the driver's mechanisms of the Hutchinson-Gilford progeria syndrome and discussed how that knowledge should be applied to a therapeutic strategy on the syndrome.

Topic 2 "Bioinformatics and Preventive Medicine" : Professor Tapas K. Kundu (Jawaharlal Nehru Centre for Advanced Scientific Research) introduced research now ongoing at his laboratory, especially on fundamental research for the treatment of tumors and Alzheimer's disease. TTK21 is widely known as an activator of histone acetyltransferase p300/CBP. He newly established a small molecule CSP-TTK21 by coupling TTK21 with nanosphere CSP, and enabled it to pass through blood-brain-barrier. Finally, he confirmed that mice with defective memory, a model of dementia, recovered their memory by systemically administrating with CSP-TTK21.

Topic 3 "Smart Aging" : Prof. Laurie T. Butler (University of Reading) presented "The role of nutrition in slowing cognitive decline in older adults". He proposed that flavonoids, which are naturally occurring food components in orange juice or blueberry, are effective to improve cognitive functions. Interventions with flavonoids are highly applicable in society, because the interventions seem easier and less stressful for participants than other interventions.

Principle Invited Researchers

Yo-ichi Nabeshima

(Foundation for Biomedical Research and Innovation, Japan)

Director of the Institute of Biomedical Research and Innovation, Foundation for Biomedical Research and Innovation since 2010. A specialist in molecular biology and molecular pathology. Recipient of the Japan Academy Prizes in 2013 on his research on Klotho family.

Tom Misteli

(National Cancer Institute, NIH, USA)

Director of the Center for Cancer Research, National Cancer Institute, NIH, since 2016. A specialist in cell biology. Recipient of numerous awards including the Gold Medal of the Charles University (2011) and the Herman Beerman Award (2016) on his research on higher order genome organization.

Judith Campisi

(Buck Institute for Research on Aging, USA)

Professor of the Buck Institute for Research on Aging since 2002. A specialist in biogerontology. She is a fellow of the American Association for the Advancement of Science (AAAS; 2012-) and a recipient of numerous awards including the Olav Thon Foundation Prize (2015) on her research on aging science including cellular senescence.

John Gallacher

(University of Oxford, UK)

Professor of Cognitive Health, University of Oxford. He is a specialist in the fields of healthy ageing, large-scale objective assessment of the built environment, and Alzheimer's disease from the viewpoint of psychology and also epidemiology. He also engaged in UK biobank, which is the largest biobank in the world. Receiver of the Rank Prize (1989).

Laurie T. Butler

(University of Reading, UK)

Professor of University of Reading. Head of the School of Psychology and Clinical Language Science. A specialist in the fields of the nutrition and cognition, memory and choice, health behavior, leading research teams on nutrition and health, language and cognition, ageing, and lifespan development.

Stuart Kandell

(University of California, Berkeley, USA)

Stuart Kandell has been called a "global pioneer in the field of creative aging" and is known for his numerous award winning programs. He currently travels around the country speaking, training artists and replicating Stagebridge's successful programs.

International Training for Young Personnel

The purpose of the international human resource development in this forum was for young researchers to deepen their interaction with invited speakers. As the invited speakers were remarkable foreign researchers, we proposed for each young researcher to assume responsibility for assisting one of the invited speakers. This is to set up opportunities for young researchers to talk directly with the invited speakers. Before the forum, young researchers studied the research contents of the invited speakers and we recommended young researchers to ask some questions at the meeting. As a result, a very active discussion was performed in the forum. In addition, we set up a Meet the Expert session to provide an opportunity for discussion among the invited speakers and several young researchers. In the Meet the Expert session, when young researchers introduced their research contents, they were able to receive very helpful comments from the invited speakers. As a result, the exchanges between the invited speakers and young researchers were deepened, and we were able to achieve the goal of the initiative.

Strategies Following the Completion of the Program

The Smart Aging Research Center (SARC) has been launched based on the three main themes of the TFC conference, "Aging Science: from Molecules to Society". Aging research will be advanced vigorously in SARC. In order to strengthen our basic research of aging science, we will recruit good young investigators who can provide significant contributions to the field. We are planning to organize one or two meetings per year inviting young investigators in the field of basic aging science.

Thematic Program | July 2017 – February 2018

Nonlinear Partial Differential Equations for Future Applications

For the future progress of nonlinear partial differential equations appearing in the phenomenon of various sciences, this program selects several topics, which are expected to develop in the future, and organizes several events involving lecture series by representative researchers in the topics from around the globe. The topics are: (1) Fluid mechanics, (2) Optimal control, (3) Harmonic analysis, (4) Geometric analysis and Inverse problems. For each topic, we organized a one week workshop, where a series of tutorial lectures and talks on related recent research by invited speakers from abroad and Japan were presented. Furthermore, we also organized a discussion time with young researchers including Ph.D. students to obtain further information.

We invited researchers in different areas from the Institute of Fluid Science and the Institute for Materials Research at Tohoku University, and the Institute of Mathematics for Industry at Kyushu University in order to seek for new topics in the future research in nonlinear partial differential equations.

Important Goals and Degree of Achievement

To develop research on new applications arising in nonlinear partial differential equations from sciences, engineering, and economy, we set four important goals as follows: (i) organize series of tutorial lectures on the associated topics by celebrated researchers mainly from abroad; (ii) invite researchers on the topics as speakers to exchange ideas among audiences; (iii) invite speakers from different areas such as engineering, etc. whose research is possibly investigated in a mathematical setting; (iv) and organize more formal and informal discussions with young researchers and Ph.D. students for future international joint research.

For the important goals, 4 international conferences with the research themes above were held and 9 lecture series by invited researchers were conducted. Furthermore, 45 domestic and overseas researchers, which involve other research fields, took on the task of conducting lectures about their latest research themes. In the program term, 6 overseas researchers stayed over 2 weeks and discussed topics associated with their research themes for a good amount of time with young researchers in Tohoku University. These activities convince us of the sufficient achievement of our goal.

Program Organizers

Shigeaki Koike (Professor, Mathematical Institute, Tohoku University)

Prof. Koike received his doctorate from Waseda University. He took his current position after working as an assistant professor at Waseda University and Tokyo Metropolitan University and as an associate professor and professor at Saitama University. Dr. Koike was awarded the JMSJ Outstanding Paper Prize in 2010, and the Analysis Prize of the Mathematical Society of Japan in 2016.

Shigeru Sakaguchi (Professor, Graduate School of Information Sciences, Tohoku University)

Prof. Sakaguchi received his doctorate from Tokyo Metropolitan University. He took his current position after working as a lecturer at Numazu College, as an assistant professor at Tokyo Institute of Technology, as an associate professor and professor at Ehime University, and as a professor at Hiroshima University. Dr. Sakaguchi was awarded the Analysis Prize of the Mathematical Society of Japan in 2012.

Hideo Kozono (Professor, Faculty of Science and Engineering, Waseda University; Research Alliance Center for Mathematical Sciences, Tohoku University)

Prof. Kozono completed his doctoral course at the Faculty of Science, Hokkaido University. He took his current position after working as an assistant professor at Nagoya University, as an associate professor at Kyushu University and Nagoya University, and as a professor at Tohoku University and Waseda University. Dr. Kozono was awarded the Siebold Prize in 2002, the MSJ Autumn Prize in 2014, the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology in 2016.

Takayoshi Ogawa (Professor, Mathematical Institute, Tohoku University; Director of Research Alliance Center for Mathematical Sciences, Tohoku University)

Prof. Ogawa completed his Master course at the Department of Pure and Applied Science, the University of Tokyo, and received doctorate from the University of Tokyo. He took his current position after working as an assistant professor in Nagoya University, as an associate professor in Nagoya and Kyushu University, and as a professor in Tohoku University. Dr. Ogawa was awarded the Analysis Prize of the Mathematical Society of Japan in 2009.

Program Highlights

On “fluid mechanics”, Prof. Robert Denk (University of Konstanz) presented a series of lectures on the maximal regularity theorem on Banach spaces. Prof. Denk, who invented a breakthrough in the theory of maximal regularity, presented a clear abstract theory and explained the solvability of fundamental equations in fluid mechanics in his lectures. He also presented several open problems to the audience, which indicate the future direction in this topic. On “optimal control”, Prof. Andrzej Święch (Georgia Institute of Technology) showed a rigorous proof of the dynamic programming principle in stochastic control in a series of lectures while Prof. Wilfrid Gangbo (University of California, Los Angeles) showed a new existence result on the master equation in mean field games. On “harmonic analysis”, Prof. Thomas C. Sideris (University of California, Santa Barbara) and Prof. Yoshiyuki Kagei (Kyushu University) presented a series of talks on nonlinear partial differential equations in fluid mechanics while other invited speakers presented recent topics on nonlinear dispersive equations via harmonic analysis.

On “geometric analysis and the inverse problem”, Prof. Daniel Peralta-Salas (Instituto de Ciencias Matemáticas) showed in his series of lectures how the zero set of solutions of elliptic equations has topologically rich structure while Prof. Samuli Siltanen (University of Helsinki) introduced mathematical theory and showed numerical experiments in inverse problems of tomography by using MATLAB.

Specific Strategies for International Research Exchange

We set out to conduct international collaborative research through exchanges of ideas and information with researchers from abroad in the program's events as specific strategies for international research exchange. From the results, we have already undertaken some international collaborative research and a research project with researchers outside mathematics. For instance, Prof. Koike, who is one of the organizers, a Japanese Ph.D. student, and Prof. Święch have almost finished a joint work on fully nonlinear parabolic equations; Prof. Sakaguchi, also an organizer, a Ph.D. student, and Prof. Rolando Magnanini (Università di Firenze) have obtained a new result on geometry of solutions in partial differential equations; Prof. Ogawa has obtained a grant in JSPS for a joint research program based on experiments on combustion phenomena by Prof. Maruta in the Institute of Fluid Science. This project possibly extends to other areas which relate to other organizers, and Prof. Magnanini, Prof. Denk, etc.

International Training for Young Personnel

We organized informal seminars among researchers from abroad, and young Japanese researchers and Ph.D. students to exchange ideas and to discuss open questions. For instance, Dr. Alpár Richárd Mészáros (University of California, Los Angeles) discussed mean field games, Dr. Fernando Charro (University of Coimbra) discussed the ABP maximum principle for the infinity Poisson equations, and Dr. Giulio Galise (Sapienza University of Rome) discussed a new type of fully nonlinear degenerate operators in geometry. On “geometric analysis and the inverse problem”, Prof. Siltanen and young researchers of Tohoku University and University of Helsinki carried out a group discussion. Furthermore, a Ph.D. student of Tohoku University visited Prof. Siltanen in University of Helsinki for two months to work on numerical experiments in inverse problems.

Principle Invited Researchers

Robert Denk
(University of Konstanz, Germany)

Professor at University of Konstanz in Germany. An authority in maximal regularity theorem in Banach spaces. He has written many books on the maximal regularity theorem from AMS, Birkhauser, and Springer. He is the chief editor of Mathematische Nachrichten which is one of world's leading journals in the pure analysis published in Germany.

Michael Ruzicka
(University of Freiburg, Germany)

Professor at University of Freiburg in Germany. An authority in PDE describing the motion of non-Newtonian fluids. He has written many books on the mathematical theory of viscosity incompressible and compressible fluids from Springer.

Andrzej Święch
(Georgia Institute of Technology, USA)

Professor at Georgia Institute of Technology. A specialist in regularity theory for fully nonlinear elliptic/parabolic equations, and in stochastic control theory. Recipient of JMSJ outstanding paper prize in Mathematics in 2010.

Wilfrid Gangbo
(University of California, Los Angeles, USA)

Professor at University of California, Los Angeles. A specialist in optimal mass transportation and calculus of variations.

Thomas C. Sideris
(University of California, Santa Barbara, USA)

Professor at Department of Mathematics, University of California, Santa Barbara. He is an expert on the global theory of nonlinear hyperbolic partial differential equations, in particular, crystal growth models, motions of elastic bodies and the compressible Euler equation.

Daniel Peralta-Salas
(Instituto de Ciencias Matemáticas, Spain)

ERC Researcher. A specialist in the interactions between dynamical systems, partial differential equations, and differential geometry.

Samuli Siltanen
(University of Helsinki, Finland)

Professor at University of Helsinki. A specialist in mathematical theory and numerical methods in various real-world inverse problems.

Rolando Magnanini
(Università di Firenze, Italy)

Professor at Università di Firenze. A specialist in the geometry of solutions of partial differential equations.

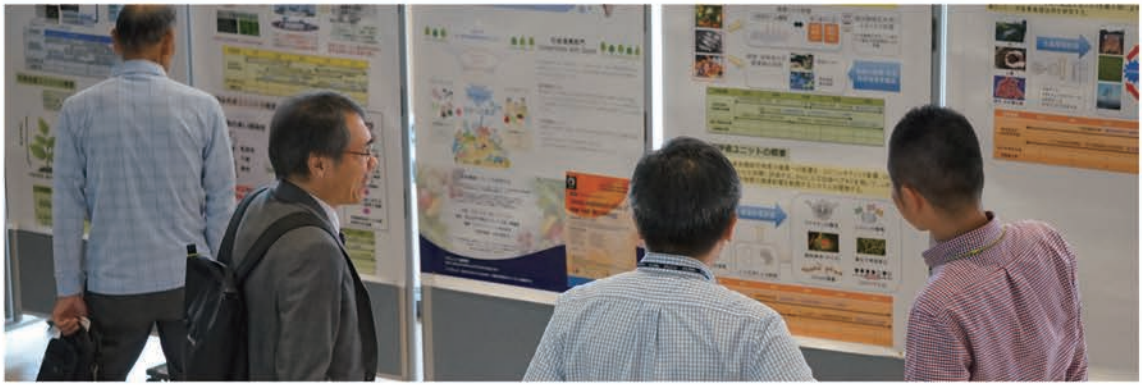
Strategies Following the Completion of the Program

We will produce a proceeding to distribute our activities. We will also try to keep communications with young researchers from abroad to establish international joint works in the next generation in Japan. Furthermore, we will promote fusion research with other research fields including the collaborative research with Institute of Fluid Science, Tohoku University.

Thematic Program | July 2017 – September 2017

New Horizons in Food Science via Agricultural Immunology

Creating new technologies to produce healthy plants, livestock and marine products based on an understanding of "agricultural immunology" is essential for breaking away from current agriculture that depends on medicines, such as pesticides and antibiotics. In addition, developing a system to evaluate the safety and functionality of foods produced with a new understanding of “agricultural immunology”, and devising an approach to its social implementation are also indispensable strategies for linking basic research and application. The purpose of this program is to create a food safety system based on “agricultural immunology”.



Important Goals and Degree of Achievement

The primary goal of this program is to promote food science and establish a new generation of agricultural production that does not depend on medicines, such as pesticides and antibiotics, through the interaction of researchers who are top scientists in the world and young researchers & graduate students who belong to Tohoku University. To achieve this goal, this program was composed of international symposiums to understand the cutting edge "agricultural immunology" and youth programs to discuss with invited top scientists about the on-going research projects conducted by the young researchers & graduate students. To clarify the basic research and application of "agricultural immunology", the program was divided into three independent but related stages (Stage 1: Agricultural immunology, Stage 2: Safety and functional evaluation and Stage 3: Social implementation). In Stage 1, participants discussed with Dr. Jean-Marc Reichhart (Innate immunity), Dr. Fuller W. Bazer (Animal biology) and other invited scientists about concrete strategies for activating innate immune system of plants, livestock and marine organisms. In Stage 2, participants discussed with Dr. Susan M. Gasser (Molecular biology), Dr. Mitsuhiro Yanagida (Molecular genetics) and other invited scientists about novel methods for scientifically evaluating food safety and functionality. In Stage 3, participants discussed with Dr. Rodolfo M. Nayga Jr. (Food policy economics) and other invited scientists towards the realization of an effective food safety system. In the public course, we also gave a lecture for the general public to deepen wider understanding of food safety. Through these programs, we succeeded in disseminating the frontier of "agricultural immunology" from Tohoku University to the world.

Program Organizers

Hisashi Aso (Professor, Graduate School of Agricultural Science, Tohoku University)
Prof. Aso graduated from the Tohoku University Faculty of Agriculture. He served at the Tohoku University Faculty of Medicine as an assistant professor and obtained his Ph.D. degree (Medicine). He then served in the Ministry of Agriculture, Forestry and Fisheries as a senior researcher and a chief of the Physiology Unit. Since 2011, he has taken his current position at the Tohoku University Graduate School of Agricultural Science after serving as an associate professor. From 2015 to 2017, he had also served as the director of International Research and Education Center for Food and Agricultural Immunology (CFAI).

Masaaki Toyomizu (Professor, Graduate School of Agricultural Science, Tohoku University)
Prof. Toyomizu completed his doctorate program at the Tohoku University Graduate School of Agricultural Science and obtained his Ph.D. degree (Agriculture). He served at the Kagoshima University Faculty of Agriculture as an assistant professor and also served at the Niigata University Faculty of Agriculture as an associate professor. Since 2008, he has taken his current position at the Tohoku University Graduate School of Agricultural Science after serving as an associate professor. From 2013 to 2017, he served as a vice dean of Tohoku University Graduate School of Agricultural Science.

Haruki Kitazawa (Associate Professor, Graduate School of Agricultural Science, Tohoku University)
Associate Prof. Kitazawa completed his master program at the Tohoku University Graduate School of Agricultural Science. He served as an assistant professor and received his Ph.D. degree (Agriculture). He served in National Cancer Institute (NCI) of National Institutes of Health (NIH) as a post-doctoral fellow. Since 2007, he has taken his current position at the Tohoku University Graduate School of Agricultural Science. From 2015, he also served as a vice director of International Research and Education Center for Food and Agricultural Immunology (CFAI). He received a research award from the Japanese Association for Food Immunology in 2012.

Tomonori Nochi (Associate Professor, Graduate School of Agricultural Science, Tohoku University)
Associate Prof. Nochi completed his doctorate program at the Tohoku University Graduate School of Agricultural Science and received his Ph.D. degree (Agriculture). He served at the University of Tokyo Institute of Medical Science and University of North Carolina at Chapel Hill as a post-doctoral fellow. Since 2013, he has taken his current position at the Tohoku University Graduate School of Agricultural Science. From 2015, he also served as a unit leader of International Research and Education Center for Food and Agricultural Immunology (CFAI). He received a research encouragement award from the Japanese Society for Immunology in 2010.

Shoichiro Kurata (Professor, Graduate School of Pharmaceutical Sciences, Tohoku University)
Prof. Kurata completed his doctorate program at the University of Tokyo Graduate School of Pharmaceutical Sciences and obtained his Ph.D. degree (Pharmacy). He served in University of Tokyo as an assistant professor and University of Basel in Switzerland as a post-doctoral fellow. Since 2007, he has taken his current position at the Tohoku University Graduate School of Pharmaceutical Sciences after serving as an associate professor. He received a research award from Japanese Association for Developmental & Comparative Immunology in 2009 and a Science and Technology Award from the Minister of Education, Culture, Sports, Sciences and Technology in 2015.

Program Highlights

The highlight of this program was summarized in three sequential events entitled "Frontiers in agricultural immunology (Stage 1)", "Food safety and functional evaluation (Stage 2)", "Social implementation of new food technology (Stage 3)". In Stage 1, the subjects of discussion were focused on understanding molecular mechanisms by which vertebrates and invertebrates recognize pathogens to induce immune reactions. Through the discussion, we devised alternative strategies in agriculture to produce healthy plants, livestock and marine products without the use of high amount of medicines, such as pesticides and antibiotics. In Stage 2, the subjects of discussion were focused on understanding the recent progress of scientific technology to evaluate the effects of multiple food ingredients that are beneficial or harmful to health on human metabolism, immunity, epigenetics, genomic stability, etc. In Stage 3, the subjects of discussion were focused on studying methods to investigate consumer's assessment for foods produced by a new technology based on "agricultural immunology" as one of our responsibilities is to spread the new foods to industry and citizens. In the youth program, young researchers and graduate students discussed “agricultural immunology” through oral and poster presentations. Through all the programs, participants made a great leap as specialists of “agricultural immunology”.

Specific Strategies for International Research Exchange

Since 2015, the Tohoku University Graduate School of Agricultural Science has established the International Education and Research Center for Food and Agricultural Immunology (CFAI) to lead the research of “agricultural immunology” as a pioneer. In addition, from 2017 to 2021, the Tohoku University Graduate School of Agricultural Science has been adopted for the Core-to-Core program by the Japanese Society for the Promotion of Science (JSPS) to accelerate the research at the world scale. In the Core-to-Core program, several overseas research bases have been established in the US, the Netherland, Argentina and China. Among them, it should be noted that Wageningen University, one of our research partners in the Core-to-Core program, is the highest ranked university in the QS World University Rankings in the field of Agriculture & Forestry. In this program, many researchers were invited from the overseas research bases to promote the future international collaboration with the Tohoku University Graduate School of Agricultural Science. The international research exchange developed in this program will be taken over to the Core-to-Core program, thus it could be further developed under the initiative of the Tohoku University Graduate School of Agricultural Science.

Principle Invited Researchers

Jean-Marc Reichhart
(University of Strasbourg, France)

A distinguished professor of University of Strasbourg. He discovered the Toll-pathway as an essential defense molecular cascade in invertebrates using a drosophila model. His research led to a considerable elucidation of the innate immune system in mammals. He contributed to the Nobel Prize in Physiology and Medicine in 2011 (Winner: Dr. Jules A. Hoffmann).

Susan M. Gasser
(Friedrich Miescher Institute, Switzerland)

The Director of Friedrich Miescher Institute and a specialist in molecular biology. She contributed to the molecular genetics of genome function and received the Gregor Mendel Medal in 2006, an INSERM International Award in 2011, the Weizmann Women and Science Award in 2013.

Rodolfo M. Nayga, Jr.
(University of Arkansas, USA)

A distinguished professor of University of Arkansas. He received a title of the Tyson Endowed Chair at University of Arkansas's Department of Food Policy Economics due to his outstanding economic, policy and health benefits of food consumption.

Fuller W. Bazer
(Texas A&M University, USA)

A distinguished professor of Texas A&M University and a specialist of animal biology. He has been engaged in the research of interferon tau, which possesses an essential role in implantation and maintenance of embryos in ruminants. He received the Wolf Prize in Agriculture in 2003.

Mitsuhiro Yanagida
(Okinawa Institute of Science and Technology Graduate University, Japan)

A professor of the Okinawa Institute of Science and Technology Graduate University and an emeritus professor in Kyoto University. He contributed to molecular genetics, especially regulation mechanisms of cell cycle. He was selected as one of the members who has performed distinguished services in the field of culture in 2004 and received the Order of Cultural Merit in 2011.

International Training for Young Personnel

The target of the youth program conducted in all three stages was young researchers and graduate students who will be experts of "agricultural immunology" in the future. We tried to provide multiple opportunities for the young researchers and graduate students to interact with the world's top-level researchers invited. To participate in the active discussion in the youth program, young researchers and graduate students organized seminars before the youth program to deepen their understanding of the research contents of the invited researchers. All participants were able to discuss intently with invited researchers in English through oral/poster presentations and group discussions.

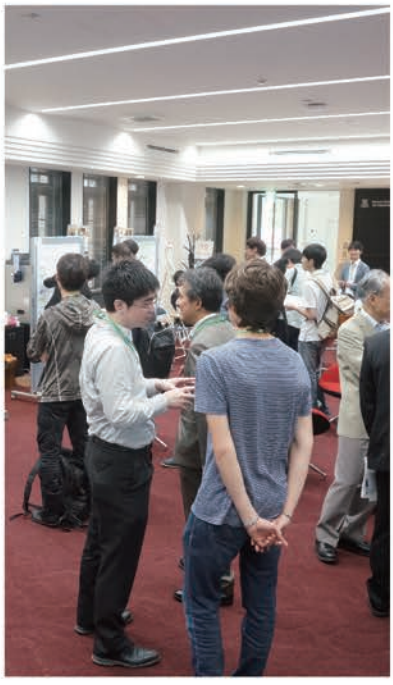
Strategies Following the Completion of the Program

The Tohoku University Graduate School of Agricultural Science has promoted international collaborative research and human resource development under the support of JSPS Core-to-Core program since 2017. To accelerate our activities, we have tried to establish a system to supervise Ph.D. candidates jointly with collaborative universities in the US and the Netherlands. In addition, by continuing to organize an annual international symposium on "agricultural immunology", we will further develop international exchanges aiming for a substantial upshift in progress in the research of "agricultural immunology".

Junior Research Program | May 2017 – August 2017

Nanostructured Magnetic Materials: Challenges for Next-Generation Materials

To achieve energy-saving and resource-saving society, it is strongly desired to develop higher performance materials. Nanostructured magnetic materials have attracted much attention as next-generation materials which meet this need. However, we have not obtained nanostructured magnetic materials with the theoretically expected high performance. Thus, to overcome this situation, we require new scientific and technical breakthroughs. In this program, with an aim to create such breakthroughs, we had an international workshop to promote the better understanding of previous studies on nanostructured magnetic materials and the challenges, and we discussed new approaches and ideas for the creation of next-generation materials. Furthermore, we had a follow-up seminar on the application of magnetic materials to obtain better understanding of their applications.



Important Goals and Degree of Achievement

The important goals of this program are to obtain better understanding of previous studies on nanostructured magnetic materials centered on permanent magnets and the related challenges, and to discuss novel approaches and ideas for the creation of next-generation materials with the experts on nanostructured magnetic materials. Creating an opportunity for young researchers and students to interact with the experts is also an important goal of this program. To achieve these goals, we had an international workshop and invited experts on nanostructured magnetic materials to this workshop. This workshop had lectures by the experts on permanent magnets to obtain better understanding of their previous works, and we discussed the optimal microstructure of magnets for enhancing their properties with the experts. At this workshop, the experts in the different fields from permanent magnets also gave lectures on their works and they participated in our discussions. Their participation in the discussions enabled us to obtain new viewpoints in the discussions on overcoming the challenges for the development of higher performance magnets, and it led to deeper discussions on novel approaches and ideas toward the development of novel magnetic materials. Furthermore, young researchers and students obtained the opportunity to interact with the invited experts through their poster presentations at this workshop. Thus, we were able to fully achieve the goals of this program.

Program Highlights

The highlights of this program consist of a basic lecture on nanostructured magnetic materials for students and young researchers, an international workshop, and a follow-up seminar. At the basic lecture, Prof. Hirotoshi Fukunaga (Nagasaki University) gave students and young researchers a basic lecture on the physics of nanostructured magnetic materials, so that they can obtain better understanding of the lectures at the workshop and to actively participate in the discussions. The workshop had 6 lectures on the research and development of nanostructured magnets (bulk-type, film-type, and nanoparticles based magnets), the analysis techniques of magnets, and the computer calculation of magnets. This workshop also had 4 lectures by experts in the research fields of soft magnetic nanoparticles and the electrochemical fabrication of magnetic films or ceramics. Through these lectures, we had active discussions on the development of higher performance magnets. Furthermore, the discussions with the experts in the different fields from permanent magnets enabled us to obtain novel viewpoints for the development of novel magnetic materials. In addition, the workshop had 14 poster presentations by young researchers and students, and they had active discussions with the invited experts. At the follow-up seminar, Assist. Prof. Sung Hoon Kim (Wonkwang University) gave a lecture on magneto-mechatronics and the medical applications, and we discussed the desirable properties of magnets for the applications. Furthermore, he performed the demonstration of a rehabilitation system introduced in his lecture.

Program Organizers

Yoshiaki Hayashi (Assistant Professor, Research Institute of Electrical Communication, Tohoku University)

Assist. Prof. Hayashi completed his doctorate course at the Graduate School of Engineering, Tohoku University, and recieved his Ph.D. in engineering. His major is magnetic engineering. He took his current position after working as a postdoctoral researcher at Tohoku University.

Tomoyuki Ogawa (Assistant Professor, Graduate School of Engineering, Tohoku University)

Assist. Prof. Ogawa completed his doctorate course at the Graduate School of Science and Technology, Keio University, and recieved his Ph.D. in engineering. His major is magnetic nanoparticles. He took his current position after working as a postdoctoral researcher at The University of Tokyo, and as an assistant at Tohoku University. He is the president and representative director of Future Materialz Co., Ltd. He received the Kyoto SMI Nakatsuji Award and the Outstanding Paper Award of The Japan Society of Applied Physics.

Sung Hoon Kim (Assistant Professor, Department of Electronics Convergence Engineering, Wonkwang University)

Assist. Prof. Kim completed his doctorate course at the Graduate School of Engineering, Tohoku University, and recieved his Ph.D. in engineering. His major is magneto-mechatronics. He took his current position after working as an assistant professor at Tohoku University. He received the NE Japan Technology Award.

Principle Invited Researchers

J. Ping Liu
(University of Texas at Arlington, USA)

Distinguished Professor at University of Texas at Arlington. He works on the research and development of nanostructured magnetic materials including magnetic nanoparticles. He is one of the editors of a book entitled "Nanoscale Magnetic Materials and Application". He is a fellow of the American Physical Society.

Thomas Schrefl
(Danube University Krems, Austria)

Senior Researcher at Center for Integrated Sensor Systems, Danube University Krems. He works on the computer calculation of nanostructured magnetic materials including permanent magnets. He received the START Prize of the Austrian Science Fund.

Hirotoshi Fukunaga
(Nagasaki University, Japan)

Trustee and professor at Nagasaki University. He works on the computer calculation and experimental development of hard and soft magnetic materials. He received the Achievement Award and Society Award of the Magnetics Society of Japan.

Satoshi Hirosawa
(National Institute for Materials Science (NIMS), Japan)

Director-General at the Element Strategy Initiative Center for Magnetic Materials, Research Center for Magnetic and Spintronic Materials, NIMS. He works on the research and development of rare-earth magnets. He is one of the authors of a book entitled "Progress of Fundamentals and Developments of Novel Nd-Fe-based Permanent Magnets Free from Dy". He received the Achievement Award of the Magnetics Society of Japan.

Masaaki Takezawa
(Kyushu Institute of Technology, Japan)

Professor at Kyushu Institute of Technology. He works on the analysis of magnetic materials using a magnetic optical effect. He is one of the authors of a book entitled "Progress of Fundamentals and Developments of Novel Nd-Fe-based Permanent Magnets Free from Dy".

Tetsuo Uchikoshi
(National Institute for Materials Science (NIMS), Japan)

Group Leader at Fine Particles Engineering Group, Research Center for Functional Materials, NIMS. He works on the research and development of fabrication techniques for ceramics based on the colloidal processing. He received the Science Award of the Society of Inorganic Materials, Japan and Fellow of the Ceramic Society of Japan.

Shinpei Yamamoto
(National Institute of Advanced Industrial Science and Technology (AIST), Japan)

Senior Researcher at Soft Magnetic Materials Team, Magnetic Powder, Metallurgy Research Center, AIST. He works on the research and development of soft magnetic nanoparticles. He received the Kyoto SMI Nakatsuji Award and the Award for Innovatory Research of the Japan Society of Powder and Powder Metallurgy.

Specific Strategies for International Research Exchange

At the workshop, we were able to fully achieve the exchange of opinions on nanostructured magnetic materials with the invited overseas researchers, and we were also able to build basic relationships with them for cooperative research. We will maintain the relationships built through this workshop, and we expect these relationships to lead to international cooperative research with the overseas researchers in the future. In addition, we had a concrete research exchange with Assist. Prof. Kim. After the follow up seminar, we performed a demonstration of our synthesis techniques for magnetic nanoparticles to Assist. Prof. Kim, and he also performed his demonstration of the rehabilitation system introduced in his lecture.

Strategies Following the Completion of the Program

Our final goal is to create new scientific and technical breakthroughs for the development of novel magnetic materials. However, it is difficult to create such breakthroughs in a short period of time. Thus, to achieve the final goal, we must keep the research exchanges with the invited researchers built through this program and continue to build new relationships with other researchers for new research exchanges. Therefore, we are going to proactively raise funds for research in order to enable us to have such research exchanges.

Junior Research Program | January 2018 – March 2018

Political and Social Dynamics of Crisis and Innovation in Japan, Asia and the World

Facing globalization, many advanced countries struggle to readjust their social, economic and political institutions to address the challenges imposed by financial crises, shrinking populations, and global power shifts. East Asia's economic growth has become a major driving force of such global change. As an economically and technologically advanced society, Japan finds itself at the intersection of these East Asian and global developments. Thus, understanding Japan's policy choices is critical for understanding the future of East Asia and the world. As Japan seeks to define its role and responsibilities in global affairs, two decades of low economic growth, rapid demographic change, and the implications of the 11 March 2011 triple disaster have generated a sense of national decline. This project revisits these notions of decline and demonstrates how discourses on crisis and decline have been a crucial force for innovation and the reform of public policy institutions. To show how fears of national decline in the past and the present shape - and are shaped by - social and political transformations, this project brings together scholars of political science, economics, sociology, media and cultural studies, and history.

Important Goals and Degree of Achievement

This project accounts for social and political discourses that often display a loss of orientation and prescribe a return to Japan's postwar trajectory of economic growth and social stability. By doing so, however, we problematize the ideas of 'decline' and 'crisis'. We examine the discrepancy between Japan's ostensibly ongoing 'crisis' and the reality of the safe, stable, and prosperous society relative to other countries. The main objective is to understand how crisis narratives drive policy and institutional change in Japan.

Program Highlights

This project was comprised by the following three main events.

First, Dr. Paul O'Shea (Lund University), co-organizer of this project, offered a special lecture to Tohoku University students and the general public on the theme of "Risk Communication and Safe Food in Post-Fukushima Japan". Held at the Graduate School of Law at Tohoku University on February 7, 2018, this lecture offered new perspectives in social science research on the problem of food security and its related public discourses following the disaster at the Fukushima nuclear power plant in 2011.

The second main event of this project was a roundtable discussion on the theme of "Japan as 'Number Three?' : Revisiting Academic and Public Discourses on Japan's 'Lost Decades' ". Convened at the TOKYO ELECTRON House of Creativity on February 8, 2018, this roundtable featured prominent panelists from various social science backgrounds who offered insights into the "lost decades" crisis discourse and the dynamics of policy and institutional change in contemporary Japan.

Finally, the third event was a one-day workshop convened on February 9, 2018 devoted to the topic of "Political and Social Dynamics of Crisis and Innovation in Japan, Asia and the World". Ten Japan specialists from Europe and Japan engaged in discussions on the origins and effects of crisis narratives in contemporary Japan's social and economic politics, political institutions, and foreign relations.

Program Organizers

Sebastian Maslow (Project Assistant Professor, Graduate School of International Cooperation Studies, Kobe University)

Previously Assistant Professor at the Centre for East Asian Studies, University of Heidelberg; and Assistant Professor at the Graduate School of Law, Tohoku University, before joining Kobe University. His publications include the co-edited volume *Risk State: Japan's Foreign Policy in an Age of Uncertainty (Routledge, 2015).*

Christian Wirth (Research Fellow, GIGA German Institute of Global and Area Studies)

Christian Wirth obtained his Ph.D. at Waseda University's Graduate School of Asia-Pacific Studies. He was a post-doctoral research fellow at the Asia Institute at Griffith University, Visiting Associate Professor at the Graduate School of Law, Tohoku University, and lecturer at the Leiden University Institute for Area Studies, before joining GIGA in 2018. Dr. Wirth's publications include *Danger, Development and Legitimacy in East Asian Maritime Politics: Securing the Seas, Securing the State (Routledge, 2018).*

Paul O'Shea (Associate Senior Lecturer, Centre for East and South-East Asian Studies, Lund University)

Paul O'Shea received his Ph.D. from the School of East Asian Studies, University of Sheffield. He was post-doctoral research fellow at Stockholm School of Economics and Lund University, and Assistant Professor at the School of Culture and Society, Aarhus University before joining Lund University in 2016. His publications include the co-authored monograph *Regional Risk and Security in Japan: Whither the Everyday (Routledge, 2015).*

Ra Mason (Sasakawa Lecturer, School of Politics, Philosophy, Language and Communication Studies, University of East Anglia)

Ra Mason received his Ph.D. from the School of East Asian Studies, University of Sheffield. Before joining the University of East-Anglia in 2016, he was the senior lecturer at the University of Central Lancashire's program in Asia Pacific International Relations, JSPS Research Fellow at the University of the Ryukyus, and Lecturer at the International Graduate School of Accounting Policy, Tohoku University. His publications include *Japan's Relations with North Korea and the Recalibration of Risk (Routledge, 2014).*

Principle Invited Researchers

David Chiavacci
(University of Zurich, Switzerland)

Professor in Social Science of Japan at the Institute of Asian and Oriental Studies, University of Zurich. His research interests include immigration and immigration policy in Japan and social structures and social inequality in Japan.

David Leheny
(Waseda University, Japan)

Professor at the Graduate School of Asia-Pacific Studies, Waseda University. His research focuses on Japanese politics, East Asian security, culture and international relations.

Bryce Wakefield
(Leiden University, Netherlands)

Assistant Professor of international relations and area studies at the Leiden University. As an expert in international relations, he focuses on Japan's foreign and security policies.

Iris Wieczorek
(GIGA Institute of Asian Studies, Germany)

Senior Research Fellow at the GIGA Institute of Asian Studies. Her research focuses on innovation processes and networks in Japan's economy and science.

Specific Strategies for International Research Exchange

This project brought together experts on Japanese society, economics and politics from Europe and Japan. Thus, combining various analytical approaches and levels of analysis in discussion themes such as Japan's demographic decline, socio-economic disparity, economic reforms, civil society, populism, and Japan's national security, this project offered new perspectives on the formation of crisis narratives and their effects on institutional change. Building on the results of this international and inter-disciplinary research, we will further include case studies on policy change in Japan's higher education sector and ODA strategy, before re-convening for a second workshop held in Hamburg in October 2018. The final results of this international joint research project will be published in the form of an edited volume.

Strategies Following the Completion of the Program

The result of this international and interdisciplinary project will be published in the form of an edited volume by the end of FY2018. In order to allow for a smooth publication process with high-quality contributions, the organizers of this project have asked all participating project members to revise their papers based on the discussions at the Tohoku workshop. The revised papers will be presented at a second workshop to be held at the GIGA Institute of Asian Studies in Hamburg in October 2018. The second workshop will feature two additional case studies (education policy and ODA policy) as well as a contribution on theoretical debates on crisis narratives in social science research.


"language barriers"
This will bring the world closer, by exchanging expertise thro
everyday.
TOHOKU FORUM for CREATIVITY

Other Activities | August 3, 2017

Falling Walls Lab Sendai 2017

A presentation competition was held jointly with the Falling Walls foundation of Germany for junior researchers aged 18 or above on August 3, 2017. 2017 marked the fourth year of the preliminary competition, which was first held in the Asian region at Tohoku University, featuring participation by 26 individuals from Tohoku University and others. All contestants presented their cutting-edge research or business model in 3 minutes and the top three participants were awarded and dispatched to Berlin on November 8 to enter the final round.

The TFC conducted the coaching sessions for the applicants and the training sessions for the three winners in order to improve their presentation skills.

Other Activities | April 2017 – March 2018

Quattro Seminars

The TFC has regularly held a series of seminars, commonly known as the "Quattro Seminars", on the humanities and social sciences as part of the URA and Tohoku Forum for Creativity Collaboration Project, Tohoku University. The Quattro Seminars aim to deepen collaborations between the four schools of humanities at Tohoku University, to explore interdisciplinary research themes, and are opened widely to the public. The seminars were held 4 times in 2017. Totally we saw the participation of up to 300 researchers who were able to use the seminars as an opportunity to engage in vigorous discussion and strengthen their interpersonal connections.

*The term Quattro in the common name of the series stands for "4", representing the four faculties including the Faculty of Arts and Letters, the Faculty of Education, the School of Law, and the Faculty of Economics. The series is hosted through cooperation by the TFC and the URA center.

Other Activities | March 3 – 4, 2018

Discovery Event for Aspiring Female Scientists

The Discovery Event for Aspiring Female Scientists was held on March 3 and 4, 2018. As many as 15 female high school students actively participated in this event, which was aimed at female students who are interested in enrollment at the University. It consisted of lectures by talented female researchers in the fields of environmental sciences and ophthalmology as well as talks by young female scientists from Tohoku University, and it also included group discussions with others. The participants gained a valuable opportunity to talk with other female students from across Japan and also went on an observation at the medical laboratory provided by Prof. Noriko Osumi.

Other Activities | May 27 and August 19, 2017

Special Lectures

■ Prof. Ryuta Kawashima's TV Brain Training Seminar

The Tohoku Forum for Creativity held an outreach event on May 27, 2017.

Prof. Ryuta Kawashima, (Director of the Tohoku University Smart Aging International Research Center, Director of the Tohoku University Institute of Development, Aging and Cancer Research Laboratory) gave a lecture and then presented his popular "Dr. Ryuta Kawashima's TV Brain Training" as seen in lectures and on Sendai Television, providing participants an opportunity to learn about the proper approach to aging.

In the first portion of the seminar, Prof. Kawashima gave a lecture on smart aging, of which he is a leading advocate. In the second portion of the seminar, five panelists took questions from the audience and provided easy-to-understand explanations on the latest research and data. In the third and final portion of the seminar, Prof. Kawashima invited the audience to take the famous "Dr. Kawashima's Brain Training" challenge.

■ Special Lecture from the Nobel Laureate Prof. Takaaki Kajita

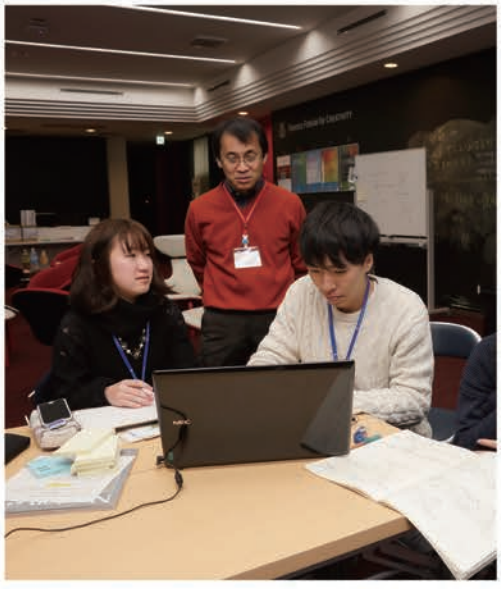
On Saturday, August 19, 2017, Tohoku University held a special lecture from the Nobel Laureate Prof. Takaaki Kajita.
At the symposium, prominent researchers gave lectures on the cutting-edge neutrino research, including Professor Takaaki Kajita, Director of the University of Tokyo Institute for Cosmic Ray Research and the 2015 Nobel Physics Prize winner for "the discovery of neutrino oscillations, which shows that neutrinos have mass", Professor Tsuyoshi Nakaya from Kyoto University's Faculty of Science, and Professor Kunio Inoue, Director of the Tohoku University Research Center for Neutrino Science.

A talk session was also held featuring the professors appearing in the symposium and high-school students. The symposium welcomed 700 attendees from Tohoku region and throughout Japan, making it a major success.

Other Activities | April 2017 – March 2018

Emerging Perspectives Program

The TFC has carried out the Emerging Perspectives Program since 2017 to provide the seeds for future Thematic and Junior Research Programs through seminar lectures by researchers in various research fields. In the 2017 academic year, the following research events were held: "Study Group in Mathematics and Industry 1", "Data and Intelligence", "Workshop on International Linear Collider (ILC) with us", "Fusion with Mathematical Neuroscience of Mutually Exclusive Control of a Distributed and a Central Nervous System", "Mathematics and Information Society", and "TFC Fusion Research Seminar #1 – #8".



Support for Young Researchers | March 2016 –

Leading Young Researcher Overseas Visit Program

This Program is one of the central pillars in transforming the research environment at this university, with support from the program for promoting the enhancement of research universities from the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2013, implemented by the Tohoku Forum for Creativity in cooperation with the University Research Administration Center, Tohoku University. The program deploys junior researchers (researchers and faculty under the age of 40, as well as graduate students in the second semester of their doctoral programs and postdoctoral fellows at our graduate schools) overseas to cultivate leadership and an international viewpoint. The strategic deployment of highly motivated, outstanding junior researchers to excellent universities and research organizations overseas helps those researchers develop into leaders in the international academic world, and helps create new currents of academic research. Through the program, we expect to strengthen the presence of our junior researchers, and of the university, by taking the opportunity to participate in new elite academic research communities and leveraging the research results and interpersonal networks thereof to achieve future leadership in the relevant domains. For this reason, we prioritize selectin of submissions from junior researchers that clearly state the positioning of this program in the formation of their careers and as strategy for improving this university's research capabilities. Normally, we support mid-term overseas studies of periods from six months to one year. The program of 2017 sent 10 junior researchers to overseas research organizations. Furthermore, presentations were held upon their return, and further follow up is provided to help cultivate those individuals as superb global leaders.

Pick Up!
Report 1

Visiting institute : University of California, Los Angeles (USA)

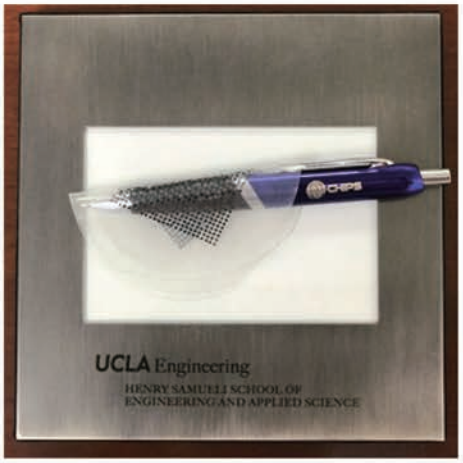
Research theme : A Study of Brain Computing System Based on High-Density 3D Interconnect Networking using Directed Self-Assembly

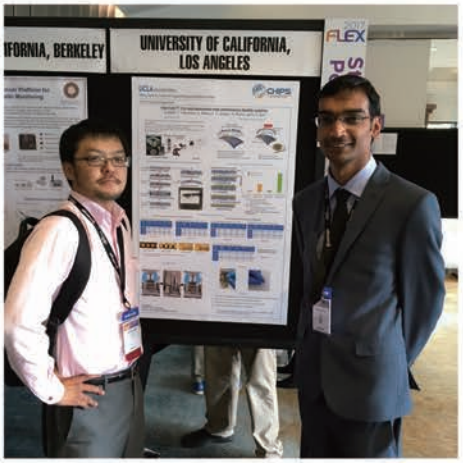
Visiting Period : March 3, 2016 – July 31, 2017

Visitor : Takafumi Fukushima (Associate Professor, School of Engineering, Tohoku University)

Project Outcome

Thanks to the Leading Young Researcher Overseas Visit Program 2015, I stayed as a visiting faculty at the Center for Heterogeneous Integration and Performance Scaling (CHIPS), which is a consortium created by Subramanian S. Iyer (nicknamed Subu), Distinguished Chancellor's Professor at the Electrical Engineering Department, UCLA, which is designated as a benchmark for Tohoku University. Around a year before my stay, Subu had returned to his alma mater UCLA from IBM to take up educational positions and conduct fundamental research on a new electronic system integration for future neuromorphic computing with artificial intelligence (AI). Subu possesses an extremely good-humored nature, and having found a kindred spirit, I was able to smoothly begin researching the new high-performance, scalable, and flexible system integration that I proposed. I learned from Subu how to integrate the neuromorphic circuits with electronic systems through devices from the hardware point of view, with an eye towards upcoming next-generation AI. Fortunately, with the addition of a first-year Ph.D. candidate and a postdoctoral researcher, our research progressed favorably. I was concerned about returning to Japan midway through the research, but thanks partly to a suggestion from Subu, I received permission from the head office of this program for a five-month extension, and over the 17-month stay I was already able to present the 10 joint research results at several international conferences.





Further Development and Networking

I was able to study not only materials and devices but also the advanced system integration needed to functionalize them effectively through optimal design/assembly. The research activity on highly-integrated flexible systems has grown in scale even in Subu's group. Upon returning to Japan I have been exploring the application research of our flexible systems while pursuing fundamental research to the level of material design. Even following my return here, we have been sharing our progress through weekly web meetings, and at the moment we are undertaking research focused on different applications. Around a year after I returned to Japan I was able to visit UCLA again in order to further deepen my understanding regarding the joint research going forward. In addition, I was also able to link up with joint research being conducted with two companies in the vicinity of Los Angeles. The fact that it has been possible to build positive relationships with them that will continue long term was the biggest outcome of this program. I hope to connect the system-oriented research that is unique to the U.S. with the research specific to materials and devices that are Japan's forte to do my original interdisciplinary research going forward.

Pick Up!
Report 2

Visiting institute : University of Chicago (USA)
Research theme : Exploring New Spin Defect Materials and Systems for Quantum Information Technologies

Visiting Period : March 17, 2017 – March 9, 2018
Visitor : Shun Kanai (Assistant Professor, Research Institute of Electrical Communication, Tohoku University)

Project Outcome

Professor David D. Awschalom, who accepted this visit to Chicago University, has studied the spin and optical natures of semiconductors for more than 30 years. For these 10 years, he has also worked on their applications for quantum memories using, for example, the nitrogen-vacancy (NV^-) center in diamond. In this visit, I studied the concept on the defect center in semiconductors condensed and enhanced by the members in his group. At UChicago/Argonne National Laboratory, which has a Joint Research Contract with Chicago University, I constructed the new confocal microscopy system, which enables standard characterization as well as manipulation of the NV^- center's spin state in diamond. As shown in Fig. 1, NV^- center-enriched diamond emits red light when green light is applied. I have constructed a fast scanning system to see the signal from the single NV^- center there, and obtained the photoluminescence signal with special resolution < 1 μm as shown in Fig. 2. Electron paramagnetic resonance and Rabi oscillation, which are basic means to manipulate the spins in defect center is realized by a time resolved photoluminescence system.

Now the natural materials with quantum spin coherence time (T_2) longer than 1 ms at room temperature are obtain by defects in diamond and SiC. I have calculated the T_2 of the various oxides and chalcogenides using Cluster Correlation Expansion for the first time in the world, and obtained T_2 = 58.0 (15.8) ms, which is 50 times larger than the longest T_2 ever observed. This work has clarified the possible long T_2 host materials, expanding the functionality of the defect center for quantum memory applications, which had previously been limited to diamond and SiC.

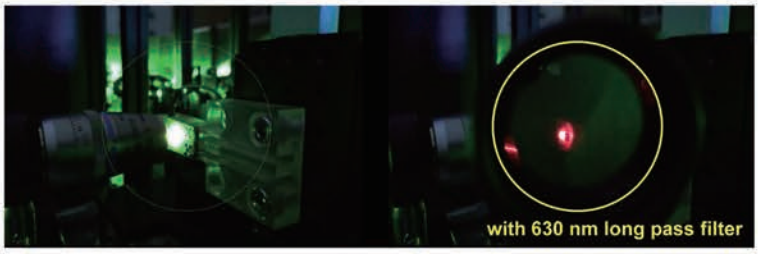


Figure 1: Photographs of the diamond sample under 532 nm Nd:YAG laser taken without (left) and with (right) 630 nm long pass filter (the filter which cuts light with wavelength shorter than 630 nm).

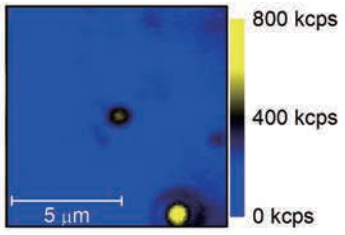


Figure 2: Two-dimensional photoluminescence (wavelength: 600–850 nm) image of diamond.

Further Development and Networking

In spintronics research, which combines the functionalities of spin and charge degrees of freedom of electrons, the materials on ferromagnet and defect center have been studied separately for different purposes because of the difference in their scale of spin network. In this visit, I have conducted the research on defect center; theory, and experiments from the basics to application. As I have studied the spintronics in ferromagnet in Japan for approximately 10 years, now I am focusing to develop the new research field which combines two spintronics materials with different spin scales to achieve new functionalities. We are planning to exchange staff and students between both sites. Through the daily discussion with researchers in the group as well as my own experience in the visit, I learned the differences of research environment; research style, funding system/amount, etc. The knowledge, personal connection, and research environment I got in this visit are my second foundation and will be my treasure for life. I intend to contribute to Tohoku University based on these experiences.

Information 2017

Invited Researchers List

Program Code: 2017ASC
Aging Science: from Molecules to Society

Kaoruko Aita (University of Tokyo)
Hiroyuki Arai (IDAC, Tohoku University)
Sarah J. Barber (San Francisco State University)
Keith Blackwell (Joslin Diabetes Center and Harvard Medical School)
Vilhelm A. Bohr (National Institute of Aging, NIH)
Laurie T. Butler (University of Reading)
Judith Campisi (Buck Institute for Research on Aging)
Liang-Kung Chen (Taipei Veterans General Hospital)
Jean-Francois Deleuze (CEA)
John Gallacher (University of Oxford)
Eiji Hara (Osaka University)
Mariko Hasegawa (Graduate University for Advanced Studies)
Jan Hoeijmakers (Erasmus MC Rotterdam)
Hisanori Horiuchi (IDAC, Tohoku University)
Shin-ichiro Imai (Washington University School of Medicine)
Fuyuki Ishikawa (Kyoto University)
Noora Jansson (OuluHealth Ecosystem)
Hiroshi Kabashima (Tohoku University)
Stuart Kandell (University of California, Berkeley)
Hideki Katagiri (Tohoku University)
Kengo Kinoshita (Tohoku University)
Hiroshi Kito (University of Shizuoka)
Arthur F. Kramer (Northeastern University)
Tapas K. Kundu (Jawaharlal Nehru Centre for Advanced Scientific Research)
Elsa Logarinho (University of Porto)
Yasuhisa Matsui (IDAC, Tohoku University)
Tom Misteli (National Cancer Institute, NIH)
Hiroyuki Murata (Smart Aging Research Center, Tohoku University)
Yo-ichi Nabeshima (Foundation for Biomedical Research and Innovation)
Akinori Nakamura (National Center for Geriatrics and Gerontology)
Makoto Nakanishi (University of Tokyo)
Masashi Narita (University of Cambridge)
Toshiharu Ninomiya (Kyushu University)
Emi Nishimura (Tokyo Medical and Dental University)
Toshihiko Ogura (IDAC, Tohoku University)
Takaomi C. Saido (RIKEN Brain Science Institute)
Yasufumi Sato (IDAC, Tohoku University)
Luis J. Sigal (Thomas Jefferson University)
Takao Suzuki (J. F. Oberlin University)
Toshiyuki Takai (IDAC, Tohoku University)
Keiyo Takubo (Research Institute, National Center for Global Health and Medicine)
Yozo Taniyama (Tohoku University)
Taisuke Tomita (University of Tokyo)
Takako Uchida (BusinessOulu)
Takashi Uozumi (Open University of Japan)
Jan M. van Deursen (Mayo Clinic)
Joe Verghese (Albert-Einstein College of Medicine)
Amy Wagers (Joslin Diabetes Center and Harvard Medical School)
Masayuki Yamamoto (Tohoku University)
Akira Yasui (IDAC, Tohoku University)

Program Code: 2017PDE
Nonlinear Partial Differential Equations for Future Applications

Ken Abe (Osaka City University)
Diego Berti (Università di Firenze)
Neal Bez (Saitama University)
Tatiana Bubba (University of Helsinki)
Lorenzo Cavallina (Tohoku University)
Fernando Charro (University of Coimbra)
Noboru Chikami (Tohoku University)
Robert Denk (University of Konstanz)
Yasuhiro Fujita (University of Toyama)
Yasuhide Fukumoto (Kyushu University)
Masaru Furukawa (Tottori University)
Giulio Galise (Sapienza University of Rome)
Wilfrid Gangbo (UCLA)
Nao Hamamuki (Hokkaido University)
Yuji Hattori (Tohoku University)
Kunio Hidano (Mie University)
Makoto Hirota (Tohoku University)
Naoyuki Ichihara (Aoyama Gakuin University)
Masaru Ikehata (Hiroshima University)
Hiromichi Itou (Tokyo University of Science)
Yong-Gwan Ji (Inha University)
Yoshiyuki Kagei (Kyushu University)
Hidehiro Kaise (Osaka University)
Toru Kan (Tokyo Institute of Technology)
Dmitry Kolomenskiy (JAMSTEC)
Momoji Kubo (Tohoku University)
Ruo Li (Peking University)
Xiaofei Li (Inha University)
Qing Liu (Fukuoka University)
Minh Mach (University of Helsinki)
Shuji Machihara (Saitama University)
Rolando Magnanini (Università di Firenze)
Kaoru Maruta (Tohoku University)
Satoshi Masaki (Osaka University)
Alpár Richárd Mészáros (UCLA)
Hiroyoshi Mitake (Hiroshima University)
Haruya Mizutani (Osaka University)
Chenchen Mou (UCLA)
Tokinaga Namba (University of Tokyo)
Hiroshi Ohtsuka (Kanazawa University)
Keiji Onishi (RIKEN AICS)
Jinhae Park (Chungnam National University)
Daniel Peralta-Salas (Instituto de Ciencias Matemáticas)
Goran Peskir (University of Manchester)
Zenith Purisha (University of Helsinki)
Michael Ruzicka (University of Freiburg)
Jun-ichi Segata (Tohoku University)
Thomas C. Sideris (University of California, Santa Barbara)
Samuli Siltanen (University of Helsinki)
Yusuke Sugiyama (Tokyo University of Science)
Hiroshi Suito (Tohoku University)
Zhiyuan Sun (Peking University)
Andrzej Święch (Georgia Institute of Technology)
Keisuke Takasao (University of Tokyo)
Janne Tamminen (University of Helsinki)
Yoshihiro Tonegawa (Tokyo Institute of Technology)
Kazuyuki Tsuda (Osaka University)
Kimitoshi Tsutaya (Hirosaki University)
Seiichi Udagawa (Nihon University)
Kota Uriya (Okayama University of Science)
Nicola Visciglia (University of Pisa)
David Wegmann (TU Darmstadt)

Program Code: 2017AGR
New Horizons in Food Science via Agricultural Immunology

Ardiansyah (Universitas Bakrie)
Hideo Aizaki (Hokkaido University)
Fuller W. Bazer (Texas A&M University)
Sylvia Brugman (Wageningen University)
Vincenzina Caputo (Michigan State University)
Masaru Enomoto (CFAI, Tohoku University)

Susan M. Gasser (FMI)
Masahiko Harata (CFAI, Tohoku University)
Ikuo Hirono (Tokyo University of Marine Science and Technology)
Miki Igarashi (IMS, RIKEN)
Wakako Ikeda-Ohtsubo (CFAI, Tohoku University)
Ken Ishii (National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN))
Junya Ito (Tohoku University)
Yukihiro Ito (CFAI, Tohoku University)
Naoki Itoh (University of Tokyo)
Islam Jahidul (CFAI, Tohoku University)
Hong-Gu Kang (Texas State University)
Hisanori Kato (The University of Tokyo)
AKM Humayun Kober (CFAI, Tohoku University)
Tatsuyoshi Kono (Indiana University)
Richard Kormelink (Wageningen University)
Yasuyuki Kubo (Kyoto Prefectural University)
Jun Kunisawa (National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN))
Eric S. Loker (University of New Mexico)
Shuhei Miyashita (CFAI, Tohoku University)
Rodolfo M. Nayga, Jr. (University of Arkansas)
Kanae Niimi (CFAI, Tohoku University)
Kaori Nishide (TNO Food & Nutrition Japan)
Masumi Niwa (Designer Foods)
Kousaku Ohinata (Kyoto University)
Shun Onodera (CFAI, Tohoku University)
Yurika Otoki (Tohoku University)
Corne Pieterse (Utrecht University)
Jean-Marc Reichhart (University of Strasbourg)
Yukiyo Sato (CFAI, Tohoku University)
Hiroshi Shima (Miyagi Cancer Center)
Kenji Shimada (FMI)
Takahiro Shintani (CFAI, Tohoku University)
Hitoshi Shirakawa (CFAI, Tohoku University)
Masashi Tachikawa (Nagoya University)
Hideki Takahashi (CFAI, Tohoku University)
Keisuke Takahashi (CFAI, Tohoku University)
Ainan Tian (CFAI, Tohoku University)
Nancy D. Turner (Texas A&M University)
Kiyokazu Ujiie (University of Tsukuba)
Willem van Eden (Utrecht University)
Julio Cesar Villena (CERELA-CONICET)
Hiroki Wakamatsu (National Research Institute of Fisheries Science)
Kouichi Watanabe (CFAI, Tohoku University)
Geert Wiegertjes (Wageningen University)
Mitsuhiro Yanagida (OIST)
Shun Yosano (CFAI, Tohoku University)
Ken-ichi Yoshioka (National Cancer Center Research Institute)

Program Code: 2017NMM
Nanostructured Magnetic Materials: Challenges for Next-Generation Materials

Hirotoshi Fukunaga (Nagasaki University)
Satoshi Hirosawa (NIMS)
J. Ping Liu (University of Texas at Arlington)
Masaki Nakano (Nagasaki University)
Kanta Ono (KEK)
Thomas Schrefl (Danube University Krems)
Masaaki Takezawa (Kyushu Institute of Technology)
Tetsuo Uchikoshi (NIMS)
Shinpei Yamamoto (AIST)
Takeshi Yanai (Nagasaki University)

Program Code: 2017DCI
Political and Social Dynamics of Crisis and Innovation in Japan, Asia and the World

David Chiavacci (University of Zurich)
Koichi Hasegawa (Tohoku University)
David Leheny (Waseda University)
Hiroko Takeda (Nagoya University)
Bryce Wakefield (Leiden University)
Iris Wieczorek (GIGA Institute of Asian Studies)

Program Code: 2017EPP **Emerging Perspectives Program**

Hirokazu Anai (Fujitsu Laboratories / Kyushu University)
Koji Fujiwara (Kyoto University)
Kazutoshi Inoue (Tohoku University)
Akio Ishiguro (Tohoku University)
Kenichi Kubota (JAXA)
Shogo Kumagai (Tohoku University)
Shuhei Miyashita (Tohoku University)
Hiroaki Muraoka (RIEC, Tohoku University / Advanced Institute for Yotta Informatics)
Hajime Mushiake (Tohoku University)
Toshio Nemoto (Bunkyo University)
Takayuki Okatani (Tohoku University)
Tomoyuki Sanuki (Tohoku University)
Eijiro Sumii (Tohoku University)
Anna Suzuki (Tohoku University)
Atsuto Suzuki (Iwate Prefectural University)
Ton Viet Ta (Kyushu University)
Tasuku Tamai (The University of Tokyo)
Kohei Tamura (Tohoku University)
Ichiro Tsuda (Chubu University)
Naonori Ueda (RIKEN Center for Advanced Intelligence Project)
Takeo Uramoto (Tohoku University)
Sumio Watanabe (Tokyo Institute of Technology)
Satoshi Yamaguchi (Osaka University)
Masakazu Yoshioka (Tohoku University, Iwate University, OIST)

Program Code: 2017OA **Other Activities**

Yuko Harayama (Technology and Innovation Council for Science, Technology and Innovation)
Ichiro Hasuo (National Institute of Informatics)
Maryamsadat Hosseini (Tohoku University)
Keita Iida (Tohoku University)
Kunio Inoue (Tohoku University)
Shizuo Kaji (Yamaguchi University, PRESTO)
Takaaki Kajita (University of Tokyo)
Naoyuki Kamiyama (Kyushu University, PRESTO)
Fumihiro Katakura (TOKIN Corporation)
Hiroshi Kokubu (Kyoto University)
Marty Kuehnert (Tohoku University)
Reiko Kuroda (Tokyo University of Science)
Yuko Murakami (Tohoku University)
Tsuyoshi Nakaya (Kyoto University)
Takaaki Nara (The University of Tokyo, PRESTO)
Yasumasa Nishiura (Tohoku University)
Masao Ogaki (Keio University)
Fumio Ohuchi (Department of Materials Science and Engineering, University of Washington)
Matthieu PY (EURAXESS Japan)
Takamitsu Sawa (Shiga University)
Etsuo Segawa (Tohoku University)
Hiromi Seno (Tohoku University)
Tsuyoshi Takagi (The University of Tokyo)
Fuyuhiko Tanaka (Osaka University)
Jun-nosuke Teramae (Osaka University)

Thematic Program 2017 | Program Code: 2017ASC

Aging Science: from Molecules to Society

[Event] International Symposia: Aging Biology: Understanding Aging on a Molecular Level

■ Date: Wednesday, May 10, 2017 – Friday, May 12, 2017

■ Venue: International Conference Room
Smart Aging International Research Center, Institute of Development, Aging and Cancer, Seiryo Campus, Tohoku University

■ Speakers

- Keith Blackwell (Joslin Diabetes Center and Harvard Medical School)
- Vilhelm A. Bohr (National Institute of Aging, NIH)
- Judith Campisi (Buck Institute for Research on Aging)
- Eiji Hara (Osaka University)
- Jan Hoeijmakers (Erasmus MC Rotterdam)
- Hisanori Horiuchi (IDAC, Tohoku University)
- Shin-ichiro Imai (Washington University School of Medicine)
- Fuyuki Ishikawa (Kyoto University)
- Hideki Katagiri (Tohoku University)
- Elsa Logarinho (University of Porto)
- Yasuhisa Matsui (IDAC, Tohoku University)
- Tom Misteli (National Cancer Institute, NIH)
- Hozumi Motohashi (IDAC, Tohoku University)
- Yo-ichi Nabeshima (Foundation for Biomedical Research and Innovation)
- Makoto Nakanishi (University of Tokyo)
- Masashi Narita (University of Cambridge)
- Emi Nishimura (Tokyo Medical and Dental University)
- Toshihiko Ogura (IDAC, Tohoku University)
- Yasufumi Sato (IDAC, Tohoku University)
- Luis J. Sigal (Thomas Jefferson University)
- Toshiyuki Takai (IDAC, Tohoku University)
- Keiyo Takubo (Research Institute, National Center for Global Health and Medicine)
- Kozo Tanaka (IDAC, Tohoku University)
- Jan M. van Deursen (Mayo Clinic)
- Amy Wagers (Joslin Diabetes Center and Harvard Medical School)
- Akira Yasui (IDAC, Tohoku University)

■ Participants: 173

■ Time Schedule

Wednesday, May 10, 2017

Stress response and genome integrity

08:50 – 09:00 **Opening**
Sadayoshi Ito (Director of TFC, Tohoku University)
Kozo Tanaka (IDAC, Tohoku University)

[Session 1: Mechanisms of Aging]
Chair: Kozo Tanaka (IDAC, Tohoku University)

09:00 – 09:40 Yo-ichi Nabeshima (Foundation for Biomedical Research and Innovation)
Alpha-Klotho in health and diseases

09:40 – 10:20 Tom Misteli (National Cancer Institute, NIH)
Nuclear architecture and aging

10:20 – 10:40 Coffee Break

[Session 2: Stress Response and Aging]
Chair: Yasufumi Sato (IDAC, Tohoku University)

10:40 – 11:20 Hozumi Motohashi (IDAC, Tohoku University)
Regulation of NRF2 activity for anti-inflammation and stem cell Maintenance

11:20 – 12:00 Keith Blackwell (Joslin Diabetes Center and Harvard Medical School)
Two faces of C. elegans SKN-1 and what they tell us about Nrf1 and Nrf2

12:00 – 14:00 Lunch

[Session 3: Interventions in Aging]
Chair: Hozumi Motohashi (IDAC, Tohoku University)

14:00 – 14:40 Shin-ichiro Imai (Washington University School of Medicine)
Achieving Productive Aging: The Systemic Regulatory Mechanism of Mammalian Aging and Longevity and Anti-Aging Intervention

14:40 – 15:20 Masashi Narita (University of Cambridge)
Cell-cell communication in senescence

15:20 – 16:00 Jan M. van Deursen (Mayo Clinic)
Delaying Aging and Disease by Senolysis

16:00 – 16:20 Coffee Break

[Session 4: Genomic Instability in Aging]
Chair: Natsuko Chiba (IDAC, Tohoku University)

16:20 – 17:00 Akira Yasui (IDAC, Tohoku University)
Chromatin remodeling, DNA repair and transcriptional regulation in cancer and cellular aging

17:00 – 17:40 Vilhelm A. Bohr (National Institute of Aging, NIH)
DNA damage, neurodegeneration and mitochondrial dysfunction

17:40 – 18:20 Jan Hoeijmakers (Erasmus MC Rotterdam)
DNA damage, impact on aging, neurodegeneration and the effect of nutritional interventions

Thursday, May 11, 2017

Cell senescence and aging process of tissues

[Session 5: Cellular Senescence (1)]
Chair: Hideki Katagiri (Tohoku University)

09:00 – 09:40 Makoto Nakanishi (University of Tokyo)
Mechanisms of senescence induction and maintenance and their role in aging

09:40 – 10:20 Fuyuki Ishikawa (Kyoto University)
Cellular senescence in Post-mitotic cells

10:20 – 10:40 Coffee Break

[Session 6: Cellular Senescence (2)]
Chair: Toshihiko Ogura (IDAC, Tohoku University)

10:40 – 11:20 Eiji Hara (Osaka University)
The roles and mechanisms of cellular senescence in aging and cancer

11:20 – 12:00 Judith Campisi (Buck Institute for Research on Aging)
Cellular senescence and aging phenotypes: Yin and yang

[Lunch & Poster Viewing]

12:00 – Travel cost reimbursement time only for overseas speakers

12:00 – 13:00 Discussion with poster presentators

13:00 – Tour to ToMMo for domestic speakers

14:00 – Tour to ToMMo for overseas speakers

[Session 7: Stem Cells and Aging]
Chair: Yasuhisa Matsui (IDAC, Tohoku University)

15:00 – 15:40 Emi Nishimura (Tokyo Medical and Dental University)
Stem cell aging: The core to orchestrates tissue aging

15:40 – 16:20 Keiyo Takubo (Research Institute, National Center for Global Health and Medicine)
Transcriptional program for hematopoietic stem cell aging

16:20 – 17:00 Amy Wagers (Joslin Diabetes Center and Harvard Medical School)
Local and systemic regulators of aging muscle stem cells

17:00 – 17:20 Coffee Break

[Session 8: Immune System and Aging]
Chair: Koetsu Ogasawara (IDAC, Tohoku University)

17:20 – 18:00 Toshiyuki Takai (IDAC, Tohoku University)
Immunoreceptors Regulating Autoantibody Production in Ageing

18:00 – 18:40 Luis J. Sigal (Thomas Jefferson University)
NK cells in Aging

18:50 – Group Photo

Friday, May 12, 2017

[Session 9: Chromosomal Changes in Aging]
Chair: Hisanori Horiuchi (IDAC, Tohoku University)

09:00 – 09:40 Kozo Tanaka (IDAC, Tohoku University)
Chromosomal instability in aging and cancer

09:40 – 10:20 Elsa Logarinho (University of Porto)
Getting older from an old mitosis

10:20 – 10:40 Coffee Break

[Session 10: Organismal Aging]
Chair: Toshiyuki Takai (IDAC, Tohoku University)

10:40 – 11:20 Yasufumi Sato (IDAC, Tohoku University)
Novel link between the regulation of angiogenesis and healthy longevity

11:20 – 12:00 Hisanori Horiuchi (IDAC, Tohoku University)
A novel functional mechanism of metformin, a hypoglycemic drug with life-span extension potential

12:15 – 13:45 Lunch & Meet The Experts

[Session 11: Aging-related Disorders]
Chair: Akira Yasui (IDAC, Tohoku University)

14:00 – 14:40 Yasuhisa Matsui (IDAC, Tohoku University)
Molecular bases of germ cell properties ensuring continuity of lives

14:40 – 15:20 Toshihiko Ogura (IDAC, Tohoku University)
A possibility of aging control – an approach from mechanobiology
15:20 – 16:00 Hideki Katagiri (Tohoku University)
Neuronal Information Highways for Systemic Regulation of Glucose and Energy Metabolism
16:00 – **Closing**
Koetsu Ogasawara (IDAC, Tohoku University)

[Event] International Symposia: Bioinformatics & Preventive Medicine: The use of advanced cutting-edge Bioinformatics & Preventive Medicine for Alzheimer's Disease

■ Date: Thursday, May 18, 2017 – Friday, May 19, 2017
■ Venue: International Conference Room
Smart Aging International Research Center, Institute of Development, Aging and Cancer, Seiryo Campus, Tohoku University
■ Speakers
- Hiroyuki Arai (IDAC, Tohoku University)
- Jean-Francois Deleuze (CEA)
- John Gallacher (University of Oxford)
- Kengo Kinoshita (Tohoku University)
- Tapas K. Kundu (Jawaharlal Nehru Centre for Advanced Scientific Research)
- Akinori Nakamura (National Center for Geriatrics and Gerontology)
- Toshiharu Ninomiya (Kyushu University)
- Takaomi C. Saido (RIKEN Brain Science Institute)
- Yasuyuki Taki (IDAC, Tohoku University)
- Taisuke Tomita (University of Tokyo)
- Masayuki Yamamoto (Tohoku University)

■ Participants: 113
■ Time Schedule
Thursday, May 18, 2017
Bioinformatics and Preventive Medicine
13:30 – 13:40 **Opening**
Sadayoshi Ito (Director of TFC, Tohoku University)
Ryuta Kawashima (Main Organizer, IDAC, Tohoku University)
Hozumi Motohashi (Organizer, IDAC, Tohoku University)
[Session 1: Human Cohort and Omics Approach (1)]
Chair: Chikashi Ishioka (IDAC, Tohoku University)
13:40 – 14:20 Masayuki Yamamoto (Tohoku University)
Tohoku Medical Megabank Project A National Challenge to Realize Personalized Medicine
14:20 – 15:00 Kengo Kinoshita (Tohoku University)
Genome and Omics Analyses in the Tohoku Medical Megabank Project
15:00 – 15:40 Jean-Francois Deleuze (CEA)
Genomics medicine in France, from research to the clinic
15:40 – 16:00 Coffee Break
[Session 2: Basic Science Tackling Alzheimer's Disease]
Chair: Yasuyuki Taki (IDAC, Tohoku University)
16:00 – 16:40 Taisuke Tomita (University of Tokyo)
Aberrant proteolytic processing and therapeutic strategies in Alzheimer disease
16:40 – 17:20 Takaomi C. Saido (RIKEN Brain Science Institute)
Identification and characterization of Aβ pathology-dependent tau-binding proteins using single App knock-in mice
18:00 – Dinner (only for speakers)
Friday, May 19, 2017
Prevention and diagnosis of Alzheimer's disease
[Session 3: Human Cohort and Omics Approach (2)]
Chair: Hozumi Motohashi (IDAC, Tohoku University)
09:00 – 09:40 Tapas K. Kundu (Jawaharlal Nehru Centre for Advanced Scientific Research)
Alteration of epigenetic state by small molecule modulators of histone acetyltransferases: Implications in therapeutics
09:40 – 10:20 John Gallacher (University of Oxford)
The Dementias Platform UK and the detection of dementia
[Lunch & Poster Viewing]
10:30 – 12:00 Tour to ToMMo for invited speakers
12:00 – Travel cost reimbursement time only for overseas speakers
12:00 – 13:00 Discussion with poster presentators
[Session 4: Prevention and Early Diagnosis of AD (1)]
Chair: Hiroyuki Arai (IDAC, Tohoku University)
13:20 – 14:00 Akinori Nakamura (National Center for Geriatrics and Gerontology)
Electrophysiological biomarkers for early stages of the Alzheimer's Disease continuum
14:00 – 14:40 Toshiharu Ninomiya (Kyushu University)
Prevension of dementia using database of Hisayama study
14:50 – 16:20 Meet the Expert
[Session 5: Prevention and Early Diagnosis of AD (2)]
Chair: Hiroyuki Arai (IDAC, Tohoku University)
16:30 – 17:10 Hiroyuki Arai (IDAC, Tohoku University)
Developing reliable biomarker toward prevention and preemptive therapy of Alzheimer's disease and dementia
17:10 – 17:50 Yasuyuki Taki (IDAC, Tohoku University)
Brain aging using large brain MRI database
18:00 – **Closing**
Yasuyuki Taki (IDAC, Tohoku University)
18:15 – Group Photo

[Event] International Symposia: Smart Aging: A shift from the traditional concept of Gerontology to modern Aging Science

■ Date: Wednesday, May 24, 2017 – Friday, May 26, 2017
■ Venue: International Conference Room
Smart Aging International Research Center, Institute of Development, Aging and Cancer, Seiryo Campus, Tohoku University
■ Speakers
- Kaoruko Aita (University of Tokyo)
- Sarah J. Barber (San Francisco State University)
- Laurie T. Butler (University of Reading)
- Liang-Kung Chen (Taipei Veterans General Hospital)
- Mariko Hasegawa (Graduate University for Advanced Studies)
- Noora Jansson (OuluHealth Ecosystem)
- Hiroshi Kabashima (Tohoku University)
- Stuart Kandell (University of California, Berkeley)
- Hiroshi Kito (University of Shizuoka)
- Arthur F. Kramer (Northeastern University)
- Hiroyuki Murata (Smart Aging Research Center, Tohoku University)
- Motoaki Sugiura (IDAC, Tohoku University)
- Takao Suzuki (J. F. Oberlin University)
- Yozo Taniyama (Tohoku University)
- Takashi Uozumi (Open University of Japan)
- Joe Verghese (Albert-Einstein College of Medicine)

■ Participants: 116
■ Time Schedule
Wednesday, May 24, 2017
Thanatology in Aging Society
09:15 – 09:30 **Opening**
Sadayoshi Ito (Director of TFC, Tohoku University)
Ryuta Kawashima (Main Organizer, IDAC, Tohoku University)
Motoaki Sugiura (Organizer, IDAC, Tohoku University)
[Session 1: Thanatological Perspectives in Aged Society]
Chair: Stuart Kandell (University of California, Berkeley)
09:30 – 10:30 Mariko Hasegawa (Graduate University for Advanced Studies)
Human life history and the function of aged people from the perspective of evolutionary biology
10:30 – 11:30 Hiroshi Kito (University of Shizuoka)
Aging in History: a Journey to Aged Society
11:30 – 13:30 Lunch & Meet the Expert (1)
[Session 2: Thanatological Practice in Aged Society]
Chair: Arthur F. Kramer (Northeastern University)
13:30 – 14:30 Takashi Uozumi (Open University of Japan)
The Japanese Perspective on Life and Death – with MATSUO Basho as an Indication

14:30 – 15:30 Sarah J. Barber (San Francisco State University)
Intervening to eliminate the negative effects of stereotype threat on older adults' memory performance
15:30 – 16:00 Coffee Break & Poster Viewing
16:00 – 17:00 Kaoruko Aita (University of Tokyo)
End-of-life care for the aged in Japan: artificial hydration and nutrition
17:00 – 18:00 Yozo Taniyama (Tohoku University)
Interfaith Chaplaincy Movement in Japan After the Tsunami
19:00 – Dinner (only for speakers)

Thursday, May 25, 2017
Interventions for Elderly
[Session 3: Physiological Interventions for Elderly]
Chair: Tomoyuki Yambe (IDAC, Tohoku University)
08:45 – 09:45 Takao Suzuki (J. F. Oberlin University)
Prevention of Long-term Care State among the Community Elderly in Japan
09:45 – 10:45 Liang-Kung Chen (Taipei Veterans General Hospital)
Frailty: the Common Pathway of Advanced Aging
10:45 – 11:00 Coffee Break
11:00 – 12:00 Laurie T. Butler (University of Reading)
The role of nutrition in slowing cognitive decline in older adults
12:00 – 14:00 Lunch & Meet the Expert (2)
[Session 4: Social-Cognitive Interventions for Elderly]
Chair: Sarah J. Barber (San Francisco State University)
14:00 – 15:00 Joe Verghese (Albert-Einstein College of Medicine)
Prevention of dementia: lifestyle factors
15:00 – 16:00 Arthur F. Kramer (Northeastern University)
Walking Towards a Healtheir Brain & Mind
16:00 – 16:30 Coffee Break & Poster Viewing
Travel cost reimbursement time only for overseas speakers
16:30 – 17:30 Motoaki Sugiura (IDAC, Tohoku University)
Towards the adaptation model of the smart-aging intervention: functional neuroimaging of normal aging and three-layered associative model of the self
17:30 – 18:30 Stuart Kandell (University of California, Berkeley)
Impact of Creative Aging on health, well being and social connection
18:50 – Group Photo

Friday, May 26, 2017
Social Systems for Smart Aging
[Session 5: Social Systems for Smart Aging]
Chair: Joe Verghese (Albert-Einstein College of Medicine)
08:45 – 09:45 Hiroshi Kabashima (Tohoku University)
Imagining a Smart Aging Society from a Legal and Political Perspective – in view to insurance system –
09:45 – 10:45 Hiroyuki Murata (Smart Aging Research Center, Tohoku University)
Turn super-aged society info business: bridging research and market
10:45 – 11:00 Coffee Break
11:00 – 12:00 Noora Jansson (OuluHealth Ecosystem)
Ecosystem perspective to healthcare innovation – Learnings from Northern Finland
12:00 – **Closing**
Motoaki Sugiura (IDAC, Tohoku University)

[Event] Outreach for the Public

■ Date: Saturday, May 27, 2017
■ Venue: Sendai Denryoku Hall
■ Speaker
・Ryuta Kawashima (Director, IDAC, Tohoku University)
■ Participants: 904
■ Time Schedule *The Public talk was given in Japanese.
Part 1: Keynote Lecture
「なぜ、今スマート・エイジングなのか？」
Speaker: Ryuta Kawashima (Director, IDAC, Tohoku University)
Part 2: Panel Discussion
「スマート・エイジング」ディスカッション
Chair: Ryuta Kawashima (Director, IDAC, Tohoku University)
Panelists:
・Koetsu Ogasawara (IDAC, Tohoku University)
・Hiroyuki Arai (IDAC, Tohoku University)
・Hiroshi Yoshida (Graduate School of Economics, Tohoku University)
・Akira Sato (Shiogama Mayor)
・Shinji Ito (Kumon Learning Therapy Center)
Part 3: Challenge
「川島隆太教授のテレビいきいき脳体操」 脳と体のトレーニング体験場

Thematic Program 2017 | Program Code: 2017PDE

Nonlinear Partial Differential Equations for Future Applications

[Event] Evolution Eq. and Mathematical Fluid Dynamics

■ Date: Monday, July 10, 2017 – Friday, July 14, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Special lecturers
・Robert Denk (University of Konstanz)
・Michael Ruzicka (University of Freiburg)
■ Lecturers
・Ken Abe (Osaka City University)
・Yasuhide Fukumoto (Kyushu University)
・Masaru Furukawa (Tottori University)
・Yuji Hattori (Tohoku University)
・Makoto Hirota (Tohoku University)
・Dmitry Kolomenskiy (JAMSTEC)
・Keiji Onishi (RIKEN AICS)
・Hiroshi Suito (Tohoku University)
・David Wegmann (TU Darmstadt)
■ Participants: 67
■ Time Schedule
Monday, July 10, 2017
18:30 – 20:30 Reception
Tuesday, July 11, 2017
09:50 – 10:00 **Opening**
10:00 – 11:30 Robert Denk (University of Konstanz)
Maximal regularity for parabolic evolution equations Lecture 1: Lp-Sobolev spaces and maximal regularity
13:30 – 15:00 Michael Ruzicka (University of Freiburg)
Theoretical and numerical analysis of generalized Newtonian fluids I
15:30 – 16:20 David Wegmann (TU Darmstadt)
Existence of strong solutions and decay of turbulent solutions of Navier-Stokes flow with nonzero Dirichlet boundary data
Wednesday, July 12, 2017
10:00 – 11:30 Robert Denk (University of Konstanz)
Maximal regularity for parabolic evolution equations Lecture 2: The concept of R-boundedness and the theorem of Mikhlin
[Special Session of CFD and Plasma Physics]
13:00 – 13:40 Masaru Furukawa (Tottori University)
A new method for 3D MHD equilibrium calculation via Hamiltonian field theory
13:50 – 14:15 Makoto Hirota (Tohoku University)
Magnetohydrodynamic relaxation process sustained by AC magnetic helicity
14:15 – 14:40 Yasuhide Fukumoto (Kyushu University)
Gyroscopic analogy of a rotating stratified flow confined in a spheroid and its implication to stability
15:00 – 15:40 Dmitry Kolomenskiy (JAMSTEC)
Spectral method with volume penalization for numerical simulation of flapping flight of insects

15:50 – 16:15 Keiji Onishi (RIKEN AICS)
Immersed Boundary Method considering the handling of 'dirty' CAD data
16:15 – 16:40 Hiroshi Suito (Tohoku University)
Application of immersed boundary method to environmental and biomedical problems
16:40 – 17:05 Yuji Hattori (Tohoku University)
Corrected volume penalization method for direct numerical simulation of compressible flow and aeroacoustic sound
18:00 – 20:00 Banquet

Thursday, July 13, 2017
10:00 – 11:30 Robert Denk (University of Konstanz)
Maximal regularity for parabolic evolution equations Lecture 3: Maximal regularity for linear parabolic boundary value problems
13:30 – 15:00 Michael Ruzicka (University of Freiburg)
Theoretical and numerical analysis of generalized Newtonian fluids II
15:30 – 16:20 Ken Abe (Osaka City University)
Global well-posedness of the two-dimensional exterior Navier-Stokes equations for non-decaying data

Friday, July 14, 2017
09:30 – 11:00 Robert Denk (University of Konstanz)
Maximal regularity for parabolic evolution equations Lecture 4: Quasilinear parabolic evolution equations
11:20 – 12:50 Michael Ruzicka (University of Freiburg)
Theoretical and numerical analysis of generalized Newtonian fluids III
12:50 – 13:00 **Closing**

[Event] Optimal Control and PDE

■ Date: Monday, July 17, 2017 – Friday, July 21, 2017
■ Venue: Kawai Hall, Aobayama Campus, Tohoku University
■ Special lecturers
- Andrzej Święch (Georgia Institute of Technology)
- Wilfrid Gangbo (UCLA)
- Goran Peskir (University of Manchester)

■ Lecturers
- Yasuhiro Fujita (University of Toyama)
- Giulio Galise (Sapienza University of Rome)
- Nao Hamamuki (Hokkaido University)
- Naoyuki Ichihara (Aoyama Gakuin University)
- Hidehiro Kaise (Osaka University)
- Momoji Kubo (Tohoku University)
- Qing Liu (Fukuoka University)
- Alpár Richárd Mészáros (UCLA)
- Hiroyoshi Mitake (Hiroshima University)
- Chenchen Mou (UCLA)
- Tokinaga Namba (University of Tokyo)
- Keisuke Takasao (University of Tokyo)

■ Participants: 67
■ Time Schedule

Monday, July 17, 2017
13:30 – 14:30 Wilfrid Gangbo (UCLA)
On a Mean Field Game equation I
14:50 – 15:50 Andrzej Święch (Georgia Institute of Technology)
HJB equations, dynamic programming principle and stochastic optimal control I
16:10 – 17:10 Goran Peskir (University of Manchester)
Nonlinear problems of optimal mean-variance trading strategies I
18:00 – 20:00 Banquet

Tuesday, July 18, 2017
10:00 – 11:00 Wilfrid Gangbo (UCLA)
On a Mean Field Game equation II
11:20 – 12:20 Andrzej Święch (Georgia Institute of Technology)
HJB equations, dynamic programming principle and stochastic optimal control II
14:00 – 15:00 Goran Peskir (University of Manchester)
Nonlinear problems of optimal mean-variance trading strategies II
15:20 – 15:50 Alpár Richárd Mészáros (UCLA)
Density constraints and regularity issues in first order Mean Field Games.
16:00 – 16:30 Chenchen Mou (UCLA)
Perron's method for nonlocal fully nonlinear equations
16:40 – 17:10 Hidehiro Kaise (Osaka University)
Convergence of discrete-time games to path-dependent Isaacs PDEs with quadratically growing Hamiltonians

Wednesday, July 19, 2017
10:00 – 11:00 Wilfrid Gangbo (UCLA)
On a Mean Field Game equation III
11:20 – 12:20 Andrzej Święch (Georgia Institute of Technology)
HJB equations, dynamic programming principle and stochastic optimal control III
14:00 – 15:00 Goran Peskir (University of Manchester)
Nonlinear problems of optimal mean-variance trading strategies III
15:20 – 15:50 Naoyuki Ichihara (Aoyama Gakuin University)
Qualitative properties of generalized principal eigenvalues for viscous Hamilton-Jacobi equations
16:00 – 16:30 Tokinaga Namba (University of Tokyo)
Well-posedness of fully nonlinear PDEs with Caputo's time-fractional derivative
16:40 – 17:10 Giulio Galise (Sapienza University of Rome)
Liouville theorems for a family of very degenerate elliptic non linear Operators

Thursday, July 20, 2017
10:00 – 11:00 Wilfrid Gangbo (UCLA)
On a Mean Field Game equation IV
11:20 – 12:20 Andrzej Święch (Georgia Institute of Technology)
HJB equations, dynamic programming principle and stochastic optimal control IV
14:00 – 15:00 Goran Peskir (University of Manchester)
Nonlinear problems of optimal mean-variance trading strategies IV
15:20 – 15:50 Yasuhiro Fujita (University of Toyama)
On a geometrical property of Hamilton-Jacobi flow starting from some pathological function
16:00 – 16:30 Hiroyoshi Mitake (Hiroshima University)
Derivation of multi-layered interface system and its application
16:40 – 17:10 Nao Hamamuki (Hokkaido University)
On surface evolutions under some dynamic boundary conditions

Friday, July 21, 2017
10:00 – 11:00 Wilfrid Gangbo (UCLA)
On a Mean Field Game equation V
11:20 – 12:20 Andrzej Święch (Georgia Institute of Technology)
HJB equations, dynamic programming principle and stochastic optimal control V
14:00 – 14:50 Momoji Kubo (Tohoku University)
Molecular Dynamics Simulation on Crystal Growth Processes
15:10 – 15:40 Qing Liu (Fukuoka University)
On small and large exponent limits of power mean curvature flow equation
15:50 – 16:20 Keisuke Takasao (University of Tokyo)
Phase field method for mean curvature flow with a non-local term

[Event] Hyperbolic and Dispersive PDE

■ Date: Monday, July 24, 2017 – Friday, July 28, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Special lecturers
- Thomas C. Sideris (University of California, Santa Barbara)
- Yoshiyuki Kagei (Kyushu University)

■ Lecturers
- Neal Bez (Saitama University)
- Noboru Chikami (Tohoku University)
- Kunio Hidano (Mie University)
- Shuji Machihara (Saitama University)
- Satoshi Masaki (Osaka University)
- Haruya Mizutani (Osaka University)
- Jun-ichi Segata (Tohoku University)
- Yusuke Sugiyama (Tokyo University of Science)

・Kazuyuki Tsuda (Osaka University)
・Kimitoshi Tsutaya (Hirosaki University)
・Kota Uriya (Okayama University of Science)
・Nicola Visciglia (University of Pisa)

■ Participants: 55

■ Time Schedule

Monday, July 24, 2017

13:55 – 14:00 **Opening**

14:00 – 14:50 Jun-ichi Segata (Tohoku University)
Modified scattering for the Klein-Gordon equation with critical nonlinearity in two and three dimensions

15:10 – 16:00 Noboru Chikami (Tohoku University)
Some functional inequalities in Hat-Sobolev spaces

16:20 – 17:10 Haruya Mizutani (Osaka University)
Remarks on endpoint Strichartz estimates for Schrödinger equations with inverse-square potentials

17:30 – 19:30 Welcome party

Tuesday, July 25, 2017

11:00 – 12:00 Thomas C. Sideris (University of California, Santa Barbara)
The affine motion of ideal fluids surrounded by vacuum I

13:30 – 14:20 Shuji Machihara (Saitama University)
Global well-posedness for one dimensional Chern-Simons-Dirac system in L^p

14:40 – 15:30 Yusuke Sugiyama (Tokyo University of Science)
Blow-up and estimates of the lifespan of solutions to the 1D compressible Euler equation with variable damping coefficient

15:50 – 16:40 Neal Bez (Saitama University)
Strichartz estimates for orthonormal systems of initial data

Wednesday, July 26, 2017

11:00 – 12:00 Thomas C. Sideris (University of California, Santa Barbara)
The affine motion of ideal fluids surrounded by vacuum II

13:30 – 14:20 Satoshi Masaki (Osaka University)
Threshold solutions in mass-subcritical nonlinear Schrödinger equation

14:40 – 15:30 Kota Uriya (Okayama University of Science)
Long range scattering for nonlinear Schrödinger equations with critical homogeneous nonlinearity in 3d

15:50 – 16:50 Yoshiyuki Kagei (Kyushu University)
Bifurcation of the compressible Taylor vortex I

Thursday, July 27, 2017

11:00 – 12:00 Thomas C. Sideris (University of California, Santa Barbara)
The affine motion of ideal fluids surrounded by vacuum III

13:30 – 14:20 Nicola Visciglia (University of Pisa)
On the growth of the Sobolev norms for NLS posed on compact settings

14:40 – 15:30 Kazuyuki Tsuda (Osaka University)
Time periodic problem for the compressible Navier-Stokes equation on two-dimensional whole space

15:50 – 16:50 Yoshiyuki Kagei (Kyushu University)
Bifurcation of the compressible Taylor vortex II

Friday, July 28, 2017

11:10 – 12:00 Kimitoshi Tsutaya (Hirosaki University)
On the Cauchy problem for semilinear wave equations in Euclidean Friedmann-Lemaître-Robertson-Walker spacetimes

13:30 – 14:20 Kunio Hidano (Mie University)
Global existence for a system of quasi-linear wave equations in 3D satisfying the weak null condition

14:20 – 14:25 **Closing**

[Event] Geometry and Inverse Problems in cooperation with A3 FORESIGHT PROGRAM

■ Date: Monday, October 2, 2017 – Friday, October 6, 2017

■ Venue

Monday, October 2, 2017 – Thursday, October 5, 2017:
Graduate School of Information Sciences (GSIS), Aobayama Campus, Tohoku University
Friday, October 6, 2017:
TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University

■ Special lecturers
・Daniel Peralta-Salas (Instituto de Ciencias Matemáticas)
・Samuli Siltanen (University of Helsinki)

■ Lecturers
・Tatiana Bubba (University of Helsinki)
・Fernando Charro (University of Coimbra)
・Masaru Ikehata (Hiroshima University)
・Hiromichi Itou (Tokyo University of Science)
・Ruo Li (Peking University)
・Minh Mach (University of Helsinki)
・Kaoru Maruta (Tohoku University)
・Jinhae Park (Chungnam National University)
・Zenith Purisha (University of Helsinki)
・Zhiyuan Sun (Peking University)
・Janne Tamminen (University of Helsinki)
・Yoshihiro Tonegawa (Tokyo Institute of Technology)

■ Participants: 65

■ Time Schedule

Monday, October 2, 2017: Large lecture room on 2F in GSIS

13:10 – 14:40 Daniel Peralta-Salas (Instituto de Ciencias Matemáticas)
Topology of nodal sets of solutions to elliptic PDEs I

15:00 – 16:30 Samuli Siltanen (University of Helsinki)
Introduction to linear and nonlinear tomography I

16:45 – 17:45 Minh Mach, Tatiana Bubba, Janne Tamminen, and Zenith Purisha (University of Helsinki)
Matlab session I

18:00 – 20:00 Welcome party

Tuesday, October 3, 2017: GSIS

[Morning session: Small lecture room on 6F in GSIS]

10:40 – 11:30 Jinhae Park (Chungnam National University)
Some mathematical questions related to geometry in liquid crystals

[Afternoon session: Middle lecture room on 2F in GSIS]

13:10 – 14:40 Daniel Peralta-Salas (Instituto de Ciencias Matemáticas)
Topology of nodal sets of solutions to elliptic PDEs II

15:00 – 16:30 Samuli Siltanen (University of Helsinki)
Introduction to linear and nonlinear tomography II

16:45 – 17:45 Minh Mach, Tatiana Bubba, Janne Tamminen, and Zenith Purisha (University of Helsinki)
Matlab session II

Wednesday, October 4, 2017: Large lecture room on 2F in GSIS

[Morning session]

09:30 – 10:20 Ruo Li (Peking University)
An *h*-adaptive mesh method for optimal control problem

10:40 – 11:30 Zhiyuan Sun (Peking University)
A discontinuous finite element space by patch reconstruction

[Afternoon session]

13:10 – 14:40 Daniel Peralta-Salas (Instituto de Ciencias Matemáticas)
Topology of nodal sets of solutions to elliptic PDEs III

15:00 – 16:30 Samuli Siltanen (University of Helsinki)
Introduction to linear and nonlinear tomography III

16:45 – 17:45 Minh Mach, Tatiana Bubba, Janne Tamminen, and Zenith Purisha (University of Helsinki)
Matlab session III

Thursday, October 5, 2017: GSIS

[Morning session: Middle lecture room on 2F in GSIS]

10:40 – 11:30 Free discussion

[Afternoon session: Large lecture room on 2F in GSIS]

13:10 – 14:40 Daniel Peralta-Salas (Instituto de Ciencias Matemáticas)
Topology of nodal sets of solutions to elliptic PDEs IV

15:00 – 16:30 Samuli Siltanen (University of Helsinki)
Introduction to linear and nonlinear tomography IV

16:45 – 17:45 Minh Mach, Tatiana Bubba, Janne Tamminen, and Zenith Purisha (University of Helsinki)
Matlab session IV

Friday, October 6, 2017: TOKYO ELECTRON House of Creativity 3F, Lecture Theater

10:00 – 10:50 Masaru Ikehata (Hiroshima University)
Detection and range estimation of a hidden object using the time domain enclosure method

11:10 – 12:00 Hiromichi Itou (Tokyo University of Science)
On direct and inverse problems involving cracks in elasticity

13:30 – 14:20 Kaoru Maruta (Tohoku University)
Near-limit flame pattern formation and regime transition under microgravity, experiments and numerical modelling
14:40 – 15:30 Fernando Charro (University of Coimbra)
The Monge-Ampére equation: Classical local applications and recent nonlocal developments
15:50 – 16:40 Yoshihiro Tonegawa (Tokyo Institute of Technology)
A time-discrete approximate scheme for multi-phase mean curvature flow
17:30 – 19:30 Banquet

[Event] 15th Aoba-yama PDE Seminar "PDEs and Inverse Problems"

■ Date: Thursday, February 22, 2018
■ Venue: Large lecture room on 2F in Graduate School of Information Sciences (GSIS), Aobayama Campus, Tohoku University
■ Partially supported by: JSPS Grant in Aid for Scientific Research B #26287020 "Geometry of solutions of partial differential equations and the inverse problems accompanied by it"
■ Special lecturer: Rolando Magnanini (Università di Firenze)
■ Lecturers
- Diego Berti (Università di Firenze)
- Lorenzo Cavallina (Tohoku University)
- Yong-Gwan Ji (Inha University)
- Xiaofei Li (Inha University)

■ Participants: 18
■ Time Schedule

10:30 – 12:00 Rolando Magnanini (Università di Firenze)
Alexandrov, Serrin, Weinberger, Reilly: Symmetry and stability by integral identities
13:30 – 14:20 Yong-Gwan Ji (Inha University)
A characterization of ellipsoid and the Newtonian potential with polynomial density
14:30 – 15:20 Xiaofei Li (Inha University)
The polarization tensor associated with an imperfect interface and construction of weakly neutral inclusions
15:40 – 16:30 Diego Berti (Università di Firenze)
Short-time behaviour for game-theoretic p-caloric functions
16:40 – 17:30 Lorenzo Cavallina (Tohoku University)
On the shape of a two-phase heat conductor satisfying the constant flow property at the boundary

Thematic Program 2017 | Program Code: 2017AGR

New Horizons in Food Science via Agricultural Immunology

[Event] International symposia and youth programs: Frontiers in agricultural immunology

■ Date: Friday, July 21, 2017 – Monday, July 24, 2017
■ Venue
[Youth program] TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
[Symposium] Aobayama Commons, Auditorium, Aobayama New Campus, Tohoku University
■ Speakers
- Fuller W. Bazer (Texas A&M University)
- Sylvia Brugman (Wageningen University)
- Ikuo Hirono (Tokyo University of Marine Science and Technology)
- Ken Ishii (National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN))
- Naoki Itoh (University of Tokyo)
- Hong-Gu Kang (Texas State University)
- Richard Kormelink (Wageningen University)
- Yasuyuki Kubo (Kyoto Prefectural University)
- Jun Kunisawa (National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN))
- Eric S. Loker (University of New Mexico)
- Corne Pieterse (Utrecht University)
- Jean-Marc Reichhart (University of Strasbourg)
- Julio Cesar Villena (CERELA-CONICET)
- Hisashi Aso (CFAI, Tohoku University)
- Hideki Takahashi (CFAI, Tohoku University)
- Shoichiro Kurata (Tohoku University)
- Haruki Kitazawa (CFAI, Tohoku University)
- Keisuke Takahashi (CFAI, Tohoku University)
- Tomonori Nochi (CFAI, Tohoku University)

■ Participants: 173
■ Time Schedule
Youth program
Friday, July 21, 2017 at Katahira Campus, TOKYO ELECTRON House of Creativity
10:00 – 10:10 **Opening remark**
Hisashi Aso (Director, CFAI, Tohoku University)
10:10 – 10:20 Haruki Kitazawa (CFAI, Tohoku University)
Introduction of guest researchers
[Opening talk I]
Chair: Haruki Kitazawa (CFAI, Tohoku University)
10:20 – 10:40 Jean-Marc Reichhart (University of Strasbourg)
The *Drosophila* model
[Opening talk II]
Chair: Haruki Kitazawa (CFAI, Tohoku University)
10:40 – 11:00 Fuller W. Bazer (Texas A&M University)
Roles of cytokines during the peri-implantation period of pregnancy in ruminants and swine
11:00 – 11:10 Sugihiro Ando (CFAI, Tohoku University)
Guidance for youth program
11:20 – 12:00 Move to Iwanuma-ya
Akiu, Iwanuma-ya
12:30 – 13:30 Lunch
[Short talk I]
Chair: AKM Humayun Kober (CFAI, Tohoku University)
13:30 – 13:45 Naoki Itoh (University of Tokyo)
"Parasitology" to "Parasitology for Immunology"
[Short talk II]
Chair: AKM Humayun Kober (CFAI, Tohoku University)
13:45 – 14:00 Julio Cesar Villena (CERELA-CONICET)
The advantages of working in a multinational and multicultural research team
[Short talk III]
Chair: AKM Humayun Kober (CFAI, Tohoku University)
14:00 – 14:15 Hong-Gu Kang (Texas State University)
Transposable elements: their history and evolution
[Short talk IV]
Chair: AKM Humayun Kober (CFAI, Tohoku University)
14:15 – 14:30 Sylvia Brugman (Wageningen University)
The long winding road of science.....
[Oral presentation by selected students I] (15 min speech and 15 min discussion)
Chair: Islam Jahidul (CFAI, Tohoku University)
14:30 – 15:00 Yukiyo Sato (CFAI, Tohoku University)
[Oral presentation by selected students II] (15 min speech and 15 min discussion)
Chair: Islam Jahidul (CFAI, Tohoku University)
15:00 – 15:30 Shun Yosano (CFAI, Tohoku University)
15:30 – 15:40 Break (Poster setting)
15:40 – 17:50 **Short introduction of the posters I** (18 students) 5 min speech and 2 min discussion
Chair: Previous presenter
Facilitator: Wakako Ikeda-Ohtsubo (CFAI, Tohoku University)
18:30 – 20:00 Banquet
20:00 – 21:30 **Poster presentation I**
Saturday, July 22, 2017 at Akiu, Iwanuma-ya
[Oral presentation by selected students III] (15 min speech and 15 min discussion)
Chair: AKM Humayun Kober (CFAI, Tohoku University)
09:00 – 09:30 Ainan Tian (CFAI, Tohoku University)
[Oral presentation by selected students IV] (15 min speech and 15 min discussion)
Chair: AKM Humayun Kober (CFAI, Tohoku University)
09:30 – 10:00 Shun Onodera (CFAI, Tohoku University)

[Oral presentation by selected students V] (15 min speech and 15 min discussion)
Chair: AKM Humayun Kober (CFAI, Tohoku University)
10:00 – 10:30 Kanae Niimi (CFAI, Tohoku University)
10:30 – 10:40 Break
10:40 – 12:00 **Short introduction of the posters II** (12 students) 5 min speech and 2 min discussion
Chair: Previous presenter
Facilitator: Shuhei Miyashita (CFAI, Tohoku University)
12:00 – 13:00 Lunch
13:00 – 14:00 **Poster presentation II**
14:00 – 14:50 **Group discussion (Make 6 Groups)**
14:50 – 15:00 **Closing Remarks**
Yukiyo Sato (CFAI, Tohoku University)
Kanae Niimi (CFAI, Tohoku University)

Symposium
Sunday, July 23, 2017 at Aobayama New Campus, Aobayama Commons
08:30 – 09:30 **Registration**
09:30 – 09:40 **Opening Remarks**
Yoshiaki Maeda (Vice Director of TFC, Tohoku University)
Amane Makino (Dean, Graduate School of Agricultural Science and Faculty of Agriculture, Tohoku University)
09:45 – 09:55 Hisashi Aso (Director, CFAI, Tohoku University)
Introduction of CFAI

[Session I]
09:55 – 10:10 Haruki Kitazawa (CFAI, Tohoku University)
Introduction of Symposium Session I
10:10 – 10:55 Jean-Marc Reichhart (University of Strasbourg)
The *Drosophila* Innate Immune system, a flying history
10:55 – 11:10 Break
11:10 – 11:40 Shoichiro Kurata (Tohoku University)
Neural control of gut homeostasis in *Drosophila* immunity
11:40 – 13:00 Lunch
13:00 – 13:30 Ken Ishii (National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN))
Extra cellular nucleic acids: its recognition of, and regulation by, the immune system
13:30 – 14:00 Julio Cesar Villena (CERELA-CONICET)
Immunobiotic-host interactions in the post-genomic era: perspectives and applications in the improvement of antiviral immunity in humans and animals
14:00 – 14:15 Break

[Session II]
14:15 – 14:30 Hideki Takahashi (CFAI, Tohoku University)
Introduction of Symposium Session II
14:30 – 15:15 Corne Pieterse (Utrecht University)
The root microbiome and plant health
15:15 – 15:45 Hong-Gu Kang (Texas State University)
Role of transposable elements in stress response and adaptation
15:45 – 16:15 Yasuyuki Kubo (Kyoto Prefectural University)
Infection structure development of a plant pathogenic fungus *Colletotrichum orbiculare* and plant immunity
16:15 – 17:00 Richard Kormelink (Wageningen University)
On the induction of innate immunity by small-interfering (si)RNAs and their role in Ty-1-mediated epigenetic antiviral defense against geminiviruses
17:00 – 20:00 Welcome Reception in Midori Cafeteria

Monday, July 24, 2017 at Aobayama New Campus, Aobayama Commons
[Session III]
10:00 – 10:15 Keisuke Takahashi (CFAI, Tohoku University)
Introduction of Symposium Session III
10:15 – 11:00 Eric S. Loker (University of New Mexico)
Biotic diversity (including domestic livestock) and its influence on transmission of human schistosomiasis in Africa
11:00 – 11:30 Ikuo Hirono (Tokyo University of Marine Science and Technology)
Recent study on DNA vaccine against microbial infection in aquaculture
11:30 – 13:00 Lunch
13:00 – 13:45 Sylvia Brugman (Wageningen University)
Intestinal mucosal immunity: using the zebrafish as a model
13:45 – 14:00 Break

[Session Ⅳ]
14:00 – 14:15 Tomonori Nochi (CFAI, Tohoku University)
Introduction of Symposium Session Ⅳ
14:15 – 15:00 Fuller W. Bazer (Texas A&M University)
The many faces of interferon tau in pregnancy and its potential therapeutic value
15:00 – 15:30 Jun Kunisawa (National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN))
Establishment of gut environment by dietary materials and commensal bacteria in the regulation of host immune responses
15:30 – 16:00 Tomonori Nochi (CFAI, Tohoku University)
Uniqueness of developmental process of immune and microbial environments in the mammary gland
16:00 – 16:10 **Closing Remarks**
Masaaki Toyomizu (CFAI, Tohoku University)

[Event] International symposia and youth programs: Food safety and functional evaluation

■ Date: Monday, August 7, 2017 – Thursday, August 10, 2017
■ Venue
[Youth program] TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
[Symposium] Aobayama Commons, Auditorium, Aobayama New Campus, Tohoku University
■ Speakers
- Ardiansyah (Universitas Bakrie)
- Susan M. Gasser (FMI)
- Miki Igarashi (IMS, RIKEN)
- Hisanori Kato (The University of Tokyo)
- Tatsuyoshi Kono (Indiana University)
- Kousaku Ohinata (Kyoto University)
- Hiroshi Shima (Miyagi Cancer Center)
- Kenji Shimada (FMI)
- Nancy D. Turner (Texas A&M University)
- Willem van Eden (Utrecht University)
- Geert Wiegertjes (Wageningen University)
- Mitsuhiro Yanagida (OIST)
- Ken-ichi Yoshioka (National Cancer Center Research Institute)
- Takahiro Shintani (CFAI, Tohoku University)
- Masaru Enomoto (CFAI, Tohoku University)
- Masahiko Harata (CFAI, Tohoku University)
- Yukihiro Ito (CFAI, Tohoku University)
- Motoi Kikusato (CFAI, Tohoku University)
- Kiyotaka Nakagawa (CFAI, Tohoku University)
- Hitoshi Shirakawa (CFAI, Tohoku University)

■ Participants: 207
■ Time Schedule

Youth program
Tuesday, August 8, 2017 at Aobayama New Campus, Aobayama Commons
14:00 – 17:00 **Poster presentation (and Oral introduction)**
17:30 – 19:30 Banquet

Wednesday, August 9, 2017 at Katahira Campus, TOKYO ELECTRON House of Creativity
10:00 – 10:10 **Opening remarks**
Kiyotaka Nakagawa (CFAI, Tohoku University)
10:10 – 10:40 Kenji Shimada (FMI)
A chemical genetic screen links TORC2-actin regulation to genome stability
10:40 – 11:00 Takahiro Shintani (CFAI, Tohoku University)
Cellular responses to the expression of unstable secretory proteins in koji mold
11:00 – 11:10 Break
11:10 – 11:40 Masaru Enomoto (CFAI, Tohoku University)
Synthetic study of biologically active natural products –total synthesis of paspalinine–
11:40 – 13:30 Lunch at Katahira Campus
13:30 – 14:10 Move to Akiu Iwanuma-ya by bus

Akiu, Iwanuma-ya
15:00 – 15:30 **Talk by poster award winners** (6 × 5 min)
15:30 – 15:45 Break
15:45 – 16:15 Miki Igarashi (IMS, RIKEN)
Revisiting recommendation for dietary intake of DHA
16:15 – 16:45 Ardiansyah (Universitas Bakrie)
Bioactivity and potential functional ingredient of rice bran to prevent lifestyle-related diseases
16:45 – 17:00 Break

17:00 – 17:20 Motoi Kikusato (CFAI, Tohoku University)
Review of polyphenol bioavailability: How do polyphenols act inside the body?
17:20 – 17:50 Tatsuyoshi Kono (Indiana University)
A role for altered SOCE and ER Ca^{2+} homeostasis in the pancreatic β cells
17:50 – 18:00 **Closing remarks**
Kiyotaka Nakagawa (CFAI, Tohoku University)
18:00 – 19:00 Free time
19:00 – 20:00 Dinner
20:00 – 22:00 Banquet & Poster presentation

Thursday, August 10, 2017 at Akiu, Iwanuma-ya
09:00 – 10:00 Discussion/Closing & Hotel departure for Sendai

Symposium

Monday, August 7, 2017 at Aobayama New Campus, Aobayama Commons
13:00 – 13:10 **Opening Remarks**
Yoshiaki Maeda (Vice Director of TFC, Tohoku University)
Amane Makino (Dean, Graduate School of Agricultural Science and Faculty of Agriculture, Tohoku University)
13:10 – 13:30 Masahiko Harata (CFAI, Tohoku University)
Introduction of the Symposium "Food Safety and Human Health"
13:30 – 14:10 Susan M. Gasser (FMI)
From metabolism and epigenetics, to genome stability
14:10 – 14:50 Mitsuhiro Yanagida (OIST)
Quantitative metabolomics analysis of human aging and fasting
14:50 – 15:10 Coffee break
15:10 – 15:50 Geert Wiegertjes (Wageningen University)
Fish health and immunology: lessons from infectious agents
15:50 – 16:20 Hiroshi Shima (Miyagi Cancer Center)
Protein phosphatase 6, a target of okadaic acid, is a tumor suppressor in mouse skin
16:20 – 16:40 Yukihiro Ito (CFAI, Tohoku University)
Enhancement of saccharification yields from rice straw
16:40 – 17:10 Ken-ichi Yoshioka (National Cancer Center Research Institute)
Genomic Destabilization Coupled Mutagenesis to Drive Cancer Development and its Prevention through Genome-Stability Maintenance
17:10 – 18:30 Welcome cocktails
19:00 – 21:00 Speakers Dinner

Tuesday, August 8, 2017 at Aobayama New Campus, Aobayama Commons
09:00 – 09:40 Nancy D. Turner (Texas A&M University)
Intestinal and Systemic Health – Intersection of Diet, Microbiota and Metabolism
09:40 – 10:20 Hisanori Kato (The University of Tokyo)
Omics analyses of food functionality
10:20 – 11:00 Willem van Eden (Utrecht University)
Heat shock proteins are targets for the nutritional manipulation of chronic inflammatory diseases
11:00 – 11:30 Kousaku Ohinata (Kyoto University)
Novel orally active peptides via gut-brain communication
11:30 – 11:50 Hitoshi Shirakawa (CFAI, Tohoku University)
Anti-inflammatory effects of the dietary ingredients via aryl hydrocarbon receptor
11:50 – 12:00 **Closing Remarks**
Hisashi Aso (Director, CFAI, Tohoku University)

[Event] International symposia and youth programs: Social implementation of new food technology

■ Date: Wednesday, September 20, 2017 – Saturday, September 23, 2017
■ Venue:
[Youth program] [Symposium] TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
[Open seminar for Citizen] [Forum co-hosted by 5 universities] Aobayama Commons 2F, Auditorium, Aobayama New Campus, Tohoku University
■ Speakers
- Hideo Aizaki (Hokkaido University)
- Vincenzina Caputo (Michigan State University)
- Rodolfo M. Nayga, Jr. (University of Arkansas)
- Kaori Nishide (TNO Food & Nutrition Japan)
- Masumi Niwa (Designer Foods)
- Masashi Tachikawa (Nagoya University)
- Kiyokazu Ujiie (University of Tsukuba)
- Hiroki Wakamatsu (National Research Institute of Fisheries Science)
- Hisashi Aso (CFAI, Tohoku University)
- Katsuhito Fuyuki (CFAI, Tohoku University)
- Masahiko Harata (CFAI, Tohoku University)
- Fusao Ito (CFAI, Tohoku University)
- Haruki Kitazawa (CFAI, Tohoku University)
- Asato Mizuki (CFAI, Tohoku University)
- Nina Takashino (CFAI, Tohoku University)
- Masaaki Toyomizu (CFAI, Tohoku University)

■ Organizers
- Asato Mizuki (CFAI, Tohoku University)
- Nina Takashino (CFAI, Tohoku University)
- Katsuhito Fuyuki (CFAI, Tohoku University)
- Fusao Ito (CFAI, Tohoku University)

■ Participants: 166
■ Time Schedule

Youth program

Wednesday, September 20, 2017
12:30 – 13:00 Registration
13:00 – 13:10 **Opening remark**
Hisashi Aso (Director, CFAI, Tohoku University)
13:10 – 13:20 Nina Takashino (CFAI, Tohoku University)
Introduction of guest lecturers
13:20 – 14:30 **Workshop "Consumer Evaluation and Stated Preference Methods"**
Guest lecturer: Hideo Aizaki (Hokkaido University)
Moderator: Asato Mizuki (CFAI, Tohoku University)
14:30 – 14:50 Coffee Break
14:50 – 16:00 **Workshop "Willingness to Pay and Experimental Auction"**
Guest lecturer: Hiroki Wakamatsu (National Research Institute of Fisheries Science)
16:00 – 16:10 Break
16:10 – 17:10 Vincenzina Caputo (Michigan State University)
Invited Lecture "Labeling and consumer choice"
18:00 – 20:00 Speakers' Dinner

Symposium

Thursday, September 21, 2017
Chair: Fusao Ito (CFAI, Tohoku University)
09:30 – 10:00 Registration
10:00 – 10:10 **Opening**
Yoshiaki Maeda (Vice Director of TFC, Tohoku University)
[Presentation]
10:10 – 10:40 Katsuhito Fuyuki (CFAI, Tohoku University)
Agricultural Immunology and Consumers' Behavior
10:40 – 10:50 Break
10:50 – 11:50 Rodolfo M. Nayga, Jr. (University of Arkansas)
Consumers, food safety and health issues
11:50 – 13:30 Lunch
13:30 – 14:30 Kiyokazu Ujiie (University of Tsukuba)
Consumer preference on eco-friendly agricultural products -A mixed logit model analysis using scanner panel data-
14:30 – 15:30 Kaori Nishide (TNO Food & Nutrition Japan)
Opportunities and Threats for Commercialization Process of New Technology and Innovative Ideas
15:30 – 15:40 Break
15:40 – 16:40 Masashi Tachikawa (Nagoya University)
Emerging Technology and Food Policy: Lessons from STS studies
16:40 – 16:50 **Closing Remarks**
Masaaki Toyomizu (CFAI, Tohoku University)
17:30 – 19:30 Banquet

Open seminar for Citizen

Friday, September 22, 2017
Chair: Katsuhito Fuyuki (CFAI, Tohoku University)
12:30 – 13:00 Registration
[Invited Talk]
13:10 – 14:40 Masumi Niwa (CEO, Designer Foods)
SEIMEISHOKU - Food of Maintaining Life
14:40 – 14:50 Break
14:50 – 15:30 **Poster session, introduction of CFAI**
[Symposium Wrap Up]
15:30 – 16:00 **Stage 1 Haruki Kitazawa (CFAI, Tohoku University)**
Stage 2 Masahiko Harata (CFAI, Tohoku University)
Stage 3 Fusao Ito (CFAI, Tohoku University)
16:10 – 16:20 **Closing Remarks**
Hisashi Aso (Director, CFAI, Tohoku University)

Forum co-hosted by 5 universities
Saturday, September 23, 2017
Hiroshi Yoneyama (CFAI, Tohoku University)
微生物に由来する食中毒被害の現状と対策の進展
Mari Yamashita (Graduate School of Agricultural Science, Tohoku University)
食中毒を引き起こす海洋生物毒と対応策の進展
Kentaro Tanemura (CFAI, Tohoku University)
農薬や食品添加物等の胎児や子どもへの影響
Masashi Mizuno (Kobe University)
食品中多糖類の腸管上皮細胞を介した炎症抑制機構
Hisashi Aso (CFAI, Tohoku University)
プロバイオティクス枯草菌製剤の乳房炎発症抑制効果
General Discussion
Participants: 84

Junior Research Program 2017 | Program Code: 2017NMM

Nanostructured Magnetic Materials: Challenges for Next-Generation Materials

【Event】 Special Lecture for Students and Young Researchers: Introduction to Nanostructured Magnetic Materials

■ Date: Tuesday, May 30, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Lecturer: Hirotoshi Fukunaga (Nagasaki University)
■ Participants: 19
■ Time Schedule
10:00 – 11:30 Hirotoshi Fukunaga (Nagasaki University)
Physics of Nanostructured Magnetic Materials

【Event】 International Workshop on Nanostructured Magnetic Materials

■ Date: Tuesday, May 30, 2017 – Thursday, June 1, 2017
■ Venue
May 30, 2017 – May 31, 2017: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
June 1, 2017: TOKYO ELECTRON House of Creativity 1F, Lounge, Katahira Campus, Tohoku University
■ Speakers
・Satoshi Hirosawa (National Institute for Materials Science (NIMS))
・J. Ping Liu (University of Texas at Arlington)
・Masaki Nakano (Nagasaki University)
・Tomoyuki Ogawa (Tohoku University)
・Kanta Ono (High Energy Accelerator Research Organization (KEK))
・Thomas Schrefl (Danube University Krems)
・Masaaki Takezawa (Kyushu Institute of Technology)
・Tetsuo Uchikoshi (National Institute for Materials Science (NIMS))
・Takeshi Yanai (Nagasaki University)
・Shinpei Yamamoto (National Institute of Advanced Industrial Science and Technology (AIST))
■ Participants: 49
■ Time Schedule
Tuesday, May 30, 2017
13:00 – 13:40 Takeshi Yanai (Nagasaki University)
Magnetic films prepared by an electroplating method
13:50 – 14:50 Shinpei Yamamoto (AIST)
Low temperature synthesis of SiO_2-coated α-Fe nanoparticles
15:00 – 15:40 Tomoyuki Ogawa (Tohoku University)
Synthesis of Fe-based nanoparticles and their assembly for high-frequency application in GHz range
15:50 – 16:50 Tetsuo Uchikoshi (NIMS)
Fabrication of textured ceramics by magnetic field-assisted colloidal processing
Wednesday, May 31, 2017
09:20 – 10:20 Satoshi Hirosawa (NIMS)
Nd-Fe-B permanent magnet
10:30 – 11:30 Masaki Nakano (Nagasaki University)
Fabrication of film magnets and their applications
13:00 – 14:00 Thomas Schrefl (Danube University Krems)
Computational design of multiphase permanent magnets
14:10 – 15:10 J. Ping Liu (University of Texas at Arlington)
Fabrication of Nanostructured Magnets: Approaches from the Bottom
15:20 – 16:00 Masaaki Takezawa (Kyushu Institute of Technology)
Magnetic domain observation of permanent magnets with a Kerr microscope
16:10 – 17:10 Kanta Ono (KEK)
Characterization of magnetic materials with X-ray microscopy
Thursday, June 1, 2017
10:00 – 12:00 Poster Presentation by Students and Young Researchers

【Follow up Seminar】 Follow up seminar by Sung Hoon Kim

■ Date: Wednesday, August 2, 2017
■ Venue: Research Institute of Electrical Communication Main Building 3F, Seminar Room (M301), Katahira Campus, Tohoku University
■ Speaker: Sung Hoon Kim (Wonkwang University)
■ Participants: 11
■ Time Schedule
14:00 – 15:00 Sung Hoon Kim (Wonkwang University)
Magneto-mechatronics and application

Junior Research Program 2017 | Program Code: 2017DCI

Political and Social Dynamics of Crisis and Innovation in Japan, Asia and the World

【Event】 Special Lecture: Risk Communication and Safe Food in Post-Fukushima Japan

■ Date: Wednesday, February 7, 2018 14:40 – 16:10
■ Venue: Seminar Room1, 2F in School of Law, Graduate School of Law, Kawauchi Campus, Tohoku University
■ Speaker: Paul O'Shea (Lund University)
■ Participants: 3

【Event】 Roundtable: Japan as 'Number Three?': Revisiting Academic and Public Discourses on Japan's 'Lost Decades'

■ Date: Thursday, February 8, 2018 16:00 – 18:00
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Chair: Sebastian Maslow (Tohoku University / Kobe University)
■ Speakers
・David Chiavacci (University of Zurich)
・Koichi Hasegawa (Tohoku University)
・Paul O'Shea (Lund University)
・Hiroko Takeda (Nagoya University)
・Christian Wirth (GIGA Institute of Asian Studies)
■ Participants: 12

[Event] Workshop: Political and Social Dynamics of Crisis and Innovation in Japan, Asia and the World

■ Date: Friday, February 9, 2018
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- David Chiavacci (University of Zurich)
- Koichi Hasegawa (Tohoku University)
- David Leheny (Waseda University)
- Sebastian Maslow (Tohoku University / Kobe University)
- Ra Mason (University of East Anglia)
- Paul O'Shea (Lund University)
- Hiroko Takeda (Nagoya University)
- Bryce Wakefield (Leiden University)
- Iris Wieczorek (GIGA Institute of Asian Studies)
- Christian Wirth (GIGA Institute of Asian Studies)

■ Participants: 15
■ Time Schedule

09:00 – 09:10 **Introductory Remarks**
Sebastian Maslow (Tohoku University / Kobe University)
Christian Wirth (GIGA Institute of Asian Studies)
09:10 – 09:20 **Welcome Address**
Toshiya Ueki (Vice President, Tohoku University)
[Keynote Speech (including Q&A)]
09:20 – 10:15 David Leheny (Waseda University)
Chapters of Crisis: Narratives and Status in Japan's International Relations
10:15 – 10:30 Coffee Break
[Introduction]
10:30 – 11:00 Sebastian Maslow (Tohoku University / Kobe University)
Christian Wirth (GIGA Institute of Asian Studies)
Crisis Narratives and Institutional Change
[Session 1: Narrating Japan's Social Crisis]
Moderator: Paul O'Shea (Lund University)
11:00 – 13:00 Hiroko Takeda (Nagoya University)
A Nationalized Crisis: Demographic and Life Style Changes, the Institutional Reforms and State-led Moral Panics
David Chiavacci (University of Zurich)
Japan's Evaporating Core: Narratives of Rising Inequalities and Their Political Impact
Koichi Hasegawa (Tohoku University)
Japan's Civil Society Before and After the Fukushima Disaster
13:00 – 14:30 Lunch Break
[Session 2: Narrating Japan's Political-Economic Crisis]
Moderator: Ra Mason (University of East Anglia)
14:30 – 16:30 Iris Wieczorek (GIGA Institute of Asian Studies)
Deep Crisis of Science, Technology and Innovation in Japan? Narratives of Urgency for Structural Reforms and Their Impacts on Science Policy
Christian Wirth (GIGA Institute of Asian Studies)
(On behalf of Saori Shibata (Leiden University))
Contradiction and Discontent in Japan: Abenomics as a (Failing) Path Dependent Response to Long-term Economic Stagnation
Bryce Wakefield (Leiden University)
Populism without popularity: Abe Shinzo's Dual Discourse and the Conquest of Unrepresentative Democracy
16:30 – 16:45 Coffee Break
[Session 3: Narrating Crisis in Japan's Foreign and Defence Policy]
Moderator: Christian Wirth (GIGA Institute of Asian Studies)
16:45 – 18:00 Paul O'Shea (Lund University)
The Role of Narratives of Crisis Mismanagement in Japan's Foreign Policy
Ra Mason (University of East Anglia)
Conflated Crises on the Korean Peninsula as a Catalyst for Restoring Japan's Standing
18:00 – 18:15 **Concluding Remarks and Next Steps**
Sebastian Maslow (Tohoku University / Kobe University)
Christian Wirth (GIGA Institute of Asian Studies)

Emerging Perspectives Program 2017 | Program Code: 2017EPP

[Event] Study Group in Mathematics and Industry 1

■ Date: Monday, April 24, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Anna Suzuki (Institute of Fluid Science, Tohoku University)
- Kazutoshi Inoue (AIMR, Tohoku University)

■ Time Schedule

13:00 – 14:00 **Proposal of problems by Dr. Anna Suzuki and Dr. Kazutoshi Inoue**
14:00 – 15:40 **Discussion**
15:40 – 16:00 **Briefing session**

[Event] Data and Intelligence

■ Date: Thursday, August 24, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Naonori Ueda (RIKEN Center for Advanced Intelligence Project)
- Takayuki Okatani (Tohoku University)
- Hiroaki Muraoka (RIEC, Tohoku University / Advanced Institute for Yotta Informatics)
- Hirokazu Anai (Fujitsu Laboratories / Kyushu University)

■ Participants: 50
■ Time Schedule

13:00 – 13:10 **Opening Address**
Sadayoshi Ito (Executive Vice President, Director of Tohoku Forum for Creativity, Tohoku University)
13:10 – 13:50 Naonori Ueda (RIKEN Center for Advanced Intelligence Project)
Machine learning technologies for IoT era - Towards the realization of Ambient Intelligence
13:50 – 14:30 Takayuki Okatani (Tohoku University)
Present and Future of Application of Deep Learning to Image Recognition and Processing
14:30 – 15:10 Hiroaki Muraoka (RIEC, Tohoku University / Advanced Institute for Yotta Informatics)
Yotta-byte scale gigantic information and its impact
15:10 – 15:50 Hirokazu Anai (Fujitsu Laboratories / Kyushu University)
Mathematics and artificial intelligence technologies for solving social issues and their practices
16:00 – 16:55 **Panel Discussion**
Moderator: Takeshi Tokuyama (Tohoku University)
16:55 – **Closing Remark**
Nobuaki Obata (Tohoku University)

[Event] Workshop on International Linear Collider (ILC) with us

■ Date: Saturday, November 18, 2017 – Sunday, November 19, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Lecturers
- Atsuto Suzuki (President of Iwate Prefectural University)
- Tomoyuki Sanuki (Tohoku University)
- Masakazu Yoshioka (Tohoku University, Iwate University, OIST)

■ Participants: 30 (High school students: 10 persons, Tohoku University first and second grades students: 20 persons)
■ Time Schedule

Saturday, November 18, 2017
09:00 – 12:20 **Lectures**
13:30 – 18:00 **Group Discussion I**
Sunday, November 19, 2017
10:30 – 12:00 **Group Discussion II**
13:30 – 17:00 **Talks by participants, Social Gathering**

[Event] Fusion with mathematical neuroscience of mutually exclusive control of a distributed and a central nervous system

■ Date: Wednesday, February 7, 2018
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Akio Ishiguro (Tohoku University)
- Hajime Mushiake (Tohoku University)
- Ichiro Tsuda (Chubu University)

■ Participants: 6
■ Time Schedule

13:00 – 14:00 Akio Ishiguro (Tohoku University)
A Key to Understanding Control Principle Underlying Animals' Adaptive Behavior
14:15 – 15:15 Hajime Mushiake (Tohoku University)
Behavioral Adjustment in Multifunctional Neural Networks
15:45 – 16:45 Ichiro Tsuda (Chubu University)
Self-organization with constraints and its applications to brain science
16:45 – 17:15 Free discussion

[Event] Mathematics and Information Society

■ Date: Thursday, March 8, 2018
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Hosted by
- Graduate School of Information Sciences, Tohoku University
- Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University

■ Speakers
- Koji Fujiwara (Kyoto University)
- Toshio Nemoto (Bunkyo University)
- Eijiro Sumii (Tohoku University)
- Sumio Watanabe (Tokyo Institute of Technology)

■ Participants: 28
■ Time Schedule

13:15 – 13:25 Opening
13:30 – 14:20 Eijiro Sumii (Tohoku University)
14:30 – 15:20 Sumio Watanabe (Tokyo Institute of Technology)
15:40 – 16:30 Toshio Nemoto (Bunkyo University)
16:40 – 17:30 Koji Fujiwara (Kyoto University)
17:35 – 17:45 Closing

[Seminar series] TFC Fusion Research Seminar

[1st Seminar] Monday, July 3, 2017 16:30 – 17:30
■ Speaker: Shuhei Miyashita (Laboratory of Plant Pathology, Graduate School of Agricultural Science, Tohoku University)
■ Title: **Social systems of plant viruses revealed by molecular biology experiments and mathematical modeling**
■ Participants: 14
[2nd Seminar] Tuesday, October 10, 2017 16:30 – 17:30
■ Speaker: Kohei Tamura (Frontier Research Institute for Interdisciplinary Sciences, Tohoku University)
■ Title: **Geometric Morphometrics in Archaeology**
■ Participants: 10
[3rd Seminar] Friday, December 22, 2017 16:30 – 17:30
■ Speaker: Shogo Kumagai (Graduate School of Environmental Studies, Tohoku University)
■ Title: **Plastic recycling inspired by Möbius stripe**
■ Participants: 6
[4th Seminar] Thursday, January 11, 2018 16:30 – 17:30
■ Speaker: Satoshi Yamaguchi (Department of Biomaterials Science, Osaka University Graduate School of Dentistry)
■ Title: **Challenge for developing high performance dental materials by mathematical science**
■ Participants: 10
[5th Seminar] Thursday, February 15, 2018 15:00 – 16:00
■ Speaker: Ton Viet Ta (Center for Promotion of International Education and Research, Faculty of Agriculture, Kyushu University)
■ Title: **The Effects of Noise on Multi-Agent Systems**
■ Participants: 14
[6th Seminar] Thursday, February 15, 2018 16:30 – 17:30
■ Speaker: Takeo Uramoto (Graduate School of Information Sciences, Tohoku University)
■ Title: **Classification of computational hierarchies, and its categorical view**
■ Participants: 23
[7th Seminar] Monday, February 26, 2018 16:30 – 17:30
■ Speaker: Tasuku Tamai (Graduate School of Engineering, The University of Tokyo)
■ Title: **On the arrangement of scalar/vector variables and discretization schemes for the meshfree/particle methods**
■ Participants: 7
[8th Seminar] Tuesday, March 27, 2018 16:30 – 17:30
■ Speaker: Kenichi Kubota (Japan Aerospace Exploration Agency (JAXA), Aeronautical Technology Directorate, Numerical Simulation Research Unit)
■ Title: **Research on Particle Simulation of Plasma Rocket for Space Propulsion**
■ Participants: 7
*Venue 1st - 8th Seminars: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University

Other Activities

TFC Hosted Events

Mini-Symposium on Chemical Communication

■ Date: Friday, June 23, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Hosted by:
- 2018 Thematic Program Frontier of Chemical Communication
- Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University

■ Supported by: MSD Life Science Foundation
■ Participants: 43
■ Time Schedule

13:30 **Opening Remarks**
[First Session]
13:40 – 14:40 Genki Kawauchi (Dept of Chem, Graduate School of Science, Tohoku University, D1)
Synthetic Study of Latanoprost
Higashi Kobayashi (Graduate School of Pharmaceutical Science, Tohoku University, D3)
The Effect of Organic Solvent on the Inverse Thermoresponse of Water-soluble Ethynylhelicene Oligomer
Tatsuya Konno (Graduate School of Pharmaceutical Science, Tohoku University, M1)
Palladium(0)-catalyzed transformations of conjugated enynes into allenes and 1,3-dienes
Invited Lecture: 28th Banyu Fukuoka Symposium Best Poster Award
Ryuhei Furue (INAMORI Frontier Research Center, Kyushu University, D1)
Development of Aggregation-Induced Delayed Fluorescence Materials Based on o-Carborane Units and Their Applications in Nondoped Organic Light-Emitting Diodes
[Second Session]
15:00 – 15:45 Wijak Yospanya (Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, M2)
Toward The Novel Strategy for Supramolecular Asymmetric Synthesis Mediated by Biopolymers: Utilizing Protein for Supramolecular Asymmetric Photoreaction As A Chiral Media
Daichi Itagaki (Graduate School of Pharmaceutical Science, Tohoku University, M2)
Synthetic Studies toward Batzelladines using Gold Catalyzed-Cascade Cyclization

Shinya Gima (Dept of Chem, Graduate School of Science, Tohoku University, D2)
Efficient Synthesis for New Multisubstituted Heterocycles by Using Catalytic "Cyclization–Intermolecular Alkylidene Transfer" Reaction

[Third Session]

16:05 – 17:05 Kunihito Nakaji (Graduate School of Pharmaceutical Science, Tohoku University, M1)
Deprotonative functionalizations at 4-position of pyridines and benzylic position of toluenes catalyzed by amide base generated *in situ*
Kazuki Takahashi (Graduate School of Agricultural Science, Tohoku University, D1)
Synthetic Study of Agelamadin C
Toshitaka Okamura (Graduate School of Pharmaceutical Science, Tohoku University, D1)
Direct Alkyne Functionalization of Aromatic Bioactive Small Compounds
Invited Lecture: 28th Banyu Sapporo Symposium Best Poster Award
Youka Bunno (Graduate School of Life Science, Hokkaido University, M2)
Cp*Co(III)-Catalyzed Dehydrative C–H Allylation of 6-Arylpurines and Aromatic Amides Using Allyl Alcohols in Fluorinated Alcohols

Falling Walls Lab Sendai 2017

■ Date: Thursday, August 3, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Hosted by: Tohoku University
■ In association with: Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University
■ Supported by: Tokyo Electron Limited
■ Participants: 43
■ Time Schedule

13:00 – 13:20 Welcome and introductory remarks
13:20 – 14:25 Presentations (scholar presentations 1-13)
14:25 – 14:40 Break
14:40 – 15:45 Presentations (scholar presentations 14-26)
15:45 – 15:50 Group picture
15:50 – 16:50 Evaluation session (jury)
(15:50 – 18:00) Giving certification & Farewell Reception (scholars)
16:50 – 17:00 Awarding Ceremony
17:00 – 18:00 Farewell Reception

Special Lecture from the Nobel Laureate Prof. Takaaki Kajita

■ Date: Saturday, August 19, 2017
■ Venue: Sendai Shozankan
■ Hosted by
- Institute of Multidisciplinary Research for Advanced Materials, Tohoku University
- Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University

■ Co-hosted by
- Graduate School of Science, Tohoku University
- Tokyo Electron Limited

■ Nominal Support
- Education in Miyagi Prefecture
- Education in Sendai City
- Kahoku Shimpo Publishing Co.

■ In cooperation with: natural science
■ Lecturers
- Takaaki Kajita (Director, Institute for Cosmic Ray Research, University of Tokyo)
- Tsuyoshi Nakaya (Professor, Graduate School of Science, Kyoto University)
- Kunio Inoue (Director, Research Center for Neutrino Science, Tohoku University)

■ Facilitator: Hiroko Watanabe (Assistant Professor, Research Center for Neutrino Science, Tohoku University)
■ Participants: 600
■ Time Schedule

13:00 **Opening Remarks**
13:10 Takaaki Kajita (Director, Institute for Cosmic Ray Research, University of Tokyo)
Lecture 1 神岡での研究の30年
13:55 Tsuyoshi Nakaya (Professor, Graduate School of Science, Kyoto University)
Lecture 2 神岡に向けてニュートリノビーム発射
14:30 Kunio Inoue (Director, Research Center for Neutrino Science, Tohoku University)
Lecture 3 ニュートリノで解き明かす宇宙の謎
15:05 Break
15:10 **Talk Session 科学研究の夢**
Facilitator: Hiroko Watanabe (Assistant Professor, Research Center for Neutrino Science, Tohoku University)
16:30 **Closing Remarks**

Forum in Alliance between Mathematics and Sciences for Creativity

■ Date: Friday, December 8, 2017 – Saturday, December 9, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Hosted by
- Research Center for Pure and Applied Mathematics, Graduate School of Information Sciences, Tohoku University
- Mathematical Science Group, Advanced Institute for Materials Research (AIMR), Tohoku University
- Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University

■ Supported by
- Commissioned Project "Advanced Innovation powered by Mathematics Platform Program (AIMaP Program)" by the Ministry of Education, Culture, Sports, Science and Technology

■ Organizers
- Nobuaki Obata (Graduate School of Information Sciences, Tohoku University)
- Hiroshi Suito (Advanced Institute for Materials Research, Tohoku University)
- Masaaki Harada (Graduate School of Information Sciences, Tohoku University)

■ Participants: 97
■ Time Schedule

Friday, December 8, 2017
13:30 – 14:20 Tsuyoshi Takagi (The University of Tokyo)
14:30 – 15:00 Hiromi Seno (Tohoku University)
15:10 – 15:40 Etsuo Segawa (Tohoku University)
15:50 – 16:20 Keita Iida (Tohoku University)
16:30 – 17:00 Naoyuki Kamiyama (Kyushu University, PRESTO)
18:00 – 20:00 Discussion & banquet

Saturday, December 9, 2017
10:00 – 10:50 Hiroshi Kokubu (Kyoto University)
11:00 – 11:30 Takaaki Nara (The University of Tokyo, PRESTO)
11:40 – 12:10 Shizuo Kaji (Yamaguchi University, PRESTO)
12:20 – 12:50 Yuko Murakami (Tohoku University)
[Special session: JST-PRESTO Mathematics Program -present and future-]
14:00 – 14:40 Jun-nosuke Teramae (Osaka University)
14:50 – 15:30 Fuyuhiko Tanaka (Osaka University)
15:40 – 16:30 Ichiro Hasuo (National Institute of Informatics)
16:40 – 17:30 Yasumasa Nishiura (Tohoku University)
18:30 – 20:30 Discussion about JST, PRESTO

Public Lecture: Toward the era of new creativity

■ Date: Wednesday, February 28, 2018 15:00 – 16:00
■ Venue: N-oval Building, Sendai Foundation of Applied Information
■ Hosted by
- Public Interest Incorporated Foundation Sendai Foundation for Applied Information Sciences
- Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University
- Tohoku Information Communication Conference

■ Co-hosted by: General Incorporated Association Tohoku IT Organization for Industry Promotion
■ Speaker: Hiroshi Fujiwara (Chairman & President, CEO, BroadBand Tower, Inc. and Internet Research Institute, Inc.)
■ Title: Fourth Industrial Revolution and Region Issues
■ Participants: 75

Discovery Event for Aspiring Female Scientists

■ Date: Saturday, March 3, 2018 – Sunday, March 4, 2018
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Hosted by: Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University
■ Cosponsor
- Tohoku University Center for Gender Equality Promotion
- Tokyo Electron Limited

■ Navigator: Noriko Osumi (Exective Director, United Centers for Advanced Research and Translational Medicine, Tohoku University)
■ Lecturers
- Kazuyo Matsubae (Graduate School of Environmental Studies, Tohoku University)
- Shiho Kunimatsu (Department of Ophthalmology, Graduate School of Medicine, Tohoku University)

■ Facilitator: Tohoku University Science Angels (Female graduate students of Tohoku University)
■ Participants: 15
■ Time Schedule

Saturday, March 3, 2018
12:30 – 13:00 Reception
13:00 – 13:10 Self-introduction
13:10 – 13:20 **Opening remarks 1**
Prof. Noriko Osumi (Exective Director, United Centers for Advanced Research and Translational Medicine, Tohoku University)
13:20 – 13:25 **Opening remarks 2**
Associate Prof. Noemi Fusaki (Tohoku Forum for Creativity, Tohoku University)
13:25 – 13:35 **Greetings**
Ms. Tomoko Yamamoto (Tokyo Electron Miyagi Ltd.)
13:35 – 14:15 **Lecture 1** Prof. Kazuyo Matsubae (Graduate School of Environmental Studies, Tohoku University)
14:15 – 14:25 Break
14:25 – 15:05 **Lecture 2** Lecturer Shiho Kunimatsu (Department of Ophthalmology, Graduate School of Medicine, Tohoku University)
15:05 – 15:15 Break
15:15 – 15:30 **Activity Report from Tohoku University Science Angels**
15:30 – 15:40 Group photo
15:40 – 16:45 Move to Accommodation (Akiu, Sendai)
17:00 – 18:20 **Group Discussion**
18:30 – 20:30 Dinner & Free time

Sunday, March 4, 2018
08:00 – 08:50 **Report of Group Discussion**
09:30 – 10:30 Move to next destination
10:30 – 11:00 **Lab Tour (Graduate School of Medicine, Department of Developmental Neuroscience, Tohoku University)**
11:10 – 11:30 Finish at TFC / Sendai Station

Quattro Seminars

[The Fourteenth Seminar] Friday, July 21, 2017 16:30 – 18:00
■ Venue: Middle Conference Room, 11F, New Humanities Building, Kawauchi South Campus, Tohoku University
■ Speaker: Saku Hara (Associate Professor of Graduate School of Arts and Letters, Tohoku University)
■ Title: Publicness of the Academic Research: Two Strategies from Humanities and Social Sciences Perspectives
■ Participants: 19

[The Fifteenth Seminar] Wednesday, November 8, 2017 16:30 – 18:00
■ Venue: Room 211, 2F Multidisciplinary Research Building (International Humanities) Kawauchi South Campus, Tohoku University
■ Speaker: Akihiro Ozaki (Professor of Graduate School of Arts and Letters, Tohoku University)
■ Title: Toward the Establishment of International Joint Graduate Program in Japanese Study
■ Participants: 68

[The Sixteenth Seminar] Tuesday, December 5, 2017 16:20 – 17:50
■ Venue: Room 211, 2F Multidisciplinary Research Building (International Humanities) Kawauchi South Campus, Tohoku University
■ Speaker: Takamitsu Sawa (Emeritus Professor of Kyoto University/ Former President of Shiga University)
■ Title: Disrespect for Humanities Hinders Japanese Competitiveness
■ Participants: 68

[The Seventeenth Seminar] Tuesday, March 6, 2018 09:00 – 16:00
■ Venue: Room 204, 2F Multidisciplinary Research Building (International Humanities) Kawauchi South Campus, Tohoku University
■ Speaker: Carole Sargent (Professor of Georgetown University, USA/Office of Scholarly Publications Founding Director)
■ Title: Scholarly Publishing Seminar at Faculty of Art and Humanities, Tohoku University
■ Participants: 215

TFC Co-Hosted or Nominally Supported Events

Symposium on "Diversity of Hydrogen Energy related Materials"

■ Date: Friday, April 14, 2017 – Saturday, April 15, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Eiji Abe (University of Tokyo)
- Li Hai-Wen (Kyusyu University)
- Kazuhiro Ishikawa (Kanazawa University)
- Satoshi Kameoka (Tohoku Univerisity)
- X.G.Li (Peking University)
- Tsuyoshi Masumoto (Research Institute for Electromagnetic Materials)
- Masahiko Morinaga (Toyota Physical and Chemical Research Institute)
- Chikashi Nishimura (National Institute for Materials Science)
- Kiyonori Suzuki (Monash University)

The 3rd Japan-China Geometry Conference

■ Date: Friday, September 1, 2017 – Thursday, September 7, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Bing-Long Chen (Sun Yat-sen University)
- Qing Ding (Fudan University)
- Akito Futaki (University of Tokyo)
- Shouhei Honda (Tohoku University)
- Bobo Hua (Fudan University)
- Yu Kawakami (Kanazawa University)
- Anmin Li (Sichuan University)
- Jiayu Li (University of Science and Technology of China)
- Hui Ma (Tsinghua University)
- Toshiki Mabuchi (Osaka University)
- Shin Nayatani (Nagoya University)
- Yuji Sano (Fukuoka University)
- Guangxiang Su (Chern Institute of Mathematics)
- Ryokichi Tanaka (Tohoku University)
- Gang Tian (Peking University, Princeton University)
- Zhenxiao Xie (China University of Mining and Technology)
- Naoto Yotsutani (Nagoya University)
- Weiping Zhang (Chern Institute of Mathematics)
- Xi Zhang (University of Science and Technology of China)
- Yongsheng Zhang (Northeast Normal University)
- Zhenlei Zhang (Capital Normal University)
- Xiangyu Zhou (Chinese Academy of Sciences)

■ Japanese organizers
- Qing-Ming Cheng (Fukuoka University)
- Ryushi Goto (Osaka University)
- Hitoshi Moriyoshi (Nagoya University)
- Reiko Miyaoka (Tohoku University)
- Takashi Shioya (Tohoku University)

Academic organizers
- Ryoichi Kobayashi (Nagoya University)
- Yoshihiro Ohnita (Osaka City University)

Local organizer
- Shouhei Honda (Tohoku University)

■ Chinese organizers
- Haizhong Li (Tsinghua University)
- Zizhou Tang (Chern Institute of Mathematics)
- Qing Ding (Fudan University)
- Changping Wang (Fujian Normal University)
- Jiayu Li (University of Science and Technology of China)

ASTRO-AI Seminar

■ Date: Monday, September 25, 2017 – Tuesday, September 26, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Masayuki Ohzeki (Tohoku University)
- Takayuki Okatani (Tohoku University)
- Kentaro Inui (Tohoku University)
- Yuko Murakami (Tohoku University)
- Masato Taki (RIKEN)

■ Organizers
- Yasunobu Uchiyama (Rikkyo University)
- Shigehiro Nagataki (RIKEN)
- Hiroya Yamaguchi (NASA)
- Shinya Yamada (Tokyo Metropolitan University)
- Shinya Nakashima (RIKEN)
- Hirofumi Noda (Tohoku University)
- Toru Tamagawa (RIKEN)
- Tadayuki Takahashi (JAXA)

Frontiers in Life Science Seminar Series #2

■ Date: Tuesday, November 7, 2017　14:00 – 17:00
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Ryosuke Enoki (Hokkaido University)
- Kenji Kikuchi (Tohoku University)
- Yoko Mizuta (JST PRESTO/Nagoya University)
- Yasufumi Takahashi (Kanazawa University/JST PRESTO)

■ Organizers
- Hiroyasu Hatakeyama (Tohoku University)
- Hideaki Yamamoto (Tohoku University)
- Masanori Izumi (Tohoku University)

Polylogs, multiple zetas, and related topics

■ Date: Saturday, November 11, 2017 – Sunday, November 12, 2017
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Steven Charlton (Tuebingen University)
- Minoru Hirose (Kyushu University)
- Nils Matthes (Kyushu University)
- Masataka Ono (Keio University)
- Erik Panzer (Oxford University)
- Danylo Radchenko (MPIM Bonn)
- Kenji Sakugawa (RIMS)
- Nobuo Sato (National Taiwan University)
- Shin-ichiro Seki (Osaka University)

■ Organizers
- Herbert Gangl (Kyushu University, Durham University)
- Masanobu Kaneko (Kyushu University)
- Yasuo Ohno (Tohoku University)

Beyond The Edge of Research

■ Date: Friday, December 1, 2017　14:00 – 17:00
■ Venue: 1st Floor, Frontier Research Institute for Interdisciplinary Sciences, Aobayama North Campus, Tohoku University

■ Speakers
- Arjen Doelman (Lorentz Center)
  Stimulating Open Scientific Interactions: The Lorentz Center Approach
- Yoshiaki Maeda (Tohoku Forum for Creativity)
  Tohoku Forum for Creativity: Mission and Activities

Special Seminar by Prof. Peter Gruss

■ Date: Monday, December 4, 2017　17:30 – 18:30
■ Venue: Centennial Hall (Seiryo Auditorium), Seiryo Campus, Tohoku University

■ Speaker:
- Peter Gruss (President/CEO, Okinawa Institute of Science and Technology Graduate University)
  quo vadis biomedical research

2018 Tohoku-Harvard Workshop

■ Date: Thursday, January 18, 2018 – Friday, January 19, 2018
■ Venue
- TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Hotel Hananoyu

■ Speakers
- Sagar Bhandari (Harvard University)
- Donhee Ham (Harvard University)
- Philip Kim (Harvard University)
- Gil-Ho Lee (Harvard University)
- Gayatri Perlin (Harvard University)
- Thomas A. Searles (Howard University)
- Takashi Taniguchi (Harvard University)
- Kenji Watanabe (Harvard University)
- Robert M. Westervelt (Harvard University)
- Ayumi Hirano-Iwata (Tohoku University)
- Yoshiro Hirayama (Tohoku University)
- Junsaku Nitta (Tohoku University)
- Hideo Ohno (Tohoku University)
- Takafumi Sato (Tohoku University)

22nd Workshop on Quasicrystal - the State of the Art –

■ Date: Monday, March 5, 2018 – Tuesday, March 6, 2018
■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
■ Speakers
- Kazuhiko Deguchi (Nagoya University)
- Keiichi Edagawa (University of Tokyo)
- Nobuhisa Fujita (Tohoku University)
- Takanobu Hiroto (NIMS)
- Jhon-ren Huang (Tohoku University)
- Keisuke Ida (University of Tokyo)
- Kenta Imazawa (Chuo University)
- Keiichiro Imura (Nagoya University)
- Kazuki Inagaki (Tokyo University of Science)
- Yasushi Ishii (Chuo University)
- Tsutomu Ishimasa (Toyota Physical and Chemical Research Institute)
- Yutaka Iwasaki (University of Tokyo)
- Koichi Kitahara (University of Tokyo)
- Farid Labib (Tohoku University)
- Kazuki Nozawa (Kagoshima University)
- Satoshi Ohhashi (Tohoku University)
- Akira Sakurai (Tokyo University of Science)
- Noriaki Sato (Nagoya University)
- Taku J Sato (Tohoku University)
- Takayuki Shiino (Nagoya University)
- Alok Singh (NIMS)
- Yeong-Gi So (Akita University)
- Takanori Sugimoto (Tokyo University of Science)
- Hiroyuki Takakura (Hokkaido University)
- Kotoba Toyonaga (Hokkaido University)
- Tunetomo Yamada (Tohoku University)
- Akiji Yamamoto (NIMS)
- Ryo Yoshida (ISM)

Neuro Global Skill-up Seminar: Academic English for Researchers

■ Date: Monday, March 5, 2018 – Friday, March 16, 2018
■ Venue: Life Sciences Project Research Laboratory, Katahira Campus, Tohoku University
■ Instructors: Dan Jones and Ella Cooper (English Language Teaching Unit, University of Leicester)

Support for Young Researchers

Leading Young Researcher Overseas Visit Program

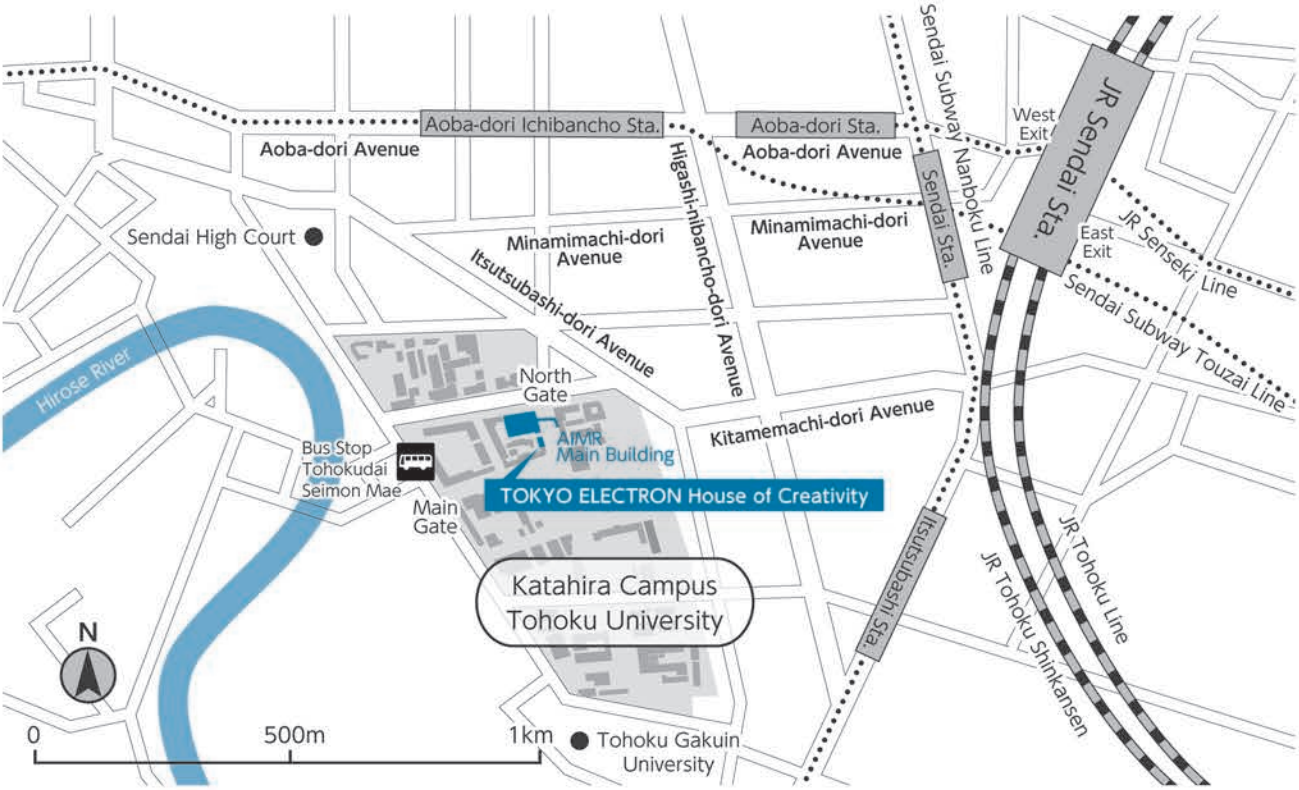
Visitors List

Period	Name	Affiliation	Position	Visiting institute	Research theme
Mar. 03, 2016 Jul. 31, 2017	Takafumi Fukushima	Engineering	Associate Prof.	University of California, Los Angeles (USA)	A Study of Brain Computing System Based on High-Density 3D Interconnect Networking using Directed Self-Assembly
Jul. 01, 2016 Feb. 01, 2017	Rui Nouchi	FRIS	Assistant Prof.	University of Reading (UK)	The neural basis of improvements of cognitive functions and mental health in the elderly after the nutrition, cognitive, and exercise interventions
Sep. 24, 2016 Mar. 25, 2017	Hidenobu Yajima	FRIS	Assistant Prof.	University of Maryland (USA)	Revealing the Co-evolution of First Galaxies and Massive Black Holes
Sep. 25, 2016 Sep. 27, 2017	Toshihiro Omori	Engineering	Assistant Prof.	KTH Royal Institute of Technology (Sweden)	Thermodynamic analysis at low temperatures by CALPHAD method and establishment of alloy design of superelastic alloys
Mar. 17, 2017 Mar. 09, 2018	Shun Kanai	RIEC	Assistant Prof.	University of Chicago (USA)	Exploring New Spin Defect Materials and Systems for Quantum Information Technologies
Jun. 14, 2017 Mar. 25, 2018	Kazuaki Tokodai	Tohoku Univ. Hospital	Assistant Prof.	Karolinska Institutet (Sweden)	Significance of donor-specific anti-HLA antibody in transplantation
Jul. 01, 2017 Jun. 30, 2018	Hafumi Nishi	GSIS	Assistant Prof.	Case Western Reserve University (USA)	Structural Bioinformatics on amino acid mutations and modifications
Sep. 04, 2017 Feb. 28, 2018	Hisashi Kino	FRIS	Assistant Prof.	Stanford University (USA)	Study of Deposition and Etching Technologies for Novel Semiconductor Devices
Sep. 25, 2017 Sep. 30, 2018	Eisaku Miyauchi	Tohoku Univ. Hospital	Assistant Prof.	University of Chicago (USA)	Precision medicine with omics analysis for lung cancer
Feb. 01, 2018 Feb. 01, 2019	Ai Orimoto	Tohoku Univ. Hospital	Assistant Prof.	Harvard University (USA)	Molecular pathogenesis of marfan syndrome based on mechanobiology mechanism
Feb. 21, 2018 Feb. 20, 2019	Takashi Sasaki	Engineering	Assistant Prof.	Stanford University (USA)	Study of optical MEMS and its application systems
Feb. 26, 2018 Aug. 19, 2018	Fuminobu Takahashi	Science	Associate Prof.	Massachusetts Institute of Technology (USA)	The early universe and theory beyond the standard model
Feb. 28, 2018 Feb. 28, 2019	Hiroko Okawa	Tohoku Univ. Hospital	Clinical Fellow	University of California, Los Angeles (USA)	Investigation of vascular calcification mechanisms using iPS cell-derived vascular tissue
Mar. 02, 2018 Aug. 31, 2018	Shuhei Miyashita	Agriculture	Assistant Prof.	Wageningen University (the Netherlands)	Developing anti-viral plant protection technologies by perturbing the social aspects in viral way of life
Mar. 07, 2018 Mar. 01, 2019	Taku Yutani	Science	1st Year PhD	University of Bayreuth (Germany)	An estimation of per-alkaline petit-spot lavas' genesis using multiple saturation experiment

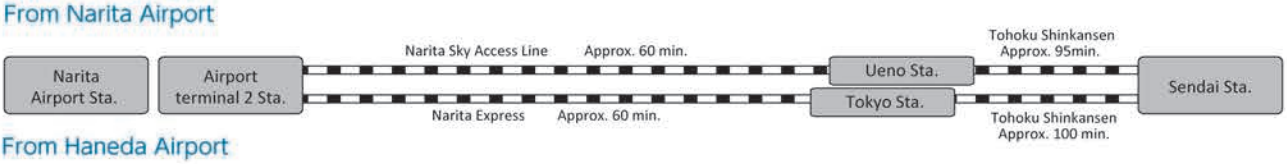
Achievement

- H. Yajima, M. Ricotti, K. Park, K. Sugimura, "Dusty gas accretion onto massive black holes and infrared diagnosis of the Eddington ratio", 2018, The Astrophysical Journal, vol. 846, pp. 3-17
- T. Omori, S. Bigdeli, H. Mao, "A Generalized Approach Obeying the Third Law of Thermodynamics for the Expression of Lattice Stability and Compound Energy: A Case Study of Unary Aluminum", Journal of Phase Equilibria and Diffusion, in press
- T. Fukushima, A. Alam, S. Pal, Z. Wan, S. C. Jangam, G. Ezhilarasu, A. Bajwa, and S. S. Iyer, "FlexTrate™: High Interconnect Density Fan-Out Wafer Level Processing for Flexible Bio-compatible Electronics", *NBMC (Nano-Bio Manufactuuring Consortium) Workshop: Blood, Sweat and Tears III, (2016),*【*invited*】
- T. Fukushima, A. Alam, S. Pal, Z. Wan, S. C. Jangam, G. Ezhilarasu, A. Bajwa, and S. S. Iyer, "A New Flexible Device Integration Technology Based on Fan-Out Wafer-Level Packaging", Printed Electronics USA in IDTechEx show, (2016)
- T. Fukushima, A. Alam, S. Pal, Z. Wan, S. C. Jangam, G. Ezhilarasu, A. Bajwa, and S. S. Iyer, "FlexTrate®" - Scaled Heterogeneous Integration on Flexible Biocompatible Substrates Using FOWLP", *Proceedings of the 67th Electronic Components and Technology Conference (ECTC), (2017),* pp. 1276-1284.
- A. Bajwa, S. C. Jangam, S. Pal, N. Marathe, T. Bai, T. Fukushima, M. Goorsky, and S. S. Iyer, "Heterogeneous Integration at Fine Pitch (2-10 µm) Using Thermal Compression Bonding", *Proceedings of the 67th Electronic Components and Technology Conference (ECTC), (2017),* pp. 649-654.
- T. Fukushima, A. Alam, A. Hanna, S. C. Jangam, A. Bajwa, and S. S. Iyer, "FlexTrateTM Characterization", *2017FLEX, (2017),*【*invited*】
- A. Alam, T. Fukushima, A. Hanna, S. C. Jangam, A. Bajwa, and S. S. Iyer, "FlexTrateTM: For next generation high performance flexible systems", *2017FLEX,* (2017).
- T. Fukushima, A. Alam, A. Hanna, S. C. Jangam, A. Bajwa, S. S. Iyer, "Development of a technology platform using advanced die-first FOWLP for highly integrated flexible hybrid electronics", *Extended Abstract on 2017 International Conference on Solid State Devices and Materials (SSDM), (2017),* pp. 383-384
- A. Hanna, T. Fukushima, A. Alam, S. Moran, W. Whithead, S. Jangam, R. Irwin, A. Bajwa, and S. S. Iyer, Flexible (1mm bending radius) Biocompatible Heterogeneous Fan-Out Wafer-Level Platform with the Lowest Reported Die-Shift (< 6 µm) and Reliable Flexible Cu-based Interconnects", *2018FLEX, (2018),*【*invited*】
- A. Hanna, A. Alam, T. Fukushima, S. Moran, W. Whithead, S. Jangam, S. Pal, G. Ezhilarasu, R. Irwin, A. Bajwa, and S. S. Iyer, "Extremely Flexible (1mm bending radius) Biocompatible Heterogeneous Fan-Out Wafer-Level Platform with the Lowest Reported Die-Shift (< 6 µm) and Reliable Flexible Cu-based Interconnects", *Proceedings of the 68th Electronic Components and Technology Conference (ECTC), (2018),* pp. 1505-1510.
- T. Fukushima, Y. Susumago, H. Kino, T. Tanaka, A. Alam, A. Hanna, and S. S. Iyer, "Self-Assembly Technologies for FlexTrateTM", *Proceedings of the 68th Electronic Components and Technology Conference (ECTC), (2018),* pp. 1830-1835.
- T. Fukushima, A. Bajwa, and S. S. Iyer, "Heterogeneous Integration with High-Performance and Scalable Substrates: Si-IF (Interconnect Fabric) and FlexTrateTM", *Advancing Microelectronics Magazine,* Mar./Apr. 2017.

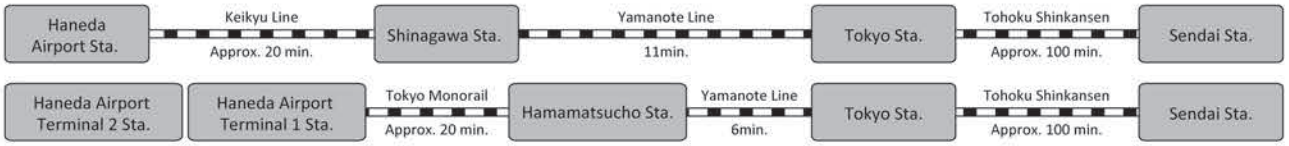
Access and Contact



From Narita Airport



From Haneda Airport



From Sendai Airport

From Sendai Station

By taxi : Approx. 10 min. by taxi from the West Exit on the first floor of Sendai Station

By foot : Approx. 15 min. walk from the West Exit of Sendai Station

From Aoba-dori Ichibancho Station

By foot : Approx. 5 min. walk from the South-1 Exit of Aoba-dori Ichibancho Station

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Contact

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