



TOHOKU
UNIVERSITY

Annual Report 2016



TOHOKU FORUM for CREATIVITY

stationary phase
metric system.

$$V = \bigoplus_{\chi \in \mathbb{Z}^{n+1}} \mathbb{C}_{\chi} \quad \text{repr. simple spec.}$$

gener. acts on V and V^*

$\mathbb{C}[\mathbb{Z}^{n+1} \cap K]$ affine, conic, toric var.

Assume: the $\chi \in$ affine
hyperplane

$$w \in A \subseteq \mathbb{Z}^n$$

$$(1, w)$$



$$\{f(x) = \sum_{w \in A} a_w x^w : (\mathbb{C}^*)^n \rightarrow \mathbb{C}\} \text{ of polynomials,}$$

$$Ch_{\tau} \subset \mathcal{G} \times$$

$$(1) \quad C \subset$$

$$(2) \quad \mathcal{G} \times$$

WKB termi

Hotta-

e.g. above

$$E, g, \sigma = s$$

$$u''(\tau) + \frac{2}{\tau}$$

Take $\mu = \tau$.

3 Message from the President

4 Message from the Director

5 Overview of the Tohoku Forum for Creativity

Mission

Organization

International Advisory Board

Support for the Tohoku Forum for Creativity

7 A Message from our Sponsor

8 Activity Report 2016

Thematic Programs

- Modern Interactions between Algebra, Geometry and Physics
- Earth and Planetary Dynamics
- The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge
- Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth

Junior Research Program

- Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

Other Activities

- Falling Walls Lab Sendai 2016
- Discovery Event for Aspiring Female Scientists
- Special Lectures
- Quattro Seminars

Support for Young Researchers

- Leading Young Researcher Overseas Visit Program

34 Information 2016

Thematic Programs • Junior Research Program
Invited Researchers List

Thematic Programs

- Modern Interactions between Algebra, Geometry and Physics
- Earth and Planetary Dynamics
- The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge
- Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth

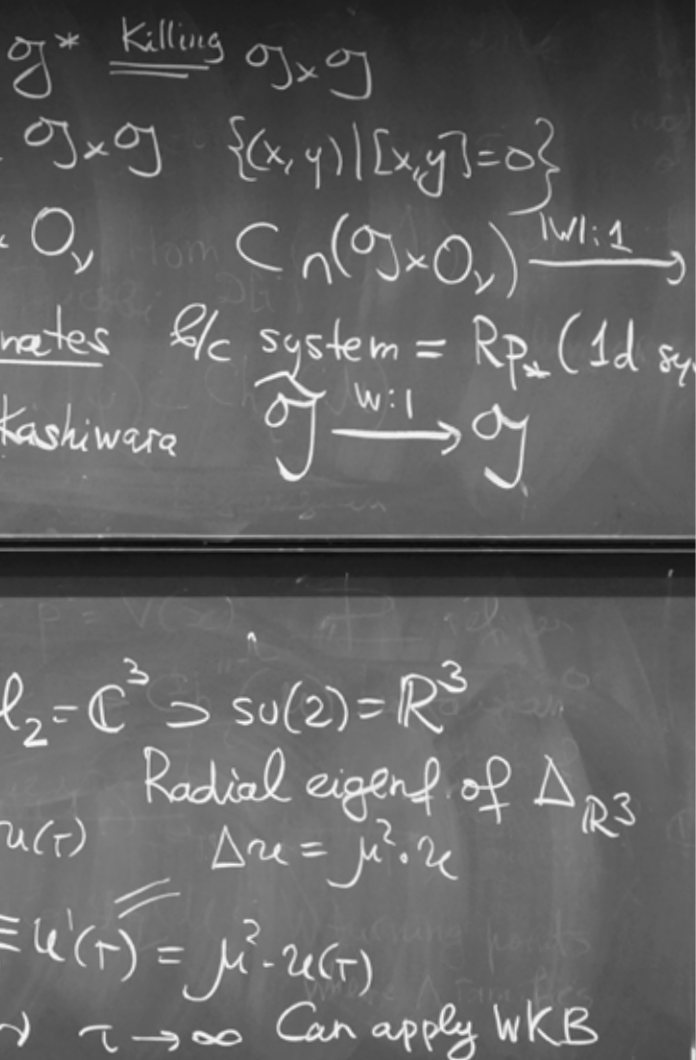
Junior Research Program

- Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

Other Activities

Leading Young Researcher Overseas Visit Program

53 Access and Contact





Message from the President

In Issuing the Annual Report

For more than a century, Tohoku University's tradition of “Research First”, philosophy of “Open Doors”, and ethos of “Practice-Oriented Research and Education” have produced excellent graduates, generated numerous research achievements, and contributed to the development of a peaceful and just society.

In August of 2013, I compiled the Satomi Vision which reaffirms the modern significance of the fundamental ideals and mission that Tohoku University has retained throughout its history. This document outlines the direction that our university will take over the next five years, and the policies and schedule that will lead us there.

Based on our school philosophy, the vision aims to develop Tohoku University as a community of wisdom open to the world where people can gather together, learn, and create. Doing so will allow us to achieve our two goals of Achieving World-Class Status and Leaping Ahead, and Leading the Post-earthquake Restoration and Regeneration. In order to realize one part of the Satomi Vision, we have established Thematic Programs organized by the Tohoku Forum for Creativity (TFC). These programs will act as an international brain circulation initiative which will allow us to strengthen our research interests, and are being carried out with support from the Program for Promoting the Enhancement of Research Universities from the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

The TFC holds Thematic Programs, which are research programs in which world-leading scientists, including Nobel Laureates, are invited to Tohoku University for a specified period of time in order to engage in joint research with junior researchers, and to participate in daily debates with students. The aim of these programs is to contribute to the solution of the important problems which humanity faces through the creation of new interdisciplinary research fields. Therefore, the TFC's activities are positioned at the core of the university's strategic international brain circulation initiative.

To promote the Thematic Programs, in October 2013 we established the TFC, the first International Visitor Research Institute in Japan, and in March 2015 we completed construction of the TOKYO ELECTRON House of Creativity. The TFC hosted four Thematic Programs, one Junior Research Program, and various outreach activities in 2016 and saw significant progress. In addition, the TFC signed an agreement on academic collaboration with the Lorentz Center, the Netherlands in order to deepen cooperation and enhance collaborative research projects between these research centers. As such, the TFC holds an extremely important position within the research activities of Tohoku University, and there are great expectations, both from within the university and without, for what we can achieve in the near future.

This Annual Report has been created to provide all stakeholders in the program with an overview of the activities of the TFC. Accordingly, we ask for your continued understanding and cooperation with the Tohoku Forum for Creativity in the future.

Tohoku University President
Susumu Satomi



Message from the Director

For promoting the Tohoku Forum for Creativity's Thematic Programs

The Tohoku Forum for Creativity's Thematic Programs play a central role in the framework for international brain circulation outlined in the Satomi Vision.

The research focuses of these Thematic Programs were selected based on global trends and the current challenges facing humanity. At each thematic program, world leading researchers, including Nobel Laureates, are invited to the TOKYO ELECTRON House of Creativity for a period of between one and three months to carry out groundbreaking research. In this sense, the Tohoku Forum for Creativity is 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, to interact and discuss their ideas with eminent scholars.

In 2016, the TFC hosted four Thematic Programs, entitled: "Modern Interactions between Algebra, Geometry and Physics", a program in which the participants discussed recent developments in the field of moduli spaces and their quantization; "Earth and Planetary Dynamics", a program focused on the "Origin, Evolution, and Future of the Earth"; "The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge", a program covering a wide range of subjects in Japanese studies; and "Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth", a program providing solutions for world energy and global warming issues.

The TFC also implemented a Junior Research Program which provided talented young researchers with the opportunity to organize workshops. In 2016, the TFC hosted a program entitled: "Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors".

In addition, the TFC organized "the Falling Walls Lab Sendai 2016" in collaboration with the Falling Walls Foundation of Germany, "International Spintronics School" as a follow-up event to the Thematic Program 2015, "Discovery Event for Aspiring Female Scientists", which was aimed at developing female leaders who can create an affluent society for future next generations. The TFC also held two public lectures entitled: "The history and future of the Nobel Prize", which was given by the Former chair of the Nobel Prize selection committee and "Aging Science", a pre-event to the Thematic Program 2017. Also building momentum are the so-called Quattro Seminars, which gather together young researchers in the humanities and social sciences, to discuss the seeds of cross-sectional research.

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 immeasurable 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 heeding 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)

Sadayoshi Ito

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.

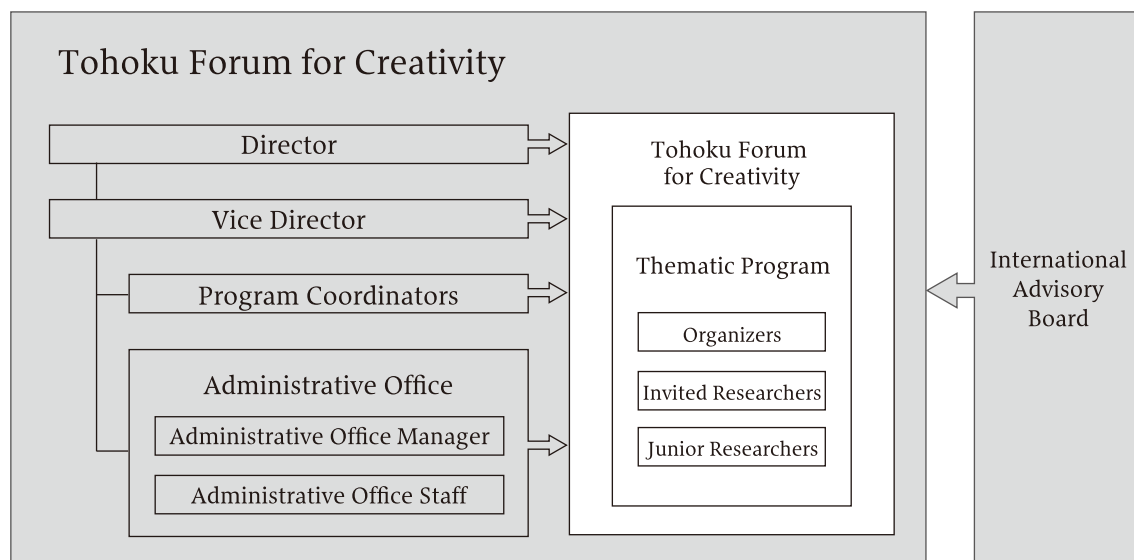
Educating Global Leaders to Build the Future of Humanity

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 evaluate 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
Makoto Kobayashi	Nobel Laureate in Physics 2008 Honorary Professor Emeritus High Energy Accelerator Research Organization
Kiyoshi Kurokawa	Adjunct Professor National Graduate Institute for Policy Studies
Oliver Smithies	Nobel Laureate in Physiology or Medicine 2007 Weatherspoon Eminent Distinguished Professor Department of Pathology and Laboratory Medicine, University of North Carolina at Chapel Hill

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
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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 FY2016.

FY2016

Comprehensive support for the TFC

- Tokyo Electron Limited

Support for the “Modern Interactions between Algebra, Geometry and Physics” Thematic Program

- THE TOKYO CLUB



A Message from our Sponsor

Toward the Creation of the Future

Since our foundation in 1963, Tokyo Electron (TEL) has been providing semiconductor production equipment and flat panel display production equipment, and evolving with the times as a pioneer in the leading-edge tech industry.

Based upon our corporate philosophy, “We strive to contribute to the development of a dream-inspiring society through our leading-edge technologies and reliable service and support,” we promote various initiatives in support of education for future generations.

In recent years, our lives have become more convenient and prosperous with the development of innovative technologies. Moreover, as we enter the age of the Internet of Things (IoT) in which everything becomes connected via the Internet, it is expected that this trend will further accelerate in the future. On the other hand, as various social issues such as climate change, exhaustion of energy and resources, poverty and hunger, human rights and labor, education and health are becoming increasingly widespread on a global scale, it is necessary for industry, academia and government to cooperate and work to build a sustainable society.

Tohoku University and our company have been exchanging people and technology on a long-term ongoing basis, through industry-university collaboration in the semiconductor sector. In addition, we are in firm agreement with the concept of the TFC as a full-fledged visitor research program, introduced by Tohoku University as a first among universities in Japan, and have been in support of the program and its efforts since its foundation in 2013.

Nobel Laureates, Fields Medalists and other distinguished researchers are invited from around the world to the TFC, to advance cutting edge research in various fields in support of a sustainable society. Through this program, I hope we can contribute to the advancement of the human resource cultivation from the global perspective and provide the next global research leaders with the opportunities to interact with the world-leading scholars. In the near future, I hope one day we can combine new perspectives and researches from the next generation with our leading-edge technologies.

I really hope that the TFC will be a symbol of recovery for Tohoku region as an open world forum with great momentum and contribute greatly to the development of a prosperous society for the future.

I would like to express my hope for the continued development and prosperity for the Tohoku Forum for Creativity’s Thematic Programs at Tohoku University.

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 2016

Thematic Programs

- 9 Modern Interactions between Algebra, Geometry and Physics
- 13 Earth and Planetary Dynamics
- 17 The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge
- 21 Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth

Junior Research Program

- 25 Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

Other Activities

- 29 Falling Walls Lab Sendai 2016
- 30 Discovery Event for Aspiring Female Scientists
- 30 Special Lectures
- 30 Quattro Seminars

Support for Young Researchers

- 31 Leading Young Researcher Overseas Visit Program



Thematic Program | April 2016 – July 2016

Modern Interactions between Algebra, Geometry and Physics

The major goals of this thematic program were to discuss and study recent developments in the field of moduli spaces and their quantization. To this end, we invited distinguished researchers in mathematics and physics to report on new developments in related algebraic and geometric structures with physical applications, so that in turn, these results can be disseminated in a variety of research areas. The thematic program served as a perfect opportunity for junior researchers to become involved in cutting-edge research. The research areas covered by the thematic program have many applications to other research fields, including engineering, information science, and material science. To implement the thematic program practically, we focused on the following topics: 1) Geometry of Wall-Crossing, Deformation Quantization and Resurgent Analysis, 2) Lagrangian Floer theory and Symplectic Geometry, and 3) Complex Geometry and Mirror Symmetry. These topics are mutually related and have a deep connection with quantum theory (especially quantum field theory).



Important Goals and Degree of Achievement

The purpose of this program was to contribute from a mathematical perspective to quantum field theory in physics, to cultivate human resources capable of researching in this area, facilitate cooperation with the other research areas, and create an international research network. We selected the geometry of wall crossing, deformation quantization of complex domains, Floer theory, and geometric analysis of complex manifolds and its application to be the topics of discussion in the thematic program. We fixed the topics for each month, so that participants could concentrate on the discussions, and thereby ensure that talks were fruitful and effective. Participants could each comprehend the deep relationships between mathematics and physics, which should lead, in turn, to future international cooperation in this area. This type of cooperative research emerges only in visitor research centers like the TFC. We think this program has been successfully completed. In the presence of such distinguished visiting researchers, junior researchers found both encouragement and expert insight. An outcome of this interaction is that one of the junior researchers who gave talks in the workshops was offered a guest research position from Professor, Shing-Tung Yau at Harvard University. In the topic of deformation quantization, there was a great deal of fruitful discussion on the potential application of noncommutative geometry to material science. We expect that future research cooperation programs will be traced back to this opportunity.

Program Organizers



Shigetoshi Bando (Professor, Graduate School of Science, Tohoku University)

Prof. Bando completed his doctoral course at Princeton University. He took his current position after serving at Tohoku University as a research associate and then an associate professor. He received the Mathematical Society of Japan Geometry Prize in 1997.



Giuseppe Dito (Associate Professor, Mathematical Institute, University of Burgundy)

Prof. Dito completed his doctoral course at the University of Burgundy. He took his current position after serving at the University of Burgundy as a postdoctoral researcher and at the Research Institute for Mathematical Science, Kyoto University as a research fellow. He is Managing Editor of Letters in Mathematical Physics.



Toshiki Mabuchi (Professor Emeritus, Osaka University)

Prof. Mabuchi completed his doctoral course at University of California, Berkeley, and became a professor at Osaka University, where he served until he took his current position. He received the Mathematical Society of Japan Geometry Prize in 2006. He also gave a talk in the Geometry session at the ICM 2006 held in Madrid.



Reiko Miyaoka (Professor Emeritus, Tohoku University)

Prof. Miyaoka completed her doctoral course at the Tokyo Institute of Technology. She became a professor at Tohoku University after working as an associate professor at the Tokyo Institute of Technology, a professor at Sophia University, and a professor at Kyushu University. She received the Mathematical Society of Japan Geometry Prize in 2001. She is a member of the Science Council of Japan.



Kaoru Ono (Professor, Research Institute for Mathematical Sciences, Kyoto University)

Prof. Ono completed his doctoral course at the University of Tokyo. He took his current position after serving as a professor at Hokkaido University. He received the Mathematical Society of Japan Geometry Prize in 1999, the Autumn Prize in 2005 and the Inoue Academic Prize in 2006. He was an invited speaker at the ICM 2006.

Program Highlights

Two Field Medalists were invited to the thematic program, namely, Professor Maxim Kontsevich of IHES and Professor Shing-Tung Yau of Harvard University, who were key contributors to the development of this successful thematic program. The topics in April, 2016, Geometry of Wall Crossing, Deformation Quantization and Resurgent Analysis, was mainly organized by Associate Professor Giuseppe Dito and Professor Maxim Kontsevich. This topic included a spring school for junior researchers and a workshop for senior researchers. Both events were very lively. The topic



in May, Symplectic Geometry and Physics, was organized mainly by Professor Kaoru Ono, RIMS, Kyoto University, who gave an intensive lecture series for junior researchers and organized a workshop, to which top worldwide researchers were invited. The topic in June and July, Complex Geometry and Mirror Symmetry, included two intensive lecture series by Professor Toshiki Mabuchi and by Professor Xiuxiong Chen, and special lectures and workshops. Professor Shing-Tung Yau gave a special lecture “Perspectives in Geometric Analysis” in July, and discussed several important open problems in geometry. Along with Professor Maxim Kontsevich and Professor Shing-Tung Yau, we invited Professor Kenji Fukaya of Stony Brook University, who stayed at the Tohoku Forum for Creativity for a month during June-July and engaged in cooperative work with his research group members. We believe it was extremely helpful for junior researchers to gain practical work experience through cooperative research with these distinguished researchers. Professor Alan Weinstein, one of the pioneering researchers in modern symplectic geometry, gave a special lecture aimed at junior researchers. The distinguished researchers who visited the TFC indicated that this thematic program’s activities would have an international impact.

Specific Strategies for International Research Exchange

This thematic program has already formed commitments with several related institutions. Building on the program, we intend to develop international research cooperation and networks. In particular, we hope to cooperate with IHES, where Professor Maxim Kontsevich is based. We expect that the TFC will be recognized as an active research visitor institute by the world-class researchers who have visited the TFC. In particular, Professor Shing-Tung Yau has agreed to form a partnership with the TFC for the exchange of junior researchers between Japan and China. We also initiated a significant relationship between the Japanese and Belgian mathematics community by organizing a cooperative workshop on symplectic geometry, which will include a research exchange program. In fact, after the thematic program, a Japanese research group in symplectic geometry visited Brussels to develop cooperative research. A research group at the Institute of Basic Science in Korea is also developing a cooperative research program with their Japanese colleagues, including Professors Kaoru Ono and Kenji Fukaya. TFC has made a concerted effort to enable these types of international cooperative research work. Finally, this thematic program has also made progress on developing a research network throughout parts of Asia.

Principal Invited Researchers



Maxim Kontsevich

(Institut des Hautes Études Scientifiques, France)

Prof. Kontsevich was the recipient of the Fields Medal in 1998, the Crawford prize in 2008, the Shaw prize in 2012, the Breakthrough prize in fundamental physics in 2012, and the Breakthrough prize in mathematics in 2014.



Shing-Tung Yau

(Harvard University, USA)

Prof. Yau was the recipient of the Veblen Prize in 1981, the Fields Medal in 1982, the Crawford Prize in 1994, the National Medal of Science in 1997 and the Wolf prize in 2010.



Kenji Fukaya

(Stony Brook University, New York, USA)

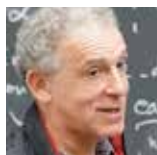
Prof. Fukaya was the recipient of the Mathematical Society of Japan, Spring Prize, the Inoue Academic Prize, the Asahi Prize, and the Fujiwara Prize. He is a member of the Japan Academy. He was an invited speaker at the ICM 1990.



Xiuxiong Chen

(Stony Brook University, New York, USA)

Prof. Chen has gained an international reputation in the mathematical research community through his work on Ricci flow, Einstein metrics on complex manifolds and K-stability via geometric analysis. He was an invited speaker at the ICM 2002.



Yan Soibelman

(Kansas State University, USA)

Prof. Soibelman has been invited as a visiting researcher at the Max Planck Institute, IHES, and the Clay Mathematical Institute.



Sergei Gukov

(California Institute of Technology, USA)

Prof. Gukov is known for his outstanding contributions to String and Gauge theory, knots and invariants of 3-manifolds. He was a Long-Term Prize Fellow of the Clay Mathematics Institute (2001-2006).



Pierre Schapira

(Pierre and Marie Curie University – Paris 6, France)

Prof. Schapira was an invited speaker at the ICM 1990. He is a fellow of the American Mathematical Society.



Alan Weinstein

(University of California, Berkeley, USA)

Prof. Weinstein is an international leader for his distinguished research in symplectic geometry. He was an invited speaker at the ICM 1978. He became a fellow of American Mathematical Society in 2012.

International Training for Young Personnel

This thematic program specifically promoted several events and cooperative research for young Japanese researchers, to provide them with the opportunity to meet world-class researchers and learn about their research work through direct contact. The Tokyo Club offered support to invite students and junior researchers from Asia, including Vietnam, Thailand, Cambodia, Korea, China and Iran. These students and junior researchers were able to begin to build relationships with young Japanese researchers, which we expect to develop into fruitful cooperation in the future. The TFC's role is to offer a location where world-class researchers and junior researchers in Japan and Asia can start building a new research network. Young international researchers who have visited the TFC have a good opportunity to interact with high quality Japanese researchers, which fits with the mission of the TFC.

Strategies Following the Completion of the Program

The research topics treated in this thematic program are expected to remain vital and increase in importance in the future. The TFC's contribution as a location for intense discussions on these research topics among invited visiting researchers is part of the success of the thematic program. The study of symplectic geometry and complex geometry in Japan has a very strong reputation in the international mathematics community. We propose to have a research strategy in Japan to further develop symplectic geometry and complex geometry, and to construct a research network in these areas, so that Japan can become a world leader, and in particular a leader in Asia, in these important research areas.



Thematic Program | July 2016 – December 2016

Earth and Planetary Dynamics

Thematic Program “Earth and Planetary Dynamics” consisted of four symposia covering three important areas in earth and planetary dynamics, a summer school, and two outreach lectures. Titles of three symposia were “New Challenges in Volatile Cycling in the Deep Earth”, “Planetary Science and Space Exploration”, and “Dynamics and Interactions of the Ocean and Atmosphere”. Many active scientists participated and discussed intimately in these symposia. Another symposium was “Neutrino Research and Thermal Evolution of the Earth”, which is a newly developing area covering both physics and earth science. The summer school “Frontiers in Earth and Planetary Sciences” was held on July 7 to 12 and covered the above four areas, with introductory lectures for beginners and advanced lectures for the specialists. Graduate students enjoyed the lectures given by world-leading scientists in each area. Two public lectures were made on “Advances in Space Planetary Exploration” and “Ocean and Atmosphere Interactions, and Global Warming” on July 10, and July 18 in Sendai Science Museum and on July 18 at Aoba Science Hall of Graduate School of Science of Tohoku University, respectively. Many citizens and high school students enjoyed these lectures.



Important Goals and Degree of Achievement

The important goals across the whole of this program were to emphasize and expand international networks for joint education and research programs with respect to earth and planetary sciences, which were undertaken in parallel. In “New Challenges in Volatile Cycling in the Deep Earth”, many graduate students from Tohoku University, University of Bayreuth, and Novosibirsk State University participated and presented posters. The objective of this to be a kick-off symposium for the JSPS Japan-Germany joint graduate school program has been achieved. In “Planetary Science and Space Exploration”, we set two primary objectives, namely promotion of the mutual understanding between researchers necessary to ensure international cooperation in sample return missions, while advancing this area, and promoting the exchange between domestic and foreign scientists, young researchers and graduate students that is essential for expanding the field of sample return missions. In “Dynamics and Interactions of the Ocean and Atmosphere”, we gathered researchers to study atmospheric and oceanic sciences, and exchanged knowledge on the dynamic property of the atmosphere and ocean, as well as the atmospheric-oceanic interaction that has long been attracting attention. In “Neutrino Research and Thermal Evolution of the Earth”, we aimed to facilitate collaboration between neutrino researchers and earth scientists and strove to define the directions of new developments in this area. We were successful in achieving this target, and managed to greatly advance efforts toward the creation of a new earth model. Progress was also made in the cooperative network for realization of the submarine neutrino observation device.

Program Organizers



Eiji Ohtani (Emeritus Professor, Graduate School of Science, Tohoku University)

Prof. Ohtani completed his doctorate course at the Graduate School of Science, Nagoya University. He took his current position after working at Ehime University as an assistant professor and an associate professor, and Tohoku University as an associate professor and a professor. Dr. Ohtani was awarded the 2007 N.L. Bowen Award from the VGP section of AGU, the 2010 Purple Ribbon Medal from the Japanese Government, and the 2017 Urey Award from the European Association of Geochemistry.



Tomoki Nakamura (Professor, Graduate School of Science, Tohoku University)

Prof. Nakamura completed his doctorate course at the Graduate School of Science, the University of Tokyo. He took his current position after working at Kyushu University as an assistant professor and an associate professor, and Tohoku University as an associate professor. He is studying the primitive materials of the solar system and the samples recovered via the Sample Return Program. Dr. Nakamura was awarded the Geochemical Society of Japan Award for Young Researchers.



Michihiko Nakamura (Professor, Graduate School of Science, Tohoku University)

Prof. Nakamura completed his doctorate course at the Graduate School of Science, the University of Tokyo. He took his current position after working at Tokyo Institute of Technology as a research associate and Tohoku University as an associate professor. He leads the Volcanology and Geofluids Research Group. His group studies and analyzes volcanic ejecta and eruption mechanisms by experimental volcano physics, and also studies high-pressure and temperature experiments on super-critical fluids in the interior of the Earth.



Toshio Suga (Professor, Graduate School of Science, Tohoku University)

Prof. Suga completed his doctorate course at the Graduate School of Science, Tohoku University. He took his current position after working at Tohoku University as a research associate and an associate professor. He also serves as a councilor of the Oceanographic Society of Japan, a committee member of the Japan Meteorological Agency, a member of the GCOS-GOOS-WCRP Ocean Observations Panel for Climate (OOPC), and a member of Argo Steering Team Executive Meeting. Dr. Suga was awarded the Okada Prize from the Oceanographic Society of Japan.



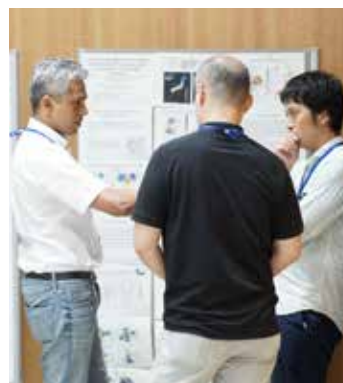
Kunio Inoue (Professor, Research Center for Neutrino Science, Tohoku University)

Prof. Inoue completed his doctorate course at the Graduate School of Science, Tohoku University. He took his current position after working at the Institute for Cosmic Ray Research, the University of Tokyo as a research associate, and Tohoku University as an associate professor. He has served as a leader of the KamLAND experiment group at the Research Center for Neutrino Science since 2006. Dr. Inoue was awarded the JSPS Award in 2008, the Nishina Memorial Award in 2012, and the Breakthrough Prize in 2015.

Program Highlights

The highlights of this program were to invite famous researchers to the four international workshops and to construct new international research systems. In “New Challenges in Volatile Cycling in the Deep Earth”, we invited two people from the research funding support organizations, the Japan Society for the Promotion of Science (JSPS) and the Deutsche Forschungsgemeinschaft (DFG), who both were acknowledged that the research was progressing well. In “Planetary Science and Space Exploration”, we emphasized collaboration between Dr. Mike Zolensky and Professor Tomoki Nakamura. The latter’s students benefited substantially thanks to Dr. Zolensky’s long stay. In “Dynamics and Interactions of the Ocean and Atmosphere”, we deepened understanding of the mechanical similarity between the atmosphere and ocean, and were able to build a network to promote new research in this direction. In “Neutrino Research and Thermal Evolution of the Earth”, new findings obtained thanks to increased prediction accuracy for geo-neutrinos were reported, and a system was established for constructing an Earth model, through cooperation between neutrino researchers and earth scientists.

The outreach lecture “Ocean and Atmosphere Interactions, and Global Warming” gave us an opportunity to interactively communicate with citizens across a wide range of age groups on subjects relating to atmospheric ocean science, thanks to the Science Cafe style presentation adopted.



Specific Strategies for International Research Exchange

We are jointly implementing international exchange projects that are progressing in parallel, and we expect a synergistic effect between these programs. We established a concrete strategy to contribute to the success of exchange projects, such as the Graduate Program in Earth and Environmental Sciences (GP-EES), the Graduate Program on Physics for the Universe: GP-PU), the JSPS Japan-Germany joint education program, the JSPS Japan-Russia exchange program, and the Leading School program, which are all progressing in parallel. As a result, we were able to promote network formation in the Graduate Program in Earth and Environmental Sciences (GP-EES). Further, we invited a faculty member from the University of Hawaii to serve as staff in our graduate school’s ocean and atmosphere science field. The Graduate Program on Physics for the Universe (GP-PU) was responsible for raising the interest of the Earth scientists in Neutrino Geophysics, and contributed to the invitation of Professor William F. McDonough, a leading authority on geochemistry, as a visiting professor to Tohoku University. He was invited to Tohoku University in a joint employment format, for 5 years from October 2016.

International Training for Young Personnel

It is important to link this program with the projects of fostering junior researchers and forming international research networks. To that end, we invited young teachers and graduate students to be executive committee members for the planning of the TFC project, which was implemented under collaboration between the TFC and two International Joint Graduate Programs (the Graduate Program in Earth and Environmental Sciences (GP-EES) and the Graduate Program on Physics for the Universe (GP-PU)). We invited numerous researchers of the two partner International Joint Graduate Programs to be invited researchers for the Thematic Program. We successfully promoted exchange among junior researchers and graduate students of our university and staff of counterpart universities, and we managed to arrange detailed discussions on joint education and research programs during the meeting. As a result of this activity, it was possible to establish the Graduate Program in Earth and Environmental Sciences (GP-EES) in October, a whole year and a half earlier than scheduled. Students were attracted by this program, and some of them decided that they wanted to apply.

Principal Invited Researchers



Bjorn Mysen

(Carnegie Institute of Washington, USA)

Senior researcher of the Geophysical Laboratory at Carnegie Institute of Washington. He is an expert in magmatology and geofluid research, and has been appointed Fellow of both the Mineralogical Society of America and the American Geochemical Society. He is a recipient of the Clark Award from the Geochemical Society of America.



Daniel J. Frost

(University of Bayreuth, Germany)

Head of the Bayerisches Geoinstitut at University of Bayreuth. He is a world leader in the study of the Earth's material science at high pressure, and is a recipient of the Mineralogical Society of Great Britain Max Hey Medal, the Mineralogical Society of America award, and the American Geophysical Union James B. Macelwane Medal. He is the IRTG program coordinator for "Volatile cycle" from the German Science Foundation.



Mike Zolensky

(NASA Johnson Space Center, USA)

Principal Researcher at the NASA Johnson Space Center. Specializing in the research of interstellar dust and primitive meteorites, Dr. Zolensky serves as a curator at NASA/JSC and the president of the Meteoritical Society. His main focus is in analysis of samples from comets and asteroids recovered through solar system exploration.



Jean-Pierre Bibring

(University of Paris-Sud, France)

Professor at the Institut d'Astrophysique Spatiale. He is a famous planetary scientist, who has served as a specialist in spectroscopic techniques for many planetary explorations, such as to Mars and comets. He collaborates with JAXA on the Hayabusa II mission and the near-infrared spectrometer for Martian satellite exploration. He received the Whipple Award at the 2009 AGU.



Shang-Ping Xie

(University of California, San Diego, USA)

Professor of the Scripps Institution of Oceanography at University of California, San Diego (UCSD). He received the Society Medal of Meteorological Society of Japan in 2002, the National Science Foundation Special Creativity Award in 2013, and the Sverdrup Gold Medal of the American Meteorological Society in 2017.



Kelvin Richards

(University of Hawaii at Manoa, USA)

Professor at the University of Hawaii at Manoa and Director of International Pacific Ocean Research Center. A global authority in research on mixing process in the ocean, he has promoted research into the effects of mixing processes on climate systems, atmosphere-ocean interaction and ecosystem dynamics, from the perspectives of observation and modeling. He served as a chair of CLIVAR Pacific Ocean Panel, and as Vice President of European Geoscience Union.



William F. McDonough

(University of Maryland, USA)

Professor at University of Maryland and Director of Institute of Plasma Mass-spectrometry. He is a specialist in the compositions, structures, and formations of the Earth, and a world leader in chemical models of the Earth. He received the Robert Wilhelm Bunsen Medal, from the European Geosciences Union in 2012.



John G. Learned

(University of Hawaii, USA)

Professor of University of Hawaii. He is an authority on elementary particle astronomy, and a pioneer in ocean-bottom elementary particle experimentation. He received the Rossi Prize in 1989, the Asahi Prize in 1998, the U. H. Regents Medal in 1999, and the Breakthrough Prize in 2015.

Strategies Following the Completion of the Program

We are planning to connect this program to our two International Joint Graduate Programs, the Graduate Program in Earth and Environmental Sciences (GP-EES) and the Graduate Program on Physics for the Universe (GP-PU).

Following a collaboration scheme with the University of Bayreuth in 2016 in the GP-EES, we defined a MOU on the Joint Supervised degree with SOEST of the University of Hawaii in March 2017. This was accomplished by Professor Suga, who was aided by Professor Kevin Richards, the director of IPRC of University of Hawaii, whom he invited in July 2016.

We sent 40 Graduate and Undergraduate students to the University of Hawaii from March 1 to 10, 2017, under funding from JASSO (the Japan Student Services Organization) and the International Graduate Program of Earth and Environmental Science (GP-EES). We held a one-day symposium titled as "Earth, Sea and Sky: A Symposium on Research at the University of Hawaii" on March 8, 2017.



Thematic Program | May 2016 – March 2017

The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge

The 21st Century Hasekura Project possesses various meanings. In order to connect Tohoku University with European Universities, it aims to organize a network under the rubric of ‘Japanese Studies’, bringing together researchers from several European nations and establishing a common forum in which to share work and research in a direct and concrete way in order to create a new kind of knowledge. In addition to specific research on Japan, we set the characteristic ‘esthetics’ in which Japanese culture is rooted in place as a central pillar in the methodology of our new ‘Japanese Studies’. In line with this mission, we want to establish a close relationship of collaboration between researchers in Japanese Studies, as well as researchers who have been recognized scholarly potential in aspects of Japanese culture in Europe. Tohoku University is located in the city of Sendai, where the famous embassy of the Keicho Era was planned, and therefore, the construction of this type of network upon the idea of ‘Japanese Studies’ resonates with the ‘Plan for a 21st Century Hasekura Tsunenaga’. The project will concern “conflict resolution” and “the search for new methodologies”.

The name ‘Hasekura League’ comes from a historical figure in early 17th-century Japan; Hasekura Tsunenaga who set sail in 1613 for Europe as an overseas envoy to the West. Lord Date dispatched this special mission, hoping to initiate cultural exchange with the wider world.



Important Goals and Degree of Achievement

Our purpose is to bring together the complementary, but often isolated, rich traditions of scholarship and academic research in Japan and Europe through the creation of a new style of 'Japanese Studies' based on communal research by Japanese and European scholars, exploring and clarifying the place of Japan, its culture, and its society in the world. Japan is often seen as standing at the nexus of "East" and "West," with deep and abiding historical and cultural connections with China, India, and Islamic societies, and its historical experience of fundamental transformation through its late 19th century collision with the modern states of Europe and North America. This international project will place an emphasis on the distinctive nature of subjectivity that evolved in the context of Japan's specific historical experience and the place it has occupied in the world. In contrast with the subject-object pattern common in European thought, this subjectivity points to the possibility of a new kind of knowledge and offers the potential to inaugurate the new field of 'esthetics' that transcends the dichotomy of 'East' and 'West'. Hasekura Tsunenaga set sail from Sendai at the beginning of the 17th century in order to construct a new international network. In pursuit of the same goal, we have adopted his name for the 21st Century Hasekura Project.



We can summarize our program in the following two points: ① For the first time ever, the Graduate School of Arts and Letters of Tohoku University will bring together researchers from several universities to build a network for the 'Project of Communal Research about Japanese Studies'. On this occasion, an 'International Symposium dedicated to Knowledge and Arts on the move - Transformation and Innovation of Knowledge through the Encounter of East and West' was held. The report and the results of the Symposium will be published in Italy. ② We invited the core members of the 'Project of Research about Japanese Studies' to Sendai, where they gave seminars and held discussions with young researchers.

In this way, we aimed to further the construction of a new style of research in the Humanities based on 'esthetics' representing a common good for the East and West.

Program Organizers



Akihiro Ozaki (Professor, Graduate School of Arts and Letters, Tohoku University)

Prof. Ozaki completed his master's course in the Graduate School of Arts and Letters of Tohoku University. He took his current position from 2000 after serving at Tohoku University as a research assistant, lecturer and then associate professor at Hirosaki University. He received the Abe Jiro Culture Prize.



Hiroo Sato (Professor, Graduate School of Arts and Letters, Tohoku University)

Prof. Sato completed his master's course in the Graduate School of Arts and Letters of Tohoku University. He took his current position from 2001 after serving at Tohoku University as a research assistant, then associate professor at Morioka University.



Akinori Takahashi (Professor, Graduate School of Arts and Letters, Tohoku University)

Prof. Takahashi completed his doctoral course in the Graduate School of Arts and Letters of Tohoku University, after which, he received his Ph.D. from Hitotsubashi University. He took his current position from 2014 after serving at Tohoku University as a research assistant, lecturer and then associate professor. He was an invited professor at Indonesia University (1997, 2000) and Beijing Japanese Research Center in China (2003).



Enrico Fongaro (Associate Professor, Graduate School of Arts and Letters, Tohoku University)

Associate Prof. Fongaro completed his master's course in the Graduate School of Philosophy of Padova University and his doctor's course in the Graduate School of Kyoto Institute of Technology. He took his current position from 2012 after serving as a part-time researcher at Nanzan Institute for Religion and Culture.

Program Highlights

Prof. Paul Ziche (Utrecht University) provided an intensive lecture: Philosophy, art and science around 1800. Prof. Ivo Smits (Leiden University) participated in a student workshop, Intensive Seminar for Young Researchers, aimed to support students' research through collective discussion and to arouse student's interest in studying abroad at Leiden University in the future. Prof. Smits participated in a workshop entitled "Encounter of Japan and the Netherlands", in which, he discussed in concrete terms the actual reality of the exchange between Japan and Netherlands that is portrayed in both literature and visual arts, and the creation of a new culture from the encounter. Prof. Harald Fuess (Heidelberg University) delivered a lecture entitled "The Civil War at the End of Shogunate and during the Restoration: New Perspectives on the Boshin War", which was followed by a lively debate over the lecture's contents. Prof. Fuess made use of overseas materials related to the Boshin War and released new findings on the financial relationships related to the execution of the war. These overseas sources have been overlooked by researchers in Japan, and the lecture clarified an important blind spot in Japanese scholarship. It can be said that a wind of change has been blown into the study of the Edo era. Finally, we held the symposium, Knowledge and Arts on The Move: Transformation of The Self-Aware Image through East-West Encounters. This was an impressive event bringing together 22 speakers from nine countries. We feel that this symposium has made a contribution from the humanistic side to two very current tasks, namely "conflict resolution" and the "realization of happiness".

Specific Strategies for International Research Exchange

The launch event for the new "Japanese Studies" graduate program at Tohoku University was the international symposium "How to Learn: Nippon/Japan as Object, Nippon/Japan as Method" held in concert with the University of Florence at its campus in 2015. As many as 16 universities, including Tohoku University, from a total of 9 countries, participated in this symposium, which also provided a forum for the establishment of the Hasekura League, whose purpose is to promote the exchange of students, teaching staff, and scholarship between the participating universities. In contrast with standard agreements that tend to provide for bilateral relations between schools or exchanges between multiple schools, the key feature of the Hasekura League is the importance it places on the creation of a network covering an entire region. In the belief that we can, in however small a way, contribute to this task through collaboration and cooperation, we – Tohoku University in cooperation with a number of first-class European universities – hereby propose to form the 'Hasekura League', a new Japanese Studies network.

International Training for Young Personnel

The possible contribution to young researchers could be summarized by the following three points:

- ① By associating with top-level European and Japanese researchers in the field of 'Japanese Studies', young researchers will discover for themselves that so-called 'Japanese Studies' are not limited to Japan in the geographical sense of the term, but have a scope that is truly worldwide.
- ② Young researchers will also become aware that 'Japanese Studies' is not an area of interest closed and restricted only to Japan in a narrow sense, but can become an open field of research endowed with universality.
- ③ By undertaking debates about the method of 'esthetics' deepening the experience of the 'singularity', young researchers will become aware of the fact that 'Japanese Studies' has the possibility to produce the basis for a new theoretical construction to promote worldwide coexistence, a compelling task today in every area of scholarship.

Principal Invited Researchers



Paul Ziche

(Utrecht University, Netherlands)

Professor at Utrecht University. A specialist in the classification of thought and the structuring of the world of ideas in the late 18th and early 19th centuries. The author of “Mathematik im Wissenschaftssystem des 19”, Akademie aktuell, 2008.



Ivo Smits

(Leiden University, Netherlands)

Professor at Leiden University. A specialist in literature and film in Japan, focused on early medieval classical texts in both classical Japanese and classical Chinese. His work approaches are bilingualism, poet-patron networks, concepts of imagination and representation.



Harald Fuess

(Heidelberg University, Germany)

Professor at Heidelberg University. A specialist in the wide impact of Western industrial and mercantile capitalism on East Asian economies and cultures during the long nineteenth century, he is the author of “Divorce in Japan: Family, Gender and the State, 1600-2000”.



Georg Stenger

(University of Vienna, Austria)

Professor at University of Vienna. An expert of structural ontology, intercultural philosophy, and Heidegger's philosophy. He is known for his contributions to Heidegger Gesamtausgabe. He also serves the president of Society of Intercultural Philosophy, and is the author of “Stenger, Georg Philosophie der Interkulturalität. Erfahrung und Welten. Eine phänomenologische Studie”.



Monica Juneja

(Heidelberg University, Germany)

Professor at Heidelberg University. A specialist in the practice of visual representation; the disciplinary trajectories of art history in South Asia; gender and political iconography in modern France; and the interface between Christianization, religious identities, and cultural practices in early modern South Asia. She is the author of “Peindre le paysan. L' 'image rurale dans la peinture française de Millet à Van Gogh”.



Dagmar Eichberger

(Heidelberg University, Germany)

Professor at Heidelberg University. A specialist in Netherlandish art and culture between 1400 and 1700 and comparative art history between the West and the East, she is the author of “Leben mit Kunst - Wirken durch Kunst. Sammelwesen und Hofkunst unter Margarete von Österreich, Regentin der Niederlande”.



Andreas Niehaus

(Ghent University, Belgium)

Professor at Ghent University. A specialist in Japanese sport history and sport sociology, body culture of early-modern and modern Japan, and cultural and national identities, he is the author of “Life and Work of Kanō Jigorō: A Contribution to the Research on Physical Education and Sports in Japan”.



Bonaventura Ruperti

(Ca' Foscari University of Venice, Italy)

Professor at Ca' Foscari University of Venice. A specialist in Japanese language and Japanese theater and literature at Ca' Foscari University of Venice, he also conducts research at the Theater Museum at Waseda University and the National Institute of Japanese Literature of Tokyo. He is the author of books and papers on the Japanese theater and translations including a collection of of Izumi Kyoka short stories.



Marco Del Bene

(Sapienza University of Rome, Italy)

Professor at Sapienza University of Rome. A specialist in modern Japanese history and media history, he is the author of “Mass Media e Consenso nel Giappone prebellico. Mimesis”.

Strategies Following the Completion of the Program

The construction of this network through ‘Japanese Studies’ is related on the one hand to the fusion of disparate fields of research, and on the other and with the possibility to open a new study area through reciprocal work. The possibility of frank discussion about the complementarity of cultures will obscure and erase the boundaries of against cultural exchange. On a larger scale, this is closely related to the task of looking for a new method to avoid the fundamentalist collision threatening the contemporary world. Therefore, we will propose an international project of communal research to The NIAS-Lorentz Program for Interdisciplinary Research. In this way, we aim to construct a new style of research in the Humanities based on an ‘esthetics’ representing a common good for the world.



Thematic Program | August 2016 – March 2017

Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth

Global warming is in progress. If we fail to take effective action to halt it now, the surface temperature of the globe will be increased by an average of 4 to 6 degrees celsius compared with pre-Industrial Revolution (1890s) levels by the end of the 21st century, and as a consequence, low altitude islands and coastal cities on the earth will disappear under water. Scientists and technologists should work together in partnership and cooperation to tackle the comprehensive research problems faced in terms of the materials, systems and energy required for a sustainable future for the planet. In this program, we organized lectures, workshops and a student summer school to discuss and encourage purposeful studies in the field.



Important Goals and Degree of Achievement

This program planned five international workshops inviting renowned researchers; Mr. Philippe Benoit (lecture on: World Energy Outlook and Global Warming Gas Reduction Policies), Dr. Hiroshi Komiyama (lecture on: Proposal of Aggressive Use of Renewable Energy), Professor Henrik Alfredsson (lecture on: How Can Fluid Science Contribute to the Energy Saving and Environmental Protection for the Sustainable Future of the Earth?), and Professor Helmut Clemens (lecture on: How Research on Innovative Materials Has a Sustainable Impact on Environment-friendly Aviation). In total, 300 people attended the lectures.



The TFC ELYT School 2016 in Sendai was held to achieve the goal of educating junior researchers and students involved in this program. As many as 40, mainly graduate students from France, Germany, China and Japan were gathered in Sendai for 10 days in September, studying the main subjects of “energy and environmental protection”. Students attended a lecture on Japanese history and culture, eight academic lectures and Tohoku University laboratory tours. They introduced themselves and gave presentations on their own thesis work. Students worked collaboratively in Student Projects. They visited the industrial sites of Tohoku Electric Power’s Natural Gas Power Generation Plants and Toyota’s automotive assembly plants, and participated in various other activities. We collected an After School Report from each of the students who attended, which clearly demonstrated that their knowledge base had expanded satisfactorily and their ability to communicate with one another and with professors was improved substantially.

Program Organizers



Toshiyuki Takagi (Professor, Institute of Fluid Science, Tohoku University)

Prof. Takagi completed his doctoral course in nuclear engineering at the University of Tokyo. He took his current position after working at the Energy Research Laboratory of Hitachi Ltd., at the Nuclear Engineering Research Laboratory of the University of Tokyo as an associate professor, and the Institute of Fluid Science in Tohoku University as an associate professor. Dr. Takagi was awarded the ISEM Award in 2007.



Hiroo Yugami (Professor, Graduate School of Engineering, Tohoku University)

Prof. Yugami completed his doctoral course at the Graduate School of Engineering, Osaka University. He also serves as Vice Dean of the Graduate School of Engineering, Tohoku University and the Program Coordinator of Tohoku University’s Inter-Graduate School Doctoral Degree Program on Science for Global Safety. Dr. Yugami was awarded The Excellent Poster Presentation Award of the Third World Conference on Solar Power Generation in 2003, and the Selected Paper Award of the Institute of Physics Publishing Company in 2003.



Takashi Goto (Professor, Institute for Materials Research, Tohoku University)

Prof. Goto completed his doctoral course at the Graduate School of Engineering, Tohoku University. He also serves as Vice President of the Ceramic Society of Japan, Board Director of the Japan Society of Powder and Powder Metallurgy, President-elect of the International Ceramic Federation, President of the Asia-Oceania Ceramic Federation, and so forth. Dr. Goto was awarded the Chime Bells Award (China) in 2006, Richard M. Fulrath Pacific Award in 1997, amongst other honors.



Koshi Adachi (Professor, Graduate School of Engineering, Tohoku University)

Prof. Adachi completed his doctoral course at the Graduate School of Engineering, Tohoku University. He took his current position after working as a research associate and an associate professor at Tohoku University. Dr. Adachi was awarded the Best Paper Award of the Japanese Society for Precision Engineering in 2003 and 2015, and the To-kin Science and Technology Promotion Foundation Award in 2005, amongst other honors.



Naoto Wada (Professor, Institute of Fluid Science, Tohoku University)

Prof. Wada completed his doctoral course at the University of Tokyo, attaining the qualification, Doctor of Science. He worked for Mitsubishi Chemical Corporation from 1973 to 2000, and was responsible for operations of Mitsubishi Chemical America Inc. as Director & Executive Vice President and also of Verbatim Corporation as President and CEO. He took his current position after working as Councilor/Deputy Director-General, Cabinet Office, The Government of Japan, responsible for the Council for Science, Technology and Innovation, and as Managing Director/CEO of CMC Magnetics Japan.

Program Highlights

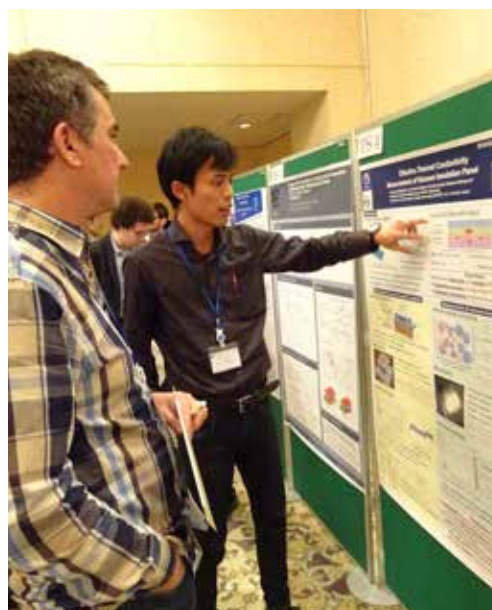
The highlights of this program were the TFC ELyT School 2016 in Sendai and the five international workshops. Two workshops were held consecutively on the three days from Thursday, October 6 through Saturday, October 8, 2016. There were six plenary lectures, 36 oral paper presentations and 21 poster presentations. The total number of attendees over the three days numbered in excess of 230. There were many discussions held, between French and Japanese, German and Japanese, Japanese and Japanese and French and German universities and corporations, to facilitate more intimate working partnerships and/or cooperation. The TFC Workshop for Advanced Maintenance on Composite Materials was held on February 15 and 16, 2017, with participation of 46 researchers in the field. Many discussions were undertaken in this embryotic and exciting field. The TFC ELyT School 2016 in Sendai was discussed in "Important Goals and Degree of Achievement".



Specific Strategies for International Research Exchange

To reach out the goal set in the program “Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth”, wide ranging, high density and robust international cooperation in research and education is essential. Tohoku University, a hub center in this field of the world, needs to take the initiative in setting desirable goals for research, and in ensuring meaningful outputs for the future of the Earth. We hope this program has provided a springboard for progressive research in the relevant fields.

Thanks to this program, a great deal of valuable information has been introduced to Tohoku University, such as “application of TiAl alloys to aircraft and automotive combustion engines”, “current state of the art for non-destructive testing methods applicable to composite materials” and “long-term world energy outlook for production and consumption in the world, and global activities to reduce the emission of the principal sources of the global warming gas, carbon dioxide”. Some of the research objectives in the field of “Materials, Systems and Energy” have been already realized and as many as 26 papers have been published, which were internationally joint-authored with Tohoku University researchers at the TFC Off-campus Workshop for Intensive Discussions on October 7 and 8, in the Zao mountains.



Principal Invited Researchers



Philippe Benoit

(International Energy Agency, France)

The head of the Energy and Environment Division of IEA. He contributed to composing the “World Energy Outlook 2014”, which set the course for the historical agreement of the COP21 2015 treaty in Paris, in which 186 countries and regions of the world agreed to cooperate together for substantial reduction/elimination of global warming gas to maintain the level of increase in the earth’s surface temperature at the end of the 21st century to within two degrees celsius.



Hiroshi Komiyama

(Mitsubishi Research Institute, Inc., Japan)

Chairman at Mitsubishi Research Institute, Inc. He served as the 28th President of the University of Tokyo. He has been actively working in the areas of “materials science”, “nano-technology”, “environmental science” and “solar energy” and has authored many publications in these fields. He is the chairman of the “Platinum Program Network” which advocates the use of renewable energy by society.



Henrik Alfredsson

(KTH Royal Institute of Technology, Sweden)

Professor at KTH Royal Institute of Technology, and the University of Bologna. He is one of the world’s leading scientists and educators in fluid mechanics. He is an authority in flow stability as well as the transition to turbulence in wall boundary flows. He has as many as 150 publications and papers in the field of mechanics.



Christian Boller

(Fraunhofer Institute and Saarland University, Germany)

Professor at Fraunhofer Institute and Saarland University. He is the world’s most well-known researcher in areas such as non-destructive testing, quality assurance, health monitoring of large structures, health monitoring of aerospace machines and structures, and has authored many publications in these fields and beyond. He is a member of the management of Fraunhofer Institute, Germany.



Vincent Mazauric

(Schneider Electric, France)

Principal Scientist of Schneider Electric, Fellow of the Japanese Society for Promotion of Science, and Expert-evaluator for the R&D Framework Programs of the European Commission. He has published 3 patents and over 250 scientific articles, including book chapters and guest topical reviews. He has also served as the Director of the Administrative Committee of the IEEE Magnetic Society since 2016.



Helmut Clemens

(Montanuniversität Leoben, Austria)

Head of Physical Metallurgy and Metallic Materials at Montanuniversität Leoben. He is a leading scientist and technologist in light-weight intermetallic titanium aluminides (TiAl alloy), which is applied in next generation aircraft engines. He has published more than 300 articles, and was the recipient of the Honda Prize 2014.



Ke Xiong

(Nanjing University of Aeronautics and Astronautics, China)

Professor and Assistant to the President of the Nanjing University of Aeronautics and Astronautics (NUAA). Dr. Xiong serves also as the Director of State Key Laboratory of Mechanics and Control of Mechanical Systems. His main research interests are in understanding SMART materials and structural systems. He is a council member of Chinese Aviation Society and the management member of Indian Society for Advancement of Materials and Process Engineering. Recipient of the Chinese National Invention Award and the 2001 Chinese National Teaching Award.

International Training for Young Personnel

This year, the ELYT School, which was opened as the TFC ELYT School 2016 in Sendai, gathered more than 30 graduate students from around the world to learn about the cutting edge of science and technology, participate in joint projects, and thereby interact with their worldwide peers. The ELYT Workshop, held every year, alternately in France and Japan, follows an internal rule that 20 to 30% of the total participants in the workshop must be junior researchers, such as post-docs or PhD students. Both ELYT School and ELYT Workshop shall continue to be held once for every year. We will keep striving to educate, nurture and train junior researchers in an international environment.

Strategies Following the Completion of the Program

All the goals and plans set out in this program will be taken up and continuously pursued in the activities of the ELYT School and ELYT Workshop. The degree of successful attainment of the goals and plans will be monitored and checked every year, on the occasion of each ELYT School and ELYT Workshop.



Junior Research Program | July 2016

Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

Developing political and legal approaches to the protection of human rights represents a crucial task in social science research. Here, scholarship in international relations and international law has emphasized the importance of building broad transnational networks incorporating state and non-state actors. However, the promotion of global human rights norms often fails in the face of local opposition based on local culture and norms. The main objective of this program was to seek pathways to resolve these objectives in the promotion of human rights norms. In order to achieve this objective, this program facilitated a broad dialogue between policy-makers, legal experts, civil society actors and academics of various backgrounds with the aim of sharing knowledge and experiences in the promotion and implementation of measures to protect human rights across cultural divides.

Important Goals and Degree of Achievement

This program involved not only scholars in international relations, but a variety of academics and practitioners from international law, civil society and policymaking, to stage an international workshop with the main objective of striving to develop a comprehensive approach to the protection of human rights. Especially noteworthy in this was the effort to facilitate comprehensive, interdisciplinary dialogue between East Asia and Western Europe in the fields of international relations and international law. Discussions held at the occasion of the workshop focused on cultural aspects of human rights protection and addressed the important issue of Western ideas dominating human rights discourses as a major cause for local opposition to the implementation of global human rights norms. As an important result of this discussion the workshop participants emphasized the need for facilitating networks open to the input of local actors to nourish a deeper understanding of human rights protection. The workshop has also emphasized the need for more flexibility in engaging in interdisciplinary dialogue taking into account research on labor policies, cultural anthropology, critical international relations theory, and international law. The vibrant discussion at the workshop has illustrated the need for such research. As a result the workshop made significant strides in breaking down the silo mentality when approaching human rights issues.



Program Organizers



Ayako Nakamura

(Assistant Professor, Frontier Research Institute for Interdisciplinary Sciences, Tohoku University)

Dr. Nakamura completed her doctorate course at the Graduate School of Information Sciences, Tohoku University. She took her current position after working as a research fellow of the Graduate School of Information Sciences and the Institute for Interdisciplinary Advanced Research and Education Organization at Tohoku University. She served as a visiting scholar at Stanford Law School's Human Rights Center. She has conducted extensive field work with policy makers and civil society actors in Europe and East Asia.



Claret Vargas (Lecturer, Stanford Law School, Stanford University)

Dr. Vargas completed her doctorate course at the Harvard Law School, Harvard University. She took her current position after working as an assistant professor of Modern Languages and Literatures at the University of Miami and an executive director at the Stanford Human Rights Center. She also serves as a senior researcher and an area coordinator at the international Global South NGO "Center for the Study of Law, Justice and Society (Dejusticia)". Her research focuses on the inter-American litigation system, labor conditions, prison conditions, and the intersection of corporate responsibility, environmental degradation and human rights.



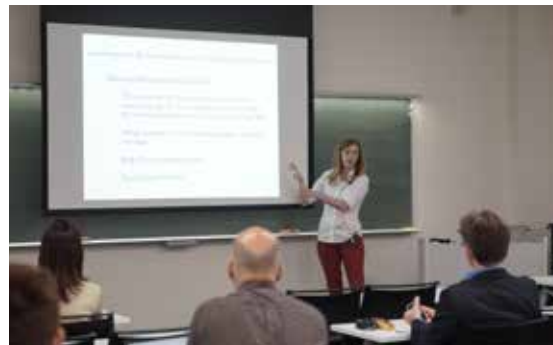
Laura Hackney (Executive Director, AnnieCannons, Inc.)

Dr. Hackney completed her master course at Stanford University. She served as a manager of the Program on Human Rights at Stanford University, a senior research associate for Stanford's Anti-Trafficking Project in the Mekong Sub-Region, and a program associate for the Freeman Spogli Institute's International Policy Implementation Lab. She is the Executive Director and co-founder of Annie Cannons, Inc., an NGO devoted to the training of human rights survivors in software coding and other IT skills required for working at technology companies.

Program Highlights

The individual papers presented at the panels during the morning and afternoon sessions were set up to feature a scholar and practitioner focusing on a case in either an Asian or Western society. Through this panel design the workshop facilitated dialogue across cultural boundaries. Moreover, the participation of political scientists, legal scholars and civil society activists offered a fresh perspective. In addition, this program has offered a lecture for students and junior scholars at Tohoku University offering insights in the practice of NGO activism in the protection of human rights in the United States. The lecture facilitated a vibrant discussion on this theme.

Through these interdisciplinary events, academic exchanges between Asia and the West and regional exchange, which is one of the goals of this program, were successfully embodied.



Specific Strategies for International Research Exchange

Through bringing together scholars and activists from within and outside of Asia, this project aimed at building a new interdisciplinary network with a focus on human rights protection. This project offered an important opportunity to bring together Western and Asian perspectives. As such, scholars with Western backgrounds gained new insights into current human rights problems and approaches in Asia, and vice versa. Accordingly,, the project provided new grounds for a culture-sensitive approach to global human rights norms. Finally, the workshop laid the groundwork for sustained dialogue and joint research on human rights protection.

Principal Invited Researchers



Mirte Postema

(Stanford Law School, Stanford University, USA)

Fellow of Stanford Human Rights Center at Stanford University. She served as the director of the Judicial Independence Program at the Due Process of Law Foundation (DPLF) in Washington, D.C., an NGO focused on human rights and rule of law issues in Latin America.

Strategies Following the Completion of the Program

At the next stage, the results of this workshop will be published in the form of an edited volume. In addition, the debate featured at the workshop will be continued in the form of a conference panel for the International Studies Association's annual convention. Through such efforts, we hope to establish a sustainable network focusing on human rights protection.





Other Activities | September 9, 2016

Falling Walls Lab Sendai 2016

A presentation competition was held jointly with the Falling Walls Foundation of Germany for junior researchers on September 9, 2016. In 2014, Tohoku University held the first preliminary competition in Asia. This year it featured participation by 20 individuals from this university and others.

The top three contestants were dispatched to Berlin on November 8 to enter the final round.

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

Other Activities | October 15 – 16, 2016

Discovery Event for Aspiring Female Scientists

The Discovery Event for Aspiring Female Scientists was held on October 15 – 16, 2016. As many as 21 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 leading female scientists and group discussions with others. The participants gained a valuable opportunity to talk with other female students from across Japan and also went on a field trip to areas affected by the Great East Japan Earthquake to directly experience their recovery from the earthquake's damage.



Other Activities | May 2016 – June 2016

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 collaboration between the four schools of the humanities, the Graduate School of International Cultural Studies and the Center for Northeast Asian Studies at Tohoku University, to explore interdisciplinary research themes. The seminars, which are opened widely to the public, were held twice in 2016. Each seminar saw the participation of 30 researchers who were able to use the opportunity to engage in vigorous discussion and strengthen their interpersonal connections.

*The term Quattro stands for “4,” representing the four faculties, namely 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 10 and March 25, 2017

Special Lectures

The TFC organized a special lecture entitled “The history and future of the Nobel Prize” given by Prof. Sven Lidin, the former chair of the Nobel Prize selection committee on March 10, 2017. In this lecture, Prof. Lidin introduced the historical trends of the Nobel Prize and the secret story of research that has been nominated for the prize.

The outreach event of Aging Science, a pre-event of the Thematic Program 2017 entitled “Aging Science: from Molecules to Society” was held on March 25, 2017.

In this event, lectures were given on the latest research in dementia and philosophical points of view, which attracted many audience questions afterwards.



(Photo credit : courtesy of Kiyoto Kamagata)

Support for Young Researchers | February 2015 –

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 selection 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 2016 sent 4 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.

Visiting institute : Zurich University of Applied Sciences (Switzerland)

Research theme : Modelization of endothelial cells under flow condition

Visiting Period : June 21, 2016 – December 28, 2016

Visitor : Hitomi Anzai (Assistant Professor, Frontier Research Institute for Interdisciplinary Sciences, Tohoku University)

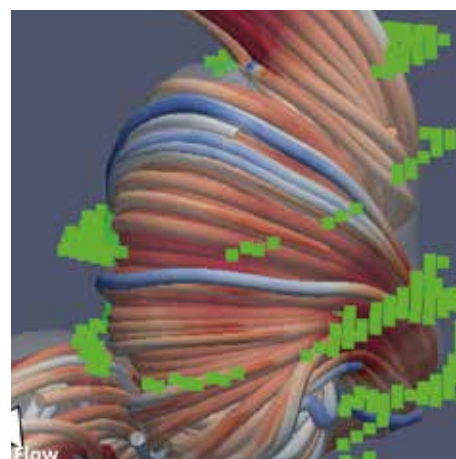
Project Outcome

Our final goal is to investigate the influence of hemodynamic stress on bio-chemical reactions on aneurysm walls for the development of medical devices. On this occasion, we focused on endothelial cells on arterial intima.

Confluent monolayer cell seat was developed based on a vertex model. Our model consists of mechanical parameters called as elasticity, contractility and intercellular adhesion. These parameters allow virtual cells to proliferate and undergo topological rearrangements. The topic of cell modelization was accepted for an international workshop on biomechanics this September.

From the clinical side, MR wall enhancement is an approach that is anticipated to benefit the investigation of aneurysm histopathology. I compared MRI data obtained in clinical practice and flow distributions calculated by computational fluid dynamics to investigate a relationship between cell degeneration and hemodynamic stress. The result was presented at an international conference last November and was selected as a poster award. An oral presentation was also performed last April at an international conference.

Cell experiments up to 24 hours in duration have previously been performed to investigate the influence of flow on endothelial cells. However, it remains difficult to maintain cell cultures over the long term (24 hours-), for in vitro flow load experiments. Therefore, this result may suggest the feasibility of combined study of short-term in-vitro experimentation with long-term observation in clinical practice, and numerical simulation based on clinical imaging data, to establish a new hypothesis for aneurysm histopathology.



Further Development and Networking

Thus far, we developed a system for a 2D, flat chamber. Next, we will require a 3D cell-culturing system to be developed: system development needs 3D realistic geometry reconstructed from medical imaging, and surface treatment to culture endothelial cells on hydrophilic materials. Preliminary experiments and discussion have been undertaken between the Institute of Fluid Science and the Frontier Research Institute for Interdisciplinary Sciences toward the establishment of a research group.

As a result of this international joint research, I was invited as a visiting researcher again in CABMN, Switzerland from June 2017.

Visiting institute : Department of Biological Chemistry, David Geffen School of Medicine
at the University of California, Los Angeles (USA)

Research theme : Single-molecule functional analysis of DNA binding proteins based on DNA array
method “DNA garden”

Visiting Period : March 22, 2016 – July 21, 2016

Visitor : Kiyoto Kamagata (Assistant Professor, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University)

Project Outcome

DNA binding proteins can regulate the function of a living cell by binding to DNA. Considering that loss of function leads to diseases including cancer, it is important to investigate how DNA binding proteins achieve their function on DNA. We recently developed a single-molecule fluorescence technique with the DNA array “DNA garden” (Bull. Chem. Soc. Jpn. 2017). Here, I applied the developed single-molecule technique to measure the behavior of several DNA binding proteins which were investigated by prof. Reid C. Johnson (University of California, Los Angeles) on DNA directly. I was affiliated to Johnson’s laboratory for our collaborative research for four months. During my stay, we succeeded in observing the behavior of four DNA binding proteins using DNA garden. The results promoted our understanding of the function of DNA binding proteins. I would like to extend my gratitude to members of the laboratory of prof. Reid C. Johnson (Dr. Stephen P. Hancock, Dr. Sridhar Mandali, Dr. Wengyang Chen), prof. Margot E. Quinlan (University of California, Los Angeles) and Dr. Eriko Mano for supporting my research at the University of California, Los Angeles for discussing DNA binding proteins and experimental methods with me.



Further Development and Networking

We continued our collaborative research after my stay at the University of California, Los Angeles ended. For further exchange of research ideas, I invited prof. Reid C. Johnson to Tohoku University and engaged in deep discussions with him for a period of one week in April, 2017. To support the development of our research, I submitted our proposal to Grants-in-Aid for Scientific Research Fund for the Promotion of Joint International Research” last year, and it was accepted in April, 2017 (no. 16KK0157). Using this funding, I am planning to further our research by returning to Johnson’s laboratory at the University of California, Los Angeles.

- 35 Thematic Programs ・ Junior Research Program
Invited Researchers List

Thematic Programs

- 37 Modern Interactions between Algebra, Geometry and Physics
- 39 Earth and Planetary Dynamics
- 44 The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge
- 46 Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth

Junior Research Program

- 48 Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

Other Activities

- 49 Other Activities

Support for Young Researchers

- 52 Leading Young Researcher Overseas Visit Program

Invited Researchers List

Program Code : 2016AGP

Modern Interactions between Algebra, Geometry and Physics

Manabu Akaho (Tokyo Metropolitan University)
 Youngjin Bae (IBS Center for Geometry and Physics, POSTECH)
 Jean-Francois Barraud (Université Paul Sabatier, Toulouse Mathematical Institute)
 Sofiane Bouarroudj (New York University Abu Dhabi)
 Michel Cahen (ULB)
 Xiuxiong Chen (Stony Brook University)
 Giuseppe Dito (University of Bourgogne)
 Chi-Kwong Fok (National Center for Theoretical Sciences)
 Kenji Fukaya (Stony Brook University)
 Tomohiro Fukaya (Tokyo Metropolitan University)
 Viktor L. Ginzburg (University of California, Santa Cruz)
 Roman Golovko (Alfred Renyi Institute of Mathematics, Hungarian Academy of Sciences)
 Sergei Gukov (California Institute of Technology and Max Planck Institute for Mathematics)
 Basak Gurel (University of Central Florida)
 Simone Gutt (ULB)
 Doris Hein (University of Freiburg)
 Kazuki Hiroe (Josai University)
 Noriaki Ikeda (Ritsumeikan University)
 Hiroshi Iritani (Kyoto University)
 Mikhail Kapranov (Kavli IPMU, University of Tokyo)
 Morimichi Kawasaki (IBS Center for Geometry and Physics, POSTECH)
 Ely Kerman (University of Illinois at Urbana-Champaign)
 Maxim Kontsevich (IHES)
 Giovanni Landi (University of Trieste)
 Shinichiro Matsuo (Nagoya University)
 Kentaro Mikami (Akita University)

Takuro Mochizuki (RIMS, Kyoto University)
 Hitoshi Moriyoshi (Nagoya University)
 Toshikazu Natsume (Nagoya Institute of Technology)
 Ryszard Nest (Copenhagen University)
 Yuji Odaka (Kyoto University)
 Yong-Geun Oh (IBS Center for Geometry and Physics, POSTECH)
 Hiroshi Ohta (Nagoya University)
 Ryuma Orita (University of Tokyo)
 Andrei Pajitnov (University of Nantes)
 Steven Rosenberg (Boston University)
 Yongbin Ruan (University of Michigan)
 Kyoji Saito (Kavli IPMU, University of Tokyo)
 Hajime Sato (Nagoya University)
 Pierre Schapira (University of Paris VI)
 Yan Soibelman (Kansas State University)
 Daniel Sternheimer (University of Bourgogne)
 Yoshihiro Sugimoto (Kyoto University)
 Atsushi Takahashi (Osaka University)
 Yoshitsugu Takei (RIMS, Kyoto University)
 Kenta Tottori (Tohoku University)
 Boris Tsygan (Northwestern University)
 Kazushi Ueda (University of Tokyo)
 Alan Weinstein (University of California, Berkeley)
 Daisuke Yamakawa (Tokyo Institute of Technology)
 Shing-Tung Yau (Harvard University)

Program Code : 2016EPD

Earth and Planetary Dynamics

Hidenori Aiki (ISEE, Nagoya University)
 Ken-ichi Bajo (Hokkaido University)
 Jean-Pierre Bibring (Institut d'Astrophysique Spatiale, CNRS)
 Frederick Morton Bingham (University of North Carolina at Wilmington)
 Ming Cai (Florida State University)
 Guixing Chen (Sun Yat-sen University)
 Harold C. Connolly Jr. (City University of New York)
 Céline Defouilloy (University of Wisconsin-Madison)
 Sylvie Demouchy (CNRS)
 Jean Duprat (CSNSM)
 Stephen Dye (Hawaii Pacific University)
 Abigail A. Fraeman (NASA Jet Propulsion Laboratory)
 Daniel J. Frost (BGI, University of Bayreuth)
 Masaki Fujimoto (ISAS, JAXA)
 Yoshihiro Furukawa (Tohoku University)
 Gregor Golabek (BGI, University of Bayreuth)
 Naotsugu Hamada (Miyagi Sant Juan Bautista Museum)
 Saji N. Hameed (University of Aizu)
 Vincent Hamm (Institut d'Astrophysique Spatiale, CNRS)
 Yayoi Harada (Meteorological Research Institute, JMA)
 Naoto Hirano (Tohoku University)
 Marc Hirschmann (University of Minnesota)
 Masahiro Ichiki (Tohoku University)
 Tsuyoshi Iizuka (University of Tokyo)
 Yukio Isozaki (University of Tokyo)
 Motoo Ito (JAMSTEC)
 Hironobu Iwabuchi (Tohoku University)
 Hikaru Iwamori (JAMSTEC)
 Toshiki Iwasaki (Tohoku University)
 Takahiro Iwata (ISAS, JAXA)
 Shunichi Kamata (Hokkaido University)
 Shingo Kameda (Rikkyo University)
 Takafumi Kamizuka (University of Tokyo)
 Tomoo Katsura (BGI, University of Bayreuth)
 Junichiro Kawaguchi (JAXA)
 Masahiro Kayama (Tohoku University)
 Yoko Kebukawa (Yokohama National University)
 Katherine Kelley (University of Rhode Island)
 Hiroshi Kikuchi (University of Tokyo)

Makoto Kimura (Ibaraki University)
 Takenari Kinoshita (JAMSTEC)
 Noriko Kita (University of Wisconsin-Madison)
 Tomoaki Kubo (Kyushu University)
 Steffen Kutterolf (GEOMAR Helmholtz Centre for Ocean Research Kiel)
 John G. Learned (University of Hawaii)
 Konstantin Litasov (Sobolev Institute of Geology and Mineralogy)
 Katharina Marquardt (BGI, University of Bayreuth)
 Hauke Marquardt (BGI, University of Bayreuth)
 Bernard Marty (CRPG Nancy)
 Moe Matsuoka (Tohoku University)
 Catherine McCammon (BGI, University of Bayreuth)
 William F. McDonough (University of Maryland)
 Scott L. Messenger (NASA Johnson Space Center)
 Patrick Michel (Observatory of Côte d'Azur)
 Takeshi Mikouchi (University of Tokyo)
 Masaaki Miyahara (Hiroshima University)
 Hideaki Hirdy Miyamoto (University of Tokyo)
 Takashi Miyata (University of Tokyo)
 Bjorn O. Mysen (Carnegie Institution of Washington)
 Takashi Nakagawa (JAMSTEC)
 Hiromu Nakagawa (Tohoku University)
 Junichi Nakajima (Tokyo Institute of Technology)
 Noboru Nakamura (University of Chicago)
 Hideyuki Nakano (Meteorological Research Institute, JMA)
 Daisuke Nakashima (Tohoku University)
 Aiko Nakato (Kyoto University)
 Daniel R. Neuville (IPGP, CNRS)
 Davide Novella (Lawrence Livermore National Laboratory)
 Kazunori Ogohara (University of Shiga Prefecture)
 Makiko Ohtake (ISAS, JAXA)
 Go Ono (ISAS, JAXA)
 Takahito Osawa (JAEA)
 Cedric Pilorget (Institut d'Astrophysique Spatiale, CNRS)
 Brent Takashi Poe (Università degli Studi Gabriele d'Annunzio)
 Bo Qiu (University of Hawaii at Manoa)
 Guillaume Richard (University of Orléans)
 Kelvin Richards (University of Hawaii at Manoa)
 Carsten Rott (Sungkyunkwan University)

Ted Roush (NASA Ames Research Center)
 David C. Rubie (BGI, University of Bayreuth)
 Takeshi Sakanoi (Tohoku University)
 Nicklas Schneider (University of Hawaii at Manoa)
 Hiroshi Shinohara (National Institute of Advanced Industrial Science and Technology)
 Oleg Smirnov (Joint Institute for Nuclear Research)
 Pablo Sobron (SETI Institute)
 Thomas Spengler (University of Bergen)
 Ondrej Sramek (Charles University)
 Gerd Steinle-Neumann (BGI, University of Bayreuth)
 Virginia Strati (University of Ferrara)
 Seiji Sugita (University of Tokyo)
 Nozomu Takeuchi (University of Tokyo)

Hidekazu Tanaka (Tohoku University)
 Kyosuke Tawara (Tokyo Institute of Technology)
 Katsuya Toyama (Meteorological Research Institute, JMA)
 Fumihiko Usui (Kobe University)
 Linyan Wan (Tsinghua University)
 Hiroko Watanabe (Tohoku University)
 Scott Wipperfurth (University of Maryland)
 Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
 Masakuni Yamanobe (Tohoku University)
 Kazuya Yoshida (Tohoku University)
 Hisayoshi Yurimoto (Hokkaido University)
 Dapeng Zhao (Tohoku University)
 Mike Zolensky (NASA Johnson Space Center)

Program Code : 2016JPN

The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge

Hiroaki Adachi (Tohoku University)
 Masashi Amano (IRiDeS, Tohoku University)
 Maurizio Campanelli (Sapienza University of Rome)
 Angelo Cattaneo (Portuguese Foundation for Science and Technology)
 Christopher Craig (Tohoku University)
 Silvana De Maio ("L'Orientale" University of Naples)
 Marco Del Bene (Sapienza University of Rome)
 Estelle Doudet (University of Grenoble Alpes)
 Dagmar Eichberger (Heidelberg University)
 Harald Fuess (Heidelberg University)
 Marcello Ghilardi (University of Padova)
 Alessandro Greco (Sapienza University of Rome)
 Glenn Hook (University of Sheffield)
 Taro Igarashi (Tohoku University)
 Monica Juneja (Heidelberg University)
 Hiroshi Kabashima (Tohoku University)
 Toshimitsu Kagohashi (Tohoku University)
 Eva Kaminski (Jagiellonian University)

Orion Klautau (Tohoku University)
 Takashi Kurihara (Niigata University)
 Shinichiro Kurihara (Miyagi Prefectural Archives)
 Matilde Mastrangelo (Sapienza University of Rome)
 Rolando Minuti (University of Florence)
 Ryusaku Nagaoka (Tohoku University)
 Andreas Niehaus (Ghent University)
 Naoyuki Ono (Tohoku University)
 Bonaventura Ruperti (Ca' Foscari University of Venice)
 Ikuko Sagiyama (University of Florence)
 Yoshimichi Sato (Tohoku University)
 Ivo Smits (Leiden University)
 Georg Stenger (University of Vienna)
 Willemijn van Noord (University of Amsterdam)
 Bryce Wakefield (Leiden University)
 Thijs Weststeijn (Utrecht University)
 Paul Ziche (Utrecht University)

Program Code : 2016IDT

Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth

Henrik Alfredsson (KTH Royal Institute of Technology)
 Philippe Benoist (M2M)
 Philippe Benoit (IEA)
 Christian Boller (Fraunhofer Institute & Saarland University)
 Patrice Chantrenne (INSA Lyon)
 Helmut Clemens (Montanuniversität Leoben)
 Gildas Digue (Tohoku University)
 Gerd Dobmann (Saarland University)
 Masayoshi Esashi (WPI-AIMR, Tohoku University)
 Michael C. Faudree (Tokai University)
 Alain Fave (INSA Lyon)
 Marie Pierre Favre (INSA Lyon)
 Julien Fontaine (ECL)
 Vincent Fridrici (LTDS, ECL)
 Matthias Goldammer (Siemens AG)
 Takashi Goto (Tohoku University)
 Mahmoodul Haq (Michigan State University)
 Mitsuo Hashimoto (Tohoku University)
 Henning Heuer (Fraunhofer Institute)
 Hongli Ji (NUAA)
 Masae Kanda (Chubu University)
 Philippe Kapsa (ECL)
 Hiroshi Kobayashi (JPEC)
 Hiroshi Komiya (Mitsubishi Research Institute, Inc.)
 Hiroyuki Kosukegawa (Tohoku University)

Nicolas Mary (INSA Lyon)
 Eric Maurincomme (INSA Lyon)
 Vincent Mazauric (Schneider Electric)
 Denis Mazuyer (ECL)
 Yoshihiro Mizutani (Tokyo Institute of Technology)
 Kazuhiko Mori (ITIM)
 Daniel Nelias (INSA Lyon)
 Yoshitake Nishi (Tokai University)
 Shigeru Obayashi (Tohoku University)
 Jinhao Qiu (NUAA)
 Yves Remond (CNRS)
 Masaaki Sato (Tohoku University)
 Noriyuki Sato (ITIM)
 Mitsuharu Shiwa (NIMS)
 Tomonari Soma (NEC)
 Sunao Sugimoto (JAXA)
 Toshio Takano (JFE Container)
 Tetsuya Uchimoto (Tohoku University)
 Lalita Udpa (Michigan State University)
 Keisuke Ura (ITIM)
 Ke Xiong (NUAA)
 Shenfang Yuan (NUAA)
 Hassan Zahouani (LTDS, ECL)
 Kongjun Zhu (NUAA)

Program Code : 2016JRP

Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

Maki Aoki - Okabe (IDE-JETRO)
 Kaoru Aoyama (Kobe University)
 Jyosuke Ikeda (Toyama University)
 Mirte Postema (Stanford Law School, Stanford University)

Kana Takamatsu (International Christian University)
 Chiharu Takenaka (Rikkyo University)
 Tomoko Yamashita (Kyoto University)

Modern Interactions between Algebra, Geometry and Physics

[Event] Geometry of Wall-Crossing, Deformation Quantization and Resurgent Analysis : Special Lectures

- Date: Monday, April 4, 2016 – Tuesday, April 5, 2016
- Venue: Kawai Hall, Aobayama Campus, Tohoku University
- Speaker: Alan Weinstein (University of California, Berkeley)
- Participants: 60
- Time Schedule

- Monday, April 4, 2016
 - 15:30 - 16:00 Tea Time
 - 16:00 - 17:00 Colloquium
- Tuesday, April 5, 2016
 - 15:00 - 16:30 Geometry Seminar

[Event] Geometry of Wall-Crossing, Deformation Quantization and Resurgent Analysis : Spring School

- Date: Monday, April 11, 2016 – Friday, April 15, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Speakers
 - Sergei Gukov (California Institute of Technology and Max Planck Institute for Mathematics)
 - Mikhail Kapranov (Kavli IPMU, University of Tokyo)
 - Maxim Kontsevich (IHES)
 - Yongbin Ruan (University of Michigan)
 - Pierre Schapira (University of Paris VI)
 - Yan Soibelman (Kansas State University)
- Participants: 89
- Time Schedule

- Monday, April 11, 2016
 - 10:00 - 11:30 Pierre Schapira (University of Paris VI)
An introductory course on Real and Complex Microlocal Analysis [1]
 - 11:30 - 13:30 Lunch
 - 13:30 - 15:00 Mikhail Kapranov (Kavli IPMU, University of Tokyo)
Perverse sheaves, microlocal sheaves and perverse Schobers [1]
 - 15:00 - 15:30 Coffee Break
 - 15:30 - 17:00 Maxim Kontsevich (IHES)
Riemann-Hilbert correspondence in dimension 1.
- Tuesday, April 12, 2016
 - 10:00 - 11:30 Yan Soibelman (Kansas State University)
Holomorphic Floer quantization. [1]
 - 11:30 - 13:30 Lunch
 - 13:30 - 15:00 Pierre Schapira (University of Paris VI)
An introductory course on Real and Complex Microlocal Analysis [2]
 - 15:00 - 15:30 Coffee Break
 - 15:30 - 17:00 Mikhail Kapranov (Kavli IPMU, University of Tokyo)
Perverse sheaves, microlocal sheaves and perverse Schobers [2]

- Wednesday, April 13, 2016
 - 10:00 - 11:30 Pierre Schapira (University of Paris VI)
An introductory course on Real and Complex Microlocal Analysis [3]
 - 11:30 - 13:30 Lunch
 - 13:30 - 15:00 Yan Soibelman (Kansas State University)
Holomorphic Floer quantization. [2]
 - 15:00 - 15:30 Coffee Break
 - 15:30 - 17:00 Mikhail Kapranov (Kavli IPMU, University of Tokyo)
Perverse sheaves, microlocal sheaves and perverse Schobers [3]
- Thursday, April 14, 2016
 - 10:00 - 11:30 Yan Soibelman (Kansas State University)
Holomorphic Floer quantization. [3]
 - 11:30 - 13:30 Lunch
 - 13:30 - 15:00 Yongbin Ruan (University of Michigan)
Moduli spaces in gauged linear sigma model (GLSM) [1]
 - 15:00 - 15:30 Coffee Break
 - 15:30 - 17:00 Sergei Gukov (California Institute of Technology and Max Planck Institute for Mathematics)
Homological algebra of knots and BPS states [1]
- Friday, April 15, 2016
 - 10:00 - 11:30 Sergei Gukov (California Institute of Technology and Max Planck Institute for Mathematics)
Homological algebra of knots and BPS states [2]
 - 11:30 - 13:30 Lunch
 - 13:30 - 15:00 Maxim Kontsevich (IHES)
Riemann-Hilbert correspondence for quantum torus.
 - 15:00 - 15:30 Coffee Break
 - 15:30 - 17:00 Sergei Gukov (California Institute of Technology and Max Planck Institute for Mathematics)
Homological algebra of knots and BPS states [3]

[Event] Geometry of Wall-Crossing, Deformation Quantization and Resurgent Analysis : Workshop

- Date: Monday, April 18, 2016 – Friday, April 22, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Speakers
 - Sergei Gukov (California Institute of Technology and Max Planck Institute for Mathematics)
 - Kazuki Hiroe (Josai University)
 - Mikhail Kapranov (Kavli IPMU, University of Tokyo)
 - Maxim Kontsevich (IHES)
 - Takuro Mochizuki (RIMS, Kyoto University)
 - Ryszard Nest (Copenhagen University)
 - Kyoji Saito (Kavli IPMU, University of Tokyo)
 - Pierre Schapira (University of Paris VI)
 - Yan Soibelman (Kansas State University)
 - Yoshitsugu Takei (RIMS, Kyoto University)
 - Boris Tsygan (Northwestern University)
 - Daisuke Yamakawa (Tokyo Institute of Technology)
- Participants: 172
- Time Schedule

- Monday, April 18, 2016
 - 13:30 - 15:00 Pierre Schapira (University of Paris VI)
Subanalytic topologies and filtrations on the sheaf of holomorphic functions
 - 15:00 - 15:30 Coffee Break
 - 15:30 - 17:00 Kyoji Saito (Kavli IPMU, University of Tokyo)
Dual Artin monoids and zero loci of their skew-growth functions
- Tuesday, April 19, 2016
 - 10:00 - 11:30 Maxim Kontsevich (IHES)

- Resurgence and wall-crossing via complexified path integral**
- 11:30 - 13:30 Lunch
- 13:30 - 15:00 Sergei Gukov (California Institute of Technology and Max Planck Institute for Mathematics)
Mock modularity and categorification of 3-manifold quantum group invariants
- 15:00 - 15:30 Coffee Break
- 15:30 - 17:00 Yoshitsugu Takei (RIMS, Kyoto University)
Exact WKB analysis for continuous and discrete Painlevé equations — Stokes geometry, connection formula and wall-crossing formula
- Wednesday, April 20, 2016
 - 10:00 - 11:30 Daisuke Yamakawa (Tokyo Institute of Technology)
Twisted wild character varieties
 - 11:30 - 13:30 Lunch
 - 13:30 - 15:00 Takuro Mochizuki (RIMS, Kyoto University)
Asymptotic behaviour of certain families of harmonic bundles on Riemann surfaces
 - 15:00 - 15:30 Coffee Break
 - 15:30 - 17:00 Yan Soibelman (Kansas State University)
Riemann-Hilbert correspondence for difference equations in higher dimensions.
- Thursday, April 21, 2016
 - 10:00 - 11:30 Boris Tsygan (Northwestern University)
A microlocal category associated to a symplectic manifold
 - 11:30 - 13:30 Lunch

13:30 - 15:00 Kazuki Hiroe (Josai University)
On additive Deligne-Simpson problem
 15:00 - 15:30 Coffee Break
 15:30 - 17:00 Ryszard Nest (Copenhagen University)
On analytic construction of the group three-cocycles

Friday, April 22, 2016
 10:00 - 11:30 Mikhail Kapranov (Kavli IPMU, University of Tokyo)
Some remarks on D-modules with a large parameter and their Stokes geometry.

**[Event] Geometry of Wall-Crossing, Deformation Quantization and Resurgent Analysis :
 Workshop on Development of new methods in Symplectic Geometry : JSPS Bilateral Joint Research Project between Belgium and Japan**

■ Date: Monday, April 25, 2016 – Tuesday, April 26, 2016
 ■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
 ■ Speakers
 • Michel Cahen (ULB)
 • Simone Gutt (ULB)
 • Tomohiro Fukaya (Tokyo Metropolitan University)
 • Noriaki Ikeda (Ritsumeikan University)
 • Kentaro Mikami (Akita University)
 • Hitoshi Moriyoshi (Nagoya University)
 • Toshikazu Natsume (Nagoya Institute of Technology)
 • Hajime Sato (Nagoya University)
 ■ Participants: 17
 ■ Time Schedule
 Monday, April 25, 2016
 10:00 - 11:00 Simone Gutt (ULB)
A symplectic analogue to spaces of constant curvature
 11:30 - 12:30 Kentaro Mikami (Akita University)
GF cohomology of Poisson structures
 12:30 - 14:00 Lunch

14:00 - 15:00 Toshikazu Natsume (Nagoya Institute of Technology)
A new look into Ginsparg-Wilson index
 15:15 - 16:15 Noriaki Ikeda (Ritsumeikan University)
Higher structures in contravariant Poisson Geometry and T-duality
 17:30 - 20:30 Special Event : Research Cooperation and Researchers' mobility at EURAXESS Share Tohoku 2016
 Tuesday, April 26, 2016
 10:00 - 11:00 Hitoshi Moriyoshi (Nagoya University)
On symplectic embeddings of Kodaira-Thurston manifold
 11:30 - 12:30 Hajime Sato (Nagoya University)
Symplectic connections and contact parabolic structures
 12:30 - 14:00 Lunch
 14:00 - 15:00 Tomohiro Fukaya (Tokyo Metropolitan University)
The coarse Baum-conjecture for product of nonpositive curved spaces and groups
 15:30 - 16:30 Michel Cahen (ULB)
 M_p^c structures and symplectic Dirac operators

[Event] Symplectic Geometry and Physics : Intensive Course

■ Date: Monday, May 9, 2016 16:00 – 17:00 (Colloquium)
 Tuesday, May 10, 2016 15:00 – 18:00
 Thursday, May 12, 2016 15:00 – 18:00
 Friday, May 13, 2016 15:00 – 18:00
 ■ Venue: Kawai Hall, Aobayama Campus, Tohoku University
 ■ Lecturer: Kaoru Ono (RIMS, Kyoto University)
 ■ Participants: 40
 ■ Title : **Symplectic Floer theory and its applications**

[Event] Symplectic Geometry and Physics : Workshop on Geometry and Physics - Floer theory and Hamiltonian dynamics

■ Date: Monday, May 23, 2016 – Friday, May 27, 2016
 ■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
 ■ Organizers
 • Reiko Miyaoka (Tohoku University)
 • Kaoru Ono (RIMS, Kyoto University)
 ■ Speakers
 • Manabu Akaho (Tokyo Metropolitan University)
 • Youngjin Bae (IBS Center for Geometry and Physics, POSTECH)
 • Jean-Francois Barraud (Université Paul Sabatier, Toulouse Mathematical Institute)
 • Viktor L. Ginzburg (University of California, Santa Cruz)
 • Roman Golovko (Alfred Renyi Institute of Mathematics, Hungarian Academy of Sciences)
 • Basak Gurel (University of Central Florida)
 • Doris Hein (University of Freiburg)
 • Morimichi Kawasaki (IBS Center for Geometry and Physics, POSTECH)
 • Ely Kerman (University of Illinois at Urbana-Champaign)
 • Andrei Pajitnov (University of Nantes)
 • Yoshihiro Sugimoto (Kyoto University)
 • Ryuma Orita (University of Tokyo)
 ■ Participants: 80
 ■ Time Schedule
 Monday, May 23, 2016
 09:30 - 11:00 Viktor L. Ginzburg (University of California, Santa Cruz)
Periodic Points of Hamiltonian Systems: the Conley Conjecture and Beyond [1]
 11:15 - 12:15 Manabu Akaho (Tokyo Metropolitan University)
Symplectic displacement energy for exact Lagrangian immersions
 12:15 - 13:30 Lunch
 13:30 - 15:00 Basak Gurel (University of Central Florida)
Non-contractible periodic orbits in Hamiltonian dynamics on closed symplectic manifolds [1]
 15:30 - 16:30 Morimichi Kawasaki (IBS Center for Geometry and Physics, POSTECH)
Non-contractible orbits found by the Floer theory on contractible orbits
 Tuesday, May 24, 2016
 09:30 - 11:00 Viktor L. Ginzburg (University of California, Santa Cruz)

Periodic Points of Hamiltonian Systems: the Conley Conjecture and Beyond [2]
 11:15 - 12:15 Roman Golovko (Alfred Renyi Institute of Mathematics, Hungarian Academy of Sciences)
On Legendrian submanifolds, exact Lagrangian cobordisms and the homological Arnold chord conjecture I
 12:15 - 13:30 Lunch
 13:30 - 15:00 Ely Kerman (University of Illinois at Urbana-Champaign)
Hamiltonian Floer theory and a theorem of Ekeland and Lasry [1]
 15:30 - 16:30 Yoshihiro Sugimoto (Kyoto University)
Hofer's metric and wrapped Floer homology
 Wednesday, May 25, 2016
 09:30 - 11:00 Viktor L. Ginzburg (University of California, Santa Cruz)
Periodic Points of Hamiltonian Systems: the Conley Conjecture and Beyond [3]
 11:15 - 12:15 Jean-Francois Barraud (Université Paul Sabatier, Toulouse Mathematical Institute)
The Floer fundamental group for monotone Lagrangian submanifolds
 12:15 - 13:30 Lunch
 13:30 - 15:00 Basak Gurel (University of Central Florida)
Non-contractible periodic orbits in Hamiltonian dynamics on closed symplectic manifolds [2]
 15:30 - 16:30 Andrei Pajitnov (University of Nantes)
Arnold conjecture, Floer chain complexes, and the augmentation ideals of finite groups.
 16:45 - 17:45 Ryuma Orita (University of Tokyo)
Non-contractible periodic orbits in Hamiltonian dynamics on tori
 18:00 - Reception (Restaurant Hagi)
 Thursday, May 26, 2016
 09:30 - 11:00 Viktor L. Ginzburg (University of California, Santa Cruz)
Periodic Points of Hamiltonian Systems: the Conley Conjecture and Beyond [4]
 11:15 - 12:15 Doris Hein (University of Freiburg)
Morse theory with symmetries and applications
 12:15 - 13:30 Lunch

13:30 - 15:00	Ely Kerman (University of Illinois at Urbana-Champaign) Hamiltonian Floer theory and a theorem of Ekeland and Lasry [2]
15:30 - 16:30	Youngjin Bae (IBS Center for Geometry and Physics, POSTECH) Rabinowitz Floer homology and symplectic deformations [1]
Friday, May 27, 2016	
10:00 - 11:00	Roman Golovko (Alfred Renyi Institute of Mathematics, Hungarian Academy of Sciences)

	On Legendrian submanifolds, exact Lagrangian cobordisms and the homological Arnold chord conjecture II
11:15 - 12:15	Youngjin Bae (IBS Center for Geometry and Physics, POSTECH) Rabinowitz Floer homology and symplectic deformations [2]

[Event]Complex Geometry and Mirror Symmetry : Intensive Course

■ Date and Time: Tuesday, June 14, 2016 15:00 – 18:00 Wednesday, June 15, 2016 15:00 – 18:00 Thursday, June 16, 2016 15:00 – 18:00	■ Venue: Kawai Hall, Aobayama Campus, Tohoku University ■ Lecturer: Toshiki Mabuchi (Osaka University) ■ Participants: 30 ■ Title: Existence problem of constant scalar curvature Kähler metrics
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[Event]Complex Geometry and Mirror Symmetry : Special Lectures by Professor Kenji Fukaya

■ Date and Time: Tuesday, June 14, 2016 13:00 – 14:00 Geometry Seminar Monday, June 20, 2016 16:00 – 17:00 Colloquium ■ Venue: Kawai Hall, Aobayama Campus, Tohoku University ■ Lecturer: Kenji Fukaya (Stony Brook University)	■ Participants: 80 ■ Title : June 14, 2016 13:00 – 14:00 Geometry Seminar On the formality of IBL structure June 20, 2016 16:00 – 17:00 Colloquium Topological Field theory and A infinity category
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[Event]Complex Geometry and Mirror Symmetry : Lecture Series

■ Date and Time: Wednesday, June 22, 2016 15:00 – 16:30 Thursday, June 23, 2016 15:00 – 16:30 Friday, June 24, 2016 15:00 – 16:30 ■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University	■ Lecturer: Xiuxiong Chen (Stony Brook University) ■ Participants: 30 ■ Title : Ricci flow and related topics I , II , III.
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[Event] Complex Geometry and Mirror Symmetry : Workshop

■ Date: Monday, June 27, 2016 – Wednesday, June 29, 2016 ■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University ■ Speakers • Xiuxiong Chen (Stony Brook University) • Hiroshi Iritani (Kyoto University) • Giovanni Landi (University of Trieste) • Toshiki Mabuchi (Osaka University) • Shinichiroh Matsuo (Nagoya University) • Yuji Odaka (Kyoto University) • Kenta Tottori (Tohoku University) • Kazushi Ueda (University of Tokyo) ■ Participants: 191 ■ Time Schedule Monday, June 27, 2016	11:00 - 12:30 Kazushi Ueda (University of Tokyo) 12:30 - 15:00 Lunch and Discussion 15:00 - 16:30 Xiuxiong Chen (Stony Brook University) 18:00 - Reception (Restaurant Hagi) Tuesday, June 28, 2016 11:00 - 12:30 Hiroshi Iritani (Kyoto University) 12:30 - 13:45 Lunch and Discussion 13:45 - 14:45 Giovanni Landi (University of Trieste) 15:00 - 16:30 Shinichiroh Matsuo (Nagoya University) Wednesday, June 29, 2016 11:00 - 12:30 Toshiki Mabuchi (Osaka University) 12:30 - 14:15 Lunch and Discussion 14:15 - 14:45 Kenta Tottori (Tohoku University) 15:00 - 16:30 Yuji Odaka (Kyoto University)
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[Event]Complex Geometry and Mirror Symmetry : Special Lecture by Professor Shing-Tung Yau

■ Date and Time: Tuesday, July 12, 2016 15:00 – 16:30 ■ Venue: Math. Build. 309, Aobayama Campus, Tohoku University ■ Lecturer: Shing-Tung Yau (Harvard University)	■ Participants: 70 ■ Title : Perspective in Geometric Analysis
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[Event] Complex Geometry and Mirror Symmetry : Workshop

■ Date: Wednesday, July 13, 2016 ■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University ■ Speakers • Shinichiroh Matsuo (Nagoya University) • Atsushi Takahashi (Osaka University) • Shing-Tung Yau (Harvard University) ■ Participants: 40 ■ Time Schedule Wednesday, July 13, 2016	09:00 - 10:30 Shing-Tung Yau (Harvard University) Geometry and Physics 10:45 - 12:15 Atsushi Takahashi (Osaka University) On orbifold Jacobian algebras 12:15 - 13:30 Lunch 13:30 - 15:00 Shing-Tung Yau (Harvard University) General relativity and important physical quantities 15:15 - 16:45 Shinichiroh Matsuo (Nagoya University) Brody curves and mean dimension
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Thematic Program 2016 | Program Code: 2016EPD

Earth and Planetary Dynamics

[Event] International Workshop:New Challenges in Volatile Cycling in the Deep Earth

■ Date: Sunday, July 3, 2016 - Wednesday, July 6, 2016 ■ Venue: The School of Engineering CENTER HALL, Aobayama Campus, Tohoku University	■ Co-hosted by: JSPS-DFG Japanese-German Graduate Externship ■ Speakers • Sylvie Demouchy (CNRS)
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- Daniel J. Frost (BGI, University of Bayreuth)
- Gregor Golabek (BGI, University of Bayreuth)
- Naoto Hirano (Tohoku University)
- Marc Hirschmann (University of Minnesota)
- Masahiro Ichiki (Tohoku University)
- Hikaru Iwamori (JAMSTEC)
- Tomoo Katsura (BGI, University of Bayreuth)
- Katherine Kelley (University of Rhode Island)
- Tomoaki Kubo (Kyushu University)
- Steffen Kutterolf (GEOMAR Helmholtz Centre for Ocean Research Kiel)
- Konstantin Litasov (Sobolev Institute of Geology and Mineralogy)
- Bernard Marty (CRPG Nancy)
- Hauke Marquardt (BGI, University of Bayreuth)
- Katharina Marquardt (BGI, University of Bayreuth)
- Catherine McCammon (BGI, University of Bayreuth)
- Masaaki Miyahara (Hiroshima University)
- Bjorn O. Mysen (Carnegie Institution of Washington)
- Junichi Nakajima (Tokyo Institute of Technology)
- Daniel R. Neuville (IPGP, CNRS)
- Michihiko Nakamura (Tohoku University)
- Eiji Ohtani (Tohoku University)
- Brent Takashi Poe (Università degli Studi Gabriele d'Annunzio)
- Guillaume Richard (University of Orléans)
- David C. Rubie (BGI, University of Bayreuth)
- Hiroshi Shinohara (National Institute of Advanced Industrial Science and Technology)
- Gerd Steinle-Neumann (BGI, University of Bayreuth)
- Dapeng Zhao (Tohoku University)

■ Participants: 70

■ Time Schedule

Monday, July 4, 2016

- Chair: Michihiko Nakamura (Tohoku University)
- 10:00 – 10:20 Opening Remarks
 - 10:20 – 10:50 Daniel J. Frost (BGI, University of Bayreuth)
 - 10:50 – 11:20 Tomoo Katsura (BGI, University of Bayreuth)
 - 11:20 – 11:40 Group Photo
 - 11:40 – 12:10 Catherine McCammon (BGI, University of Bayreuth)
 - 12:10 – 12:40 Eiji Ohtani (Tohoku University)
 - 12:40 – 14:00 Lunch
- Chair: Eiji Ohtani (Tohoku University)
- 14:00 – 14:30 Tomoaki Kubo (Kyushu University)
 - 14:30 – 15:00 Hauke Marquardt (BGI, University of Bayreuth)

- 15:00 – 15:30 Gerd Steinle-Neumann (BGI, University of Bayreuth)
- 15:30 – 15:50 Break
- 15:50 – 16:30 Bernard Marty (CRPG Nancy)
- 16:30 – 17:00 Daniel R. Neuville (IPGP, CNRS)
- 17:00 – 17:30 David C. Rubie (BGI, University of Bayreuth)

Tuesday, July 5, 2016

- Chair: Hauke Marquardt (BGI, University of Bayreuth)
- 09:30 – 10:10 Marc Hirschmann (University of Minnesota)
 - 10:10 – 10:40 Sylvie Demouchy (CNRS)
 - 10:40 – 11:00 Break
 - 11:00 – 11:40 Katherine Kelley (University of Rhode Island)
 - 11:40 – 12:10 Naoto Hirano (Tohoku University)
 - 12:10 – 12:40 Dapeng Zhao (Tohoku University)
 - 12:40 – 14:00 Lunch
- Chair: Tomoo Katsura (BGI, University of Bayreuth)
- 14:00 – 14:30 Konstantin Litasov (Sobolev Institute of Geology and Mineralogy)
 - 14:30 – 15:00 Katharina Marquardt (BGI, University of Bayreuth)
 - 15:00 – 18:30 Poster session
 - 18:30 – 20:30 Banquet

Wednesday, July 6, 2016

- Chair: Sylvain Petitgirard (BGI)
- 09:30 – 10:10 Hikaru Iwamori (JAMSTEC)
 - 10:10 – 10:40 Masahiro Ichiki (Tohoku University)
 - 10:40 – 11:00 Break
 - 11:00 – 11:40 Guillaume Richard (University of Orléans)
 - 11:40 – 12:10 Junichi Nakajima (Tokyo Institute of Technology)
 - 12:10 – 12:40 Gregor Golabek (BGI, University of Bayreuth)
 - 12:40 – 14:00 Lunch
- Chair: Daniel J. Frost (BGI, University of Bayreuth)
- 14:00 – 14:40 Brent Takashi Poe (Università degli Studi Gabriele d'Annunzio)
 - 14:40 – 15:10 Masaaki Miyahara (Hiroshima University)
 - 15:10 – 15:40 Bjorn O. Mysen (Carnegie Institution of Washington)
 - 15:40 – 16:00 Break
 - 16:00 – 16:40 Steffen Kutterolf (GEOMAR Helmholtz Centre for Ocean Research Kiel)
 - 16:40 – 17:10 Hiroshi Shinohara (National Institute of Advanced Industrial Science and Technology)
 - 17:10 – 17:40 Michihiko Nakamura (Tohoku University)
 - 17:40 – 17:50 Closing Remarks

[Event] International Workshop: Planetary Science and Space Exploration

■ Date: Monday, July 4, 2016 – Wednesday, July 6, 2016

■ Venue: Science Complex C 2F, Aoba Science Hall, Aobayama North Campus, Tohoku University

■ Speakers

- Ken-ichi Bajo (Hokkaido University)
- Harold C. Connolly Jr. (City University of New York)
- Céline Defouillou (University of Wisconsin-Madison)
- Jean Duprat (CSNSM)*
- Abigail A. Fraeman (NASA Jet Propulsion Laboratory)*
- Yoshihiro Furukawa (Tohoku University)
- Motoo Ito (JAMSTEC)
- Takahiro Iwata (ISAS, JAXA)
- Shunichi Kamata (Hokkaido University)
- Shingo Kameda (Rikkyo University)
- Takafumi Kamizuka (University of Tokyo)
- Masahiro Kayama (Tohoku University)
- Yoko Kebukawa (Yokohama National University)
- Hiroshi Kikuchi (University of Tokyo)
- Makoto Kimura (Ibaraki University)
- Noriko Kita (University of Wisconsin-Madison)*
- Moe Matsuoka (Tohoku University)
- Scott L. Messenger (NASA Johnson Space Center)
- Takashi Mikouchi (University of Tokyo)
- Hideaki Hirdy Miyamoto (University of Tokyo)
- Takashi Miyata (University of Tokyo)
- Tomoki Nakamura (Tohoku University)
- Daisuke Nakashima (Tohoku University)
- Aiko Nakato (Kyoto University)
- Takahito Osawa (JAEA)
- Ted Roush (NASA Ames Research Center)*
- Takeshi Sakanai (Tohoku University)
- Pablo Sobron (SETI Institute)
- Seiji Sugita (University of Tokyo)

- Hidekazu Tanaka (Tohoku University)
- Fumihiko Usui (Kobe University)*
- Masakuni Yamanobe (Tohoku University)
- Hisayoshi Yurimoto (Hokkaido University)
- Mike Zolensky (NASA Johnson Space Center)*

* = Special talk

■ Workshop organizers

- Tomoki Nakamura (Tohoku University)
- Daisuke Nakashima (Tohoku University)
- Noriko Kita (University of Wisconsin-Madison)
- Sunao Hasegawa (ISAS, JAXA)
- Shogo Tachibana (Hokkaido University)

■ Participants: 51

■ Time Schedule

Monday, July 4, 2016

Chair: Daisuke Nakashima (Tohoku University)

[Opening talk]

- 13:00 – 13:20 Tomoki Nakamura (Tohoku University)
Links between spectroscopic observation and material science of solar system small bodies

[Planetesimal formation + O-isotopes]

- 13:20 – 13:40 Hidekazu Tanaka (Tohoku University)
From Dust to Planetesimals and Asteroids
- 13:40 – 14:10 Noriko Kita (University of Wisconsin-Madison)
Oxygen isotope systematics of chondrules in primitive chondrites
- 14:10 – 14:30 Masakuni Yamanobe (Tohoku University)
Oxygen isotope ratios of chondrules in the WIS91600 carbonaceous chondrite originated from D-type asteroid
- 14:30 – 14:50 Daisuke Nakashima (Tohoku University)
Analytical developments for isotope analyses of tiny extraterrestrial particles

14:50 – 15:10 Céline Defouilloy (University of Wisconsin-Madison)
High precision oxygen three-isotope analyses of material from comet 81P/Wild 2 and probable cometary material from giant cluster IDP

15:10 – 15:30 Coffee Break
 Chair: Tomoki Nakamura (Tohoku University)

[Comet]

15:30 – 15:50 Scott L. Messenger (NASA Johnson Space Center)
Abundant solar nebula solids in comets

15:50 – 16:10 Shunichi Kamata (Hokkaido University)
Pluto: An active icy body at the outer edge of the Solar System

16:10 – 16:40 Jean Duprat (CSNSM)
Elementary and isotopic signatures of carbonaceous material from cometary surfaces?

18:00 – Welcome Party

Tuesday, July 5, 2016
 Chair: Seiji Sugita (University of Tokyo)

[Asteroid spectroscopy]

09:00 – 09:30 Fumihiko Usui (Kobe University)
Infrared Asteroid Survey with AKARI

09:30 – 09:50 Takashi Miyata (University of Tokyo)
Capabilities of the TAO 6.5m telescope for Solar system astronomy

09:50 – 10:10 Takafumi Kamizuka (University of Tokyo)
Exploring hydrous materials on asteroids with TAO/MIMIZUKU

[Hayabusa2 remote sensing]

10:10 – 10:30 Seiji Sugita (University of Tokyo)
What we need to know from remote sensing observation of Ryugu from Hayabusa2?

10:30 – 10:50 Takahiro Iwata (ISAS, JAXA)
Near infrared Spectrometer on Hayabusa2

10:55 – 11:15 Shingo Kameda (Rikkyo University)
HAYABUSA2/ONC-T and cameras for MMX

Chair: Tomoki Nakamura (Tohoku University)

[Special talk]

11:15 – 12:10 Mike Zolensky (NASA Johnson Space Center)
Xenoliths in Meteorites are Samples of "Missing" Asteroid Lithologies

12:10 – 13:10 Lunch

[Spectroscopy of asteroids & meteorites + asteroidal evolution]

13:10 – 13:40 Ted Roush (NASA Ames Research Center)
Inference of surface chemical and physical properties using mid-infrared (MIR) spectral observations

13:40 – 14:00 Masahiro Kayama (Tohoku University)
Water in olivine, clinopyroxene and plagioclase of lunar meteorites of the NWA 773 clan by IR microspectroscopy

14:00 – 14:20 Moe Matsuoka (Tohoku University)
Experimental space weathering simulation of the Murchison CM2 chondrite with low-energy pulse laser irradiation

14:20 – 14:40 Aiko Nakato (Kyoto University)
Heating effect on mineralogy of hydrous asteroids

14:40 – 15:00 Yoko Kebukawa (Yokohama National University)
Kinetics of organic matter degradation in primitive asteroids

15:00 – 15:20 Coffee break
 Chair: Hideaki Hirdy Miyamoto (University of Tokyo)

[Mars satellites]

15:20 – 15:40 Hideaki Hirdy Miyamoto (University of Tokyo)
Science objectives of Japanese mars moon exploration (MMX) mission

15:40 – 16:00 Takeshi Sakanoi (Tohoku University)
Development of near-infrared imaging spectrometers for the Martian moon's sample return mission and future planetary projects

16:00 – 16:20 Hiroshi Kikuchi (University of Tokyo)
Numerical test of the formational process of lineaments on Phobos

16:20 – 16:40 Pablo Sobron (SETI Institute)
In-situ chemistry, mineralogy, and organic/biomarker content investigations on Phobos and Deimos: a new instrument concept

16:40 – 17:10 Abigail A. Fraeman (NASA Jet Propulsion Laboratory)
Constraining the Compositions of Phobos and Deimos Remotely

18:30 – Party

Wednesday, July 6, 2016
 Chair: Masahiro Kayama (Tohoku University)

[Hayabusa1+2 analyses + OSIRIS-Rex]

09:00 – 09:20 Makoto Kimura (Ibaraki University)
An LL chondritic breccia, Asuka 12389, and the significance to the asteroidal evolution I

09:20 – 09:40 Ken-ichi Bajo (Hokkaido University)
Micro-distribution of solar wind helium implanted to Itokawa particle

09:40 – 10:00 Motoo Ito (JAMSTEC)
Are we ready for Hayabusa 2 samples?

10:00 – 10:20 Takashi Mikouchi (University of Tokyo)
Application of synchrotron X-ray radiation to analyze extraterrestrial materials

10:20 – 10:40 Takahito Osawa (JAEA)
Feasibility study of muonic X-ray analysis for extraterrestrial materials

10:40 – 11:00 Yoshihiro Furukawa (Tohoku University)
Future perspectives on the analysis bio-related organic compounds in astronomical samples

11:00 – 11:20 Harold C. Connolly Jr. (City University of New York)
The question is not what do we know about Bennu, but what do we need to know before arrival at Bennu?: Remote sensing and sample science

11:20 – 11:40 Hisayoshi Yurimoto (Hokkaido University)
JAXA Astromaterials Research Group -Past, Present, and Future Plan-

[Event] International Workshop: Dynamics and Interactions of the Ocean and Atmosphere

- Date: Wednesday, July 13, 2016 – Friday, July 15, 2016
- Venue: Science Complex C 2F, Aoba Science Hall, Aobayama North Campus, Tohoku University
- Speakers
 - Muhammad Rais Abdillah (Tohoku University)
 - Hidenori Aiki (ISEE, Nagoya University)
 - Frederick Morton Bingham (University of North Carolina at Wilmington)
 - Ming Cai (Florida State University)
 - Guixing Chen (Sun Yat-sen University)
 - Ryo Fujita (Tohoku University)
 - Saji N. Hameed (University of Aizu)
 - Yayoi Harada (Meteorological Research Institute, JMA)
 - Kotaro Hosoda (Tohoku University)
 - Yuki Kanno (Tohoku University)
 - Takenari Kinoshita (JAMSTEC)
 - Noboru Nakamura (University of Chicago)
 - Hideyuki Nakano (Meteorological Research Institute, JMA)
 - Bo Qiu (University of Hawaii at Manoa)
 - Kelvin Richards (University of Hawaii at Manoa)
 - Niklas Schneider (University of Hawaii at Manoa)
 - Thomas Spengler (University of Bergen)
 - Katsuya Toyama (Meteorological Research Institute, JMA)

- Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
- Conveners
 - Toshio Suga (Tohoku University)
 - Toshiki Iwasaki (Tohoku University)
- Participants: 43
- Time Schedule

Wednesday, July 13, 2016

 - 09:30 – 10:00 Registration
 Chair: Toshio Suga (Tohoku University)
 - 10:00 – 11:00 Workshop Opening
 Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
Coupled Atmosphere-Ocean Dynamics: From El Nino to global warming
 - 11:00 – 11:30 Break
 Chair: Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
 - 11:30 – 12:40 Saji N. Hameed (University of Aizu)
A model for super El Ninos
 Naoya Takahashi (Tohoku University)
Cloud Microphysical Properties in Tropical Pacific Regions derived from CloudSat and CALIPSO Measurements

12:40 – 14:00 Lunch Break
 Chair: Saji N. Hameed (University of Aizu)

14:00 – 15:20 Frederick Morton Bingham (University of North Carolina at Wilmington)
Sea surface salinity and the global water cycle
 Kotaro Hosoda (Tohoku University)
Foundation Sea Surface Temperature Data Set developed by Tohoku University

15:20 – 16:20 Poster Session with Coffee
 Chair: Frederick Morton Bingham (University of North Carolina at Wilmington)

16:20 – 17:40 Kelvin Richards (University of Hawaii at Manoa)
The importance of ocean mixing in ocean/atmosphere interactions in the tropics
 Katsuya Toyama (Meteorological Research Institute, JMA)
Subduction: variability in the North Pacific and an application to global ocean biogeochemistry

18:00 – 20:00 Reception

Thursday, July 14, 2016
 Chair: Kelvin Richards (University of Hawaii at Manoa)

09:00 – 10:10 Thomas Spengler (University of Bergen)
Maintenance of Baroclinicity in the Atlantic Storm Track and the Role of Sea Surface Temperature Gradients and Cold Air Outbreaks
 Toshio Suga (Tohoku University)
Mode waters and cold air outbreaks: Comparison study of subtropical mode waters in the world ocean

10:10 – 10:40 Break
 Chair: Thomas Spengler (University of Bergen)

10:40 – 11:50 Niklas Schneider (University of Hawaii at Manoa)
The atmospheric response to mesoscale sea surface temperature fronts
 Ryo Fujita (Tohoku University)
Variations of atmospheric methane and its carbon and hydrogen isotopic ratios at Churchill, Canada

11:50 – 14:00 Lunch Break
 Chair: Niklas Schneider (University of Hawaii at Manoa)

14:00 – 15:50 Bo Qiu (University of Hawaii at Manoa)
Decadal Variability and Impact of the Kuroshio Extension System
 Hideyuki Nakano (Meteorological Research Institute, JMA)

Is the Kuroshio Extension a blender or barrier of the water mass?
 Guixing Chen (Sun Yat-sen University)
Multi-scale ocean-atmosphere interactions during short-term hot events over the western Pacific warm pool and their roles in regional climate

15:50 – 16:40 Poster Session with Coffee
 Chair: Bo Qiu (University of Hawaii at Manoa)

16:40 – 18:20 Ming Cai (Florida State University)
New Look at the Physics and Energy Fluxes of Rossby Waves
 Yayoi Harada (Meteorological Research Institute, JMA)
Verification of the atmospheric flow in the JRA-55 reanalysis using the mass-weighted isentropic zonal mean method
 Takenari Kinoshita (JAMSTEC)
On the three dimensional structure of stratospheric material transport driven by waves

Friday, July 15, 2016
 Chair: Ming Cai (Florida State University)

09:00 – 10:10 Hidenori Aiki (ISEE, Nagoya University)
A seamlessly diagnosable expression for the energy flux of all waves at all latitudes with equatorial and coastal waveguides
 Noboru Nakamura (University of Chicago)
Local Finite-Amplitude Wave Activity and Onset of Rossby Wave Breaking

10:10 – 10:40 Break
 Chair: Noboru Nakamura (University of Chicago)

10:40 – 12:10 Toshiaki Iwasaki (Tohoku University)
Isentropic Diagnosis of Atmospheric General Circulation
 Yuki Kanno (Tohoku University)
Mean meridional circulations analyzed by mass-weighted isentropic time mean
 Muhammad Rais Abdillah (Tohoku University)
Interactions between East Asian cold air outbreaks and tropical convection

Chair: Toshiaki Iwasaki (Tohoku University)

12:10 – 12:30 Closing
 14:00 – Excursion

[Event] International Workshop: Neutrino Research and Thermal Evolution of the Earth

■ Date: Tuesday, October 25, 2016 – Thursday, October 27, 2016
 ■ Venue: Science Complex C 2F, Aoba Science Hall, Aobayama North Campus, Tohoku University

■ Speakers
 • Stephen Dye (Hawaii Pacific University)
 • Tsuyoshi Iizuka (University of Tokyo)
 • Yukio Isozaki (University of Tokyo)
 • Masahiro Kayama (Tohoku University)
 • John G. Learned (University of Hawaii)
 • Takashi Nakagawa (JAMSTEC)
 • Carsten Rott (Sungkyunkwan University)
 • Itaru Shimizu (Tohoku University)
 • Oleg Smirnov (Joint Institute for Nuclear Research)
 • Ondrej Sramek (Charles University)
 • Virginia Strati (University of Ferrara)
 • Nozomu Takeuchi (University of Tokyo)
 • Linyan Wan (Tsinghua University)
 • Scott Whipperfurth (University of Maryland)

■ Conveners
 • Kunio Inoue (Tohoku University)
 • William F. McDonough (University of Maryland)
 • Hiroko Watanabe (Tohoku University)

■ Participants: 26

■ Time Schedule

Tuesday, October 25, 2016
 12:30 – 13:30 Registration
 13:30 – 13:40 Welcome Kunio Inoue (Tohoku University)

[Session 1]

Chair: Stephen Dye
 13:40 – 14:10 William F. McDonough (University of Maryland)
Grand Challenging in solid Earth Sciences
 Itaru Shimizu (Tohoku University)
 14:10 – 14:40
Broad overview of neutrino physics

14:40 – 15:10 Oleg Smirnov (Joint Institute for Nuclear Research)
Geoneutrino flux measurement in Borexino experiment
 15:10 – 15:30 Coffee Break

[Session 2]

Chair: Ondrej Sramek
 15:30 – 16:00 Hiroko Watanabe (Tohoku University)
KamLAND
 Yukio Isozaki (University of Tokyo)
Geotectonic evolution of the Japanese Islands: an overview
 16:30 – 17:00 Nozomu Takeuchi (University of Tokyo)
Towards Local Tomography Models with Uncertainties
 17:00 – 17:30 Open Discussion

Wednesday, October 26, 2016

[Session 3]

Chair: Virginia Strati
 09:30 – 10:00 Takashi Nakagawa (JAMSTEC)
Cooling of Earth's core and mantle – With or Without a mysterious structure below the core-mantle boundary
 10:00 – 10:30 Scott Whipperfurth (University of Maryland)
How can heat flow heat up geoneutrino science?
 10:30 – 10:50 Coffee Break

[Session 4]

Chair: Junpei Shirai
 10:50 – 11:20 Oleg Smirnov (Joint Institute for Nuclear Research)
Geoneutrino studies with JUNO detector
 Linyan Wan (Tsinghua University)
Proposal: Low-energy Neutrino Research at Jinping
 11:50 – 12:20 Carsten Rott (Sungkyunkwan University)
Future prospect of oscillation tomography
 12:20 – 12:30 Workshop Photo
 12:30 – 14:00 Lunch

[Session 5]

Chair: Tadao Mitsui

14:00 – 14:30 Virginia Strati (University of Ferrara)
Towards a refined model for predicting geoneutrino signal at SNO+

14:30 – 15:00 Ondrej Sramek (Charles University)
Revealing the Earth's mantle from the tallest mountains using the Jinping Neutrino Experiment

15:00 – 15:20 Coffee Break

[Poster Session and Lab Tour]

Chair: Hiroko Watanabe

15:20 – 15:50 Poster Session Presentation

15:50 – 16:20 Poster Session

16:20 – 17:50 Lab Tour (Geoscience Department and Research Center for Neutrino Science)

18:00 – 20:00 Workshop Dinner (Restaurant "Espace Ouvert" at Science Complex C, Tohoku University)

Thursday, October 27, 2016

[Session 6]

Chair: Scott Wipperfurth

09:30 – 10:00 Masahiro Kayama (Tohoku University)
New vision of water in the Moon

10:00 – 10:30 Tsuyoshi Iizuka (University of Tokyo)
Radioactivity in the lithosphere

10:30 – 10:50 Coffee Break

[Session 7]

Chair: Kunio Inoue

10:50 – 11:20 John G. Learned (University of Hawaii)
The Importance of Neutrinos and Some New Experiments to Measure Them

11:20 – 11:50 Stephen Dye (Hawaii Pacific University)
Robust Geo-neutrino Results

11:50 – 12:20 Open Discussion

[Event] International Workshop:MMX mission remote sensing science meeting – Application of AOTF method to observation of planetary surface and atmosphere –

■ Date: Tuesday, November 29, 2016

■ Venue: Science Complex C 2F, Aoba Science Hall, Aobayama North Campus, Tohoku University

■ Speakers

- Jean-pierre Bibring (Institut d'Astrophysique Spatiale, CNRS)
- Masaki Fujimoto (ISAS, JAXA)
- Vincent Hamm (Institut d'Astrophysique Spatiale, CNRS)
- Hironobu Iwabuchi (Tohoku University)
- Takahiro Iwata (ISAS, JAXA)
- Shingo Kameda (Rikkyo University)
- Hideaki Hirdy Miyamoto (University of Tokyo)
- Hiromu Nakagawa (Tohoku University)
- Tomoki Nakamura (Tohoku University)
- Kazunori Ogohara (University of Shiga Prefecture)
- Makiko Ohtake (ISAS, JAXA)
- Go Ono (ISAS, JAXA)
- Takahito Osawa (JAEA)
- Cedric Pilorget (Institut d'Astrophysique Spatiale, CNRS)
- Kyosuke Tawara (Tokyo Institute of Technology)

■ Participants: 50

■ Time Schedule

[I: Presentations of remote sensing of Martian Moon eXploration (MMX) mission and related subjects]

Chairs: Tomoki Nakamura (Tohoku University) and Takeshi Sakanoi (Tohoku University)

- 10:30 – 10:35 Masaki Fujimoto (ISAS, JAXA)
MMX mission and its significance to solar system science
- 10:35 – 10:50 Tomoki Nakamura (Tohoku University)
Remote sensing and return sample analysis of MMX mission
- 10:50 – 11:05 Go Ono (ISAS, JAXA)
Possible orbits of MMX spacecraft for observation and landing on Phobos
- 11:05 – 11:20 Kyosuke Tawara (Tokyo Institute of Technology)
Possible orbits of MMX spacecraft for observation of Deimos
- 11:20 – 11:50 Jean-pierre Bibring (Institut d'Astrophysique Spatiale, CNRS)
Vincent Hamm (Institut d'Astrophysique Spatiale, CNRS)
Cedric Pilorget (Institut d'Astrophysique Spatiale, CNRS)

Principles of AOTF method and advantages for application to MMX mission

- 12:00 – 13:00 Lunch
- 13:00 – 13:15 Hiromu Nakagawa (Tohoku University)
Observing plan for continuous monitoring of Mars using AOTF
- 13:15 – 13:30 Takahiro Iwata (ISAS, JAXA)
NIRS4 update: technical modifications completed and remaining issues to overcome
- 13:30 – 13:45 Shingo Kameda (Rikkyo University)
Additional AOTF camera dedicated to observation at landing
- 13:45 – 14:00 Hideaki Hirdy Miyamoto (University of Tokyo)
Observation of morphological features of Phobos and Deimos using AOTF optical system
- 14:00 – 14:15 Kazunori Ogohara (University of Shiga Prefecture)
Continuous global monitoring of dust, water ice clouds and water vapor in the Mars atmosphere
- 14:15 – 14:30 Hironobu Iwabuchi (Tohoku University)
Satellite observation of Earth's atmosphere: Lessons learned from frequent multispectral observations by a new-generation geostationary satellite
- 14:30 – 14:45 Makiko Ohtake (ISAS, JAXA)
Future plan for collected sample observation on the lunar surface using AOTF method
- 14:45 – 15:00 Takahito Osawa (JAEA)
Muonic X-ray analysis for MMX returned samples

[II: Discussion on scientific requirements and specifications of NIRS4/MacOmega for remote sensing observation using AOTF method]

Chairs: Takahiro Iwata (ISAS, JAXA) and Hiromu Nakagawa (Tohoku University)

- 15:30 – 18:30 Internal discussion for MMX science team
- Phobos and Deimos observation (high SNR observation of Phobos, Lagrange observation of Phobos, Flyby observation of Deimos, Estimation of Thermal inertia, etc)
 - Mars observation
 - Specification of NIRS4/MacOmega (AOTF size, Scan mirror, Focusing mechanism, Resource etc)
- 19:30 – Welcome party

[Event] Summer School on Frontiers in Earth and Planetary Sciences: Early Solar System, Dynamics of the Earth's Interior, Ocean and Atmospheric Interactions, and Geoneutrinos

■ Date: Thursday, July 7, 2016, Friday, July 8, 2016, Monday, July 11, 2016, Tuesday, July 12, 2016

■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University

■ Speakers

- Stephen Dye (Hawaii Pacific University)
- Daniel J. Frost (BGI, University of Bayreuth)
- Bjorn O. Mysen (Carnegie Institution of Washington)
- Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
- Mike Zolensky (NASA Johnson Space Center)

■ Participants: 28

■ Time Schedule

Thursday, July 7, 2016

09:40 – 10:40 Daniel J. Frost (BGI, University of Bayreuth)

Introductory lecture on Phase transitions in the solid Earth

- 11:00 – 12:00 Bjorn O. Mysen (Carnegie Institution of Washington)
Introductory lecture: Magma and Fluid in the Earth
- 13:30 – 14:30 Daniel J. Frost (BGI, University of Bayreuth)
Advanced lecture: Phase transitions in the solid Earth
- 14:50 – 15:50 Bjorn O. Mysen (Carnegie Institution of Washington)
Advanced lecture: Magma and Fluid in the Earth

Friday, July 8, 2016

- 09:40 – 10:40 Mike Zolensky (NASA Johnson Space Center)
Introductory lecture on Planetary Exploration I
- 11:00 – 12:00 Mike Zolensky (NASA Johnson Space Center)
Introductory lecture on Planetary Exploration II
- 13:30 – 14:30 Mike Zolensky (NASA Johnson Space Center)
Advanced lecture on Planetary Exploration I

14:50 – 15:50 Mike Zolensky (NASA Johnson Space Center)
Advanced lecture on Planetary Exploration II
 Monday, July 11, 2016
 09:40 – 10:40 Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
Introductory lecture on Ocean-Atmosphere dynamics I
 11:00 – 12:00 Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
Introductory lecture on Ocean-Atmosphere dynamics II
 13:30 – 14:30 Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
Advanced lecture on Ocean-Atmosphere dynamics I

14:50 – 15:50 Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
Advanced lecture on Ocean-Atmosphere dynamics II
 Tuesday, July 12, 2016
 09:40 – 10:40 Stephen Dye (Hawaii Pacific University)
Introductory lecture on Geoneutrino I
 11:00 – 12:00 Stephen Dye (Hawaii Pacific University)
Introductory lecture on Geoneutrino II
 13:30 – 14:30 Stephen Dye (Hawaii Pacific University)
Advanced lecture on Geoneutrino I
 14:50 – 15:50 Stephen Dye (Hawaii Pacific University)
Advanced lecture on Geoneutrino II

[Event] Outreach for the public: Advances in Space Planetary Exploration

■ Date: Sunday, July 10, 2016
 ■ Venue: Sendai Science Museum
 ■ Speaker: Mike Zolensky (NASA Johnson Space Center)

■ Title: 地球外サンプルリターンミッションの新黄金時代
**The Public talk was given consecutive interpreting in Japanese.*
 ■ Participants: 150

[Event] Outreach for the public: Ocean and Atmosphere Interactions, and Global Warming

■ Date: Monday, July 18, 2016
 ■ Venue: Science Complex C 2F, Aoba Science Hall, Aobayama North Campus, Tohoku University

■ Speaker: Shang-Ping Xie (Scripps Institution of Oceanography, UCSD)
 ■ Title: スーパーエルニーニョと異常気象 **The Public talk was given in Japanese.*
 ■ Participants: 60

[Event] Outreach for the public: France voyage of Tsunenaga Hasekura and space voyage of Spacecraft Hayabusa

■ Date: Sunday, December 4, 2016
 ■ Venue: Ishinomaki Kahoku Community Center “BIGBANG”
 ■ Speakers
 • Naotsugu Hamada (Miyagi Sant Juan Bautista Museum)
 • Patrick Michel (Observatory of Côte d’Azur)
 • Junichiro Kawaguchi (JAXA)
 • Tomoki Nakamura (Tohoku University)
 • Laurent Pavlidis (Académicien des Arts & Sciences de la Mer)
 • Jean Pierre Tuveri (Mayor of Saint-Tropez)
 • Kazuya Yoshida (Tohoku University)
 ■ Participants: 150
 ■ Time Schedule **The Public talk was given in Japanese.*
[Part 1: France voyage of Tsunenaga Hasekura]
 13:00 – Opening remarks Hiroshi Kameyama (Ishinomaki Mayor)
 13:05 – Naotsugu Hamada (Miyagi Sant Juan Bautista Museum)
 支倉常長とサントロベとの出会い: 日仏交流関係の始まり

13:40 – Jean Pierre Tuveri (Mayor of Saint-Tropez)
Welcome from the city of Saint-Tropez
 13:45 – Laurent Pavlidis (Académicien des Arts & Sciences de la Mer)
A brief history of the first encounter between Japan and France in Saint-Tropez
 14:00 – Break
[Part 2: Space voyage of Spacecraft Hayabusa]
 14:15 – Junichiro Kawaguchi (JAXA)
世界で初めて小惑星に着陸した小惑星探査機はやぶさ
 14:45 – Tomoki Nakamura (Tohoku University)
はやぶさが持ち帰った砂からわかる小惑星の歴史
 15:15 – Patrick Michel (Observatory of Côte d’Azur)
Links between Japan and a scientist from Saint-Tropez
 15:55 – Kazuya Yoshida (Tohoku University)
ロボットによる月惑星探査
 16:25 – Closing Remarks

[Event] Special lecture of space science

■ Date: Saturday, December 3, 2016
 ■ Venue: Geophysics building 5F, 503 room, Aobayama North Campus, Tohoku University
 ■ Speaker: Patrick Michel (Observatory of Côte d’Azur)
 ■ Participants: 20

■ Time Schedule
 15:00 – 16:00 Patrick Michel (Observatory of Côte d’Azur)
Numerical investigations of asteroid processes and applications to Hayabusa 2, OSIRIS-REx and AIDA space missions

Thematic Program 2016 | Program Code: 2016JPN

The 21st Century Hasekura Project: Japanese Studies as the Interface of a New Knowledge

[Event] Seminar Series: Philosophy, art and science around 1800

■ Date and Time
 Monday, May 16, 2016 16:20 –
Seminar 1: Philosophy, art and science around 1800
 Tuesday, May 17, 2016 13:00 –
Seminar 2: The organism as a model for understanding nature, art and science
 Tuesday, May 17, 2016 15:00 –
Seminar 3: “Nature” between philosophy and natural science
 Monday, May 23, 2016 16:20 –
Seminar 4: “Romantic” art and “romantic” science
 Saturday, May 28, 2016 15:00 –
Seminar 5: Towards general science - New scientific concepts around 1900 (Husserl seminar)

Tuesday, May 31, 2016 10:30 –
Seminar 6: Case study: Landscape painting in theory and practice in the work of C.G. Carus
 ■ Venue
Seminar 1-4, 6:
 Room 919, 9F, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
Seminar 5 (Husserl seminar):
 Room 909, 9F, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
 ■ Speaker: Paul Ziche (Utrecht University, the Netherlands)
 ■ Participants: 55

[Event] The Encounter between Japan and the Netherlands: Intensive Seminar for Young Researchers

- Date and time: Thursday, June 16, 2016 15:00 – 18:00
- Venue: Room 208, 2F, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
- Commentators
 - Ivo Smits (Leiden University)
 - Akinori Takahashi (Tohoku University)
 - Akihiro Ozaki (Tohoku University)
- Participants: 40

[Event] The Encounter between Japan and the Netherlands: Workshop on the Encounter between Japan and the Netherlands

- Date and time: Thursday, June 23, 2016 15:00 – 18:00
- Venue: Room 315, 3F, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
- Speakers
 - Ivo Smits (Leiden University)
 - Akinori Takahashi (Tohoku University)
- Participants: 45
- Time Schedule
 - 15:00 – 16:00 Akinori Takahashi (Tohoku University)
The Significance of Considering The Netherlands in Japanese Studies: Focusing on Kyoka in Edo period
 - 16:00 – 18:00 Ivo Smits (Leiden University)
Love and Fascism: The Reception of Japanese Classical Literature in The Netherlands in the Interwar Period: The Case of Mr. and Mrs. Pierson

[Event] Civil War at the End of Shogunate and during the Restoration: New Perspectives on the Boshin War

- Date and time: Friday, September 16, 2016 14:30 – 17:40
- Venue: Audiovisual Room, 3F, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
- Speakers
 - Harald Fuess (Heidelberg University)
 - Shinichiro Kurihara (Miyagi Prefectural Archives)
 - Masashi Amano (IRiDeS, Tohoku University)
- Commentator: Toshimitsu Kagohashi (Tohoku University)
- Moderator: Hiroaki Adachi (Tohoku University)
- Event Organizer: Hiroshi Yokomizo (Tohoku University)
- Participants: 40
- Time Schedule
 - 14:30 – 14:40 Hiroaki Adachi (Tohoku University)
Introduction
 - 14:40 – 15:20 Harald Fuess (Heidelberg University)
Endemic Violence: The Meiji Restoration and the International Arms Trade
 - 15:20 – 16:00 Shinichiro Kurihara (Miyagi Prefectural Archives)
Issues in the Study of the Boshin War: A Reconsideration of the Feudal Clans League in the Ouetsu Region
 - 16:00 – 16:40 Masashi Amano (IRiDeS, Tohoku University)
The Military Organization and Battles of Akita Domain
 - 16:55 – 17:40 Discussions

[Event] Knowledge and Arts on The Move: Transformation of The Self-Aware Image through East-West Encounters

- Date: Monday, February 13, 2017 – Tuesday, February 14, 2017
- Venue: The Second Lecture Room, Multidisciplinary Research Building, Kawauchi South Campus, Tohoku University
- Speakers
 - Maurizio Campanelli (Sapienza University of Rome)
 - Christopher Craig (Tohoku University)
 - Silvana De Maio ("L' Orientale" University of Naples)
 - Marco Del Bene (Sapienza University of Rome)
 - Estelle Doudet (University of Grenoble Alpes)
 - Dagmar Eichberger (Heidelberg University)
 - Enrico Fongaro (Tohoku University)
 - Marcello Ghilardi (University of Padova)
 - Alessandro Greco (Sapienza University of Rome)
 - Glenn Hook (University of Sheffield)
 - Monica Juneja (Heidelberg University)
 - Hiroshi Kabashima (Tohoku University)
 - Eva Kaminski (Jagiellonian University)
 - Matilde Mastrangelo (Sapienza University of Rome)
 - Rolando Minuti (University of Florence)
 - Ryusaku Nagaoka (Tohoku University)
 - Andreas Niehaus (Ghent University)
 - Akihiro Ozaki (Tohoku University)
 - Ikuko Sagiyama (University of Florence)
 - Hiroo Sato (Tohoku University)
 - Georg Stenger (University of Vienna)
 - Willemijn van Noord (University of Amsterdam)
 - Bryce Wakefield (Leiden University)
- Participants: 70
- Time Schedule
 - Monday, February 13, 2017
 - 09:15 Opening ceremony
 - [Intercultural Philosophy]**
 - 09:30 Georg Stenger (University of Vienna)
'Con-creativity': A new basic concept of East-West and intercultural encounters: aesthetic-ethical interventions and transformations
 - 10:00 Marcello Ghilardi (University of Padova)
Beyond identity: promoting cultural resources
 - [History and Society]**
 - 10:30 Alessandro Greco (Sapienza University of Rome)
Similarities across differences: Resolving methodological conflicts through an investigation of the political strategies of two emerging polities: The cases of Mycenaean Greece (XIVth-XIIIth cent. BCE) and the early Yamato state (Vth - VIth cent. CE)
 - Tuesday, February 14, 2017
 - [Art History]**
 - 10:00 Ryusaku Nagaoka (Tohoku University)
Represented landscapes in Japanese art and their religious meaning
 - 10:30 Ikuko Sagiyama (University of Florence)
The logic of happiness: The topology of 'blessing' as seen in *Genji Monogatari*
 - 11:00 Estelle Doudet (University of Grenoble Alpes)
Japanese and European medieval theatre and their modern revivals: Performing cultural heritage in the mirror of the other
 - 11:30 Eva Kaminski (Jagiellonian University)
 - 11:00 Maurizio Campanelli (Sapienza University of Rome)
How Japan rescued Latin poetry: The increasing fortunes of Haicua Latina
 - 11:30 Rolando Minuti (University of Florence)
Some remarks on Japan in Italian culture before and after the end of isolation
 - 12:00 Marco Del Bene (Sapienza University of Rome)
Bridging the gap: Italy-Japan political and cultural relations, from totalitarianism to democracy
 - 12:30 - 13:30 Lunch
 - 13:30 Bryce Wakefield (Leiden University)
A country the whole family can fight for! Scopic regimes in international relations and gendered images in manga on constitutional revision in Japan
 - 14:00 Glenn Hook (University of Sheffield)
The politics of 'mutual understanding' and the Futenma base relocation: Different actors, different understandings
 - [Thoughts about Fukushima Accidents]**
 - 14:30 Akihiro Ozaki (Tohoku University)
The beginning of the never-ending struggle: *Carpe Diem*. (Live in the Present)
 - 15:00 Hiroshi Kabashima (Tohoku University)
Rethinking TEPCO's liability for nuclear damages
 - 15:30 Enrico Fongaro (Tohoku University)
How could a monument for Fukushima be possible?
 - 16:00 Christopher Craig (Tohoku University)
Nature, national character, and unnatural disaster: Problems at the nexus of national recovery and nuclear disaster
 - 16:30 – 17:00 Hiroo Sato (Tohoku University)
The watchful gaze of the dead

12:00 **The globalization of the Japanese tea bowl (*chawan*)**
 Dagmar Eichberger (Heidelberg University)
Mechanisms of display: Continuities and discontinuities in European and Japanese cabinets

12:30 - 13:30 Lunch

13:30 Monica Juneja (Heidelberg University)
An aesthetic of containment? The portrait as a travelling concept in early modern South Asia.

14:00 Willemijn van Noord (University of Amsterdam)
Dutch reflections in Chinese mirrors: interpreting China in the Netherlands through encounters with inscribed Chinese artifacts, 1680-1720

14:30 Matilde Mastrangelo (Sapienza University of Rome)
Mori Ōgai as an educator: Creativity and syncretism in the cultural transmission to his children

15:00 Andreas Niehaus (Ghent University)
Self-discipline and moderation: Kanō Jigorō's concept of seiryoku zenyō jitakyōei as applied ethics

15:30 Silvana De Maio ("L' Orientale" University of Naples)
40 Years of concrete, bricks and stone: The work of Japanese architects in Italy

16:00 Closing ceremony

[Event] Seminars on Japanese Studies as an Interdisciplinary Meeting Point

- The first seminar Wednesday, July 22, 2015 17:00 – 18:30
 Venue: The small lecture room 1, 2nd floor, Multidisciplinary Research Building, Kawauchi South Campus, Tohoku University
 Speaker: Yoshimichi Sato (Graduate School of Arts and Letters, Tohoku University)
 Title: Consideration of Contemporary Japan in terms of Social Capital Theory
- The second seminar Thursday, October 22, 2015 16:30 – 18:00
 Venue: The Small Lecture Room 1, 2nd floor, Multidisciplinary Research Building, Kawauchi South Campus, Tohoku University
 Speaker: Takashi Kurihara (Faculty of Humanities, Niigata University)
 Title: Gouichi Miyake and Hegelian Dialectic
- The third seminar Thursday, December 17, 2015 16:30 – 18:00
 Venue: The Large Conference Room, 11th Floor, New Humanities Building, Kawauchi South Campus, Tohoku University
 Speaker: Taro Igarashi (School of Engineering, Tohoku University)
 Title: Theoretical and Historical Background of Japanese Architecture in The World of Contemporary Globalized Tourism
- The fourth seminar Thursday, January 21, 2016 16:30 – 18:00
 Venue: The Large Conference Room, 11th Floor, New Humanities Building, Kawauchi South Campus, Tohoku University
 Speaker: Naoyuki Ono (Graduate School of International Cultural Studies, Tohoku University)
 Title: Polysemy and Congruence of Word Meanings in Japanese
- The fifth seminar Thursday, April 21, 2016 16:30 – 18:00
 Venue: The Large Conference Room, 11th Floor, New Humanities Building, Kawauchi South Campus, Tohoku University
 Speaker: Akinori Takahashi (Graduate School of Arts and Letters, Tohoku University)
 Title: "Kyoka" and "Ukiyoe" as Biographical Sources of the Edo Period
- The sixth seminar Friday, July 22, 2016 15:00 – 16:30
 Venue: Room 311, 3rd Floor, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
 Speaker: Bonaventura Ruperti (Ca'Foscari University of Venice)
 Moderator: Hiroshi Yokomizo (Graduate School of Arts and Letters, Tohoku University)
 Title: Ningyōjōruri bunraku: The Charms and Struggles of Traditional Theatres

- The seventh seminar Friday, January 13, 2017 13:00 – 15:00
 Venue: Room 208, 2nd Floor, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
 Speaker: Thijs Weststeijn (Utrecht University), Akihiro Ozaki (Graduate School of Arts and Letters, Tohoku University)
 Moderator: Christopher Craig (Graduate School of Arts and Letters, Tohoku University)
 Title: The Coming Transformation of Dutch Art History
- The eighth seminar Friday, February 10, 2017 16:20 – 17:50
 Venue: Room 208, 2nd Floor, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
 Speaker: Marcello Ghilardi (University of Padova)
 Moderator: Akihiro Ozaki (Graduate School of Arts and Letters, Tohoku University)
 Title: Art and Crisis: New Paradigms in 20th Century Painting between Japan and Europe
- The ninth seminar Wednesday, March 8, 2017 16:20 – 17:50
 Venue: Room 208, 2nd Floor, Graduate School of Arts and Letters, Kawauchi South Campus, Tohoku University
 Speaker: Angelo Cattaneo (Portuguese Foundation for Science and Technology)
 Moderator: Orion Klautau (Graduate School of International Cultural Studies, Tohoku University)
 Title: The Mutual Emplacement of Europe, Japan, and South-East Asia during the Early Modern Period.
- Participants: 20

Thematic Program 2016 | Program Code: 2016IDT

Comprehensive Research on Materials, Systems and Energy for a Sustainable Future of the Earth

[Event] TFC ELYT School 2016

- Date: Sunday, August 28, 2016 – Wednesday, September 7, 2016
- Venue: Main Classroom: 6th Floor Lecture Room A, Extended Education & Research Building, Katahira Campus, Tohoku University
- Speakers
 - Patrice Chantrenne (INSA Lyon)
 - Alain Fave (INSA Lyon)
 - Vincent Fridrici (LTDS, ECL)
- Special Speakers
 - Jean-Yves Cavaille (ELYTMax, Tohoku University)
 - Takashi Goto (Tohoku University)
 - Shigeru Obayashi (Tohoku University)

- Noriko Osumi (Tohoku University)
- Naoto Wada (Tohoku University)
- Kazuya Yoshida (Tohoku University)
- Participants: 60
- Schedule
 - August 29 – 31, September 2, 5, and 6
 - Academic Lecture, Student Presentation, Student Project
 - September 1
 - Tour to two industry sites
 - September 3
 - Bus Tour to Hiraizumi

[Event] TFC Conference

- Date: Wednesday, October 5, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Speakers
 - Henrik Alfredsson (Mechanics, KTH Royal Institute of Technology)
 - Philippe Benoit (Head of the Energy Environment Division, IEA)
 - Hiroshi Komiyama (Chairman, Mitsubishi Research Institute, Inc. (The 28th President of the University of Tokyo))
- Participants: 94
- Time Schedule
 - 09:00 – 09:15 Opening

- 09:15 – 10:30 Philippe Benoit (IEA)
Energy and Climate Change: From Paris to Marrakesh and Beyonde
- 10:30 – 10:45 Coffee Break
- 10:45 – 12:00 Hiroshi Komiyama (Mitsubishi Research Institute, Inc.)
Beyond the Limits to Growth - New Ideas for Sustainability from Japan -
- 12:00 – 13:00 Lunch Break
- 13:00 – 14:15 Henrik Alfredsson (KTH Royal Institute of Technology)
Thinking outside the box – how fluid mechanics may contribute to a sustainable future

[Event] TFC ELyT Workshop (Plenary Lectures)

- Date: Thursday, October 6, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Speakers
 - Christian Boller (Fraunhofer Institute & Saarland University)
 - Masayoshi Esashi (WPI-AIMR, Tohoku University)
 - Vincent Mazauric (Schneider Electric)
- Participants: 82
- Time Schedule
 - 09:00 – 09:15 Opening
 - 09:15 – 10:30 Christian Boller (Fraunhofer Institute & Saarland University)

- 10:30 – 10:45 Coffee Break
- 10:45 – 12:00 Vincent Mazauric (Schneider Electric)
From thermodynamics to prospective studies: Multi-scale approaches dedicated to sustainable, smart and low carbon power systems
- 12:00 – 13:00 Lunch Break
- 13:00 – 14:15 Masayoshi Esashi (WPI-AIMR, Tohoku University)
MEMS (Micro Electro Mechanical Systems) by open collaboration

[Event] TFC ELyT Off-campus Workshop for Intensive Discussions

- Date: Thursday, October 6, 2016 – Saturday, October 8, 2016
- Venue: Miyagi-Zao Royal Hotel
- Participants: 91
- Time Schedule
 - Thursday, October 6, 2016
 - Introductory and a Plenary Talk Session**
 - Session chairs: N. Wada (TU) and Ph. Kapsa (ECL)
 - 16:50 – 17:00 T. Takagi, T. Uchimoto (TU)
Core-to-core Program Now and Future: International Research Core on Smart Layered Materials and Structures for Energy Saving
 - 17:00 – 17:20 JY. Cavaille (INSA-Lyon) , K. Ogawa (TU)
ELyTMax
 - 17:20 – 17:40 D. Fabrègue (INSA-Lyon), J. Fontaine (ECL), T. Uchimoto (TU)
ELyTGlobal - Initiatives toward a global network between academic and industry partners
 - 17:40 – 17:45 N. Wada (TU), V. Fridrici (ECL), A. Fave (INSA-Lyon)
ELyT Summer School
 - 17:45 – 18:25 D. Mazuyer (ECL)
Plenary talk How to move sliding surfaces (almost) without rubbing?
 - 18:25 – 19:05 J. Chevalier (INSA-Lyon)
Plenary talk 70 years of Orthopedics: On the role of biomaterials for implants and tissue engineering
 - 19:15 – 21:00 Dinner
 - Friday, October 7, 2016
 - Plenary Talks**
 - Session chairs: T. Uchimoto (TU) and D. Fabrègue (INSA-Lyon)
 - 08:40 – 09:20 T. Soma (NEC, Japan)
Next Generation Plant Facility Management with NEC Big Data Analytics technology, "SIAT"
 - 09:20 – 10:00 A. Chiba (TU)

- Microstructure and Mechanical Properties Evolution of Biomedical Co-Cr-Mo Alloys Manufactured by Electron Beam Additive Manufacturing**
- 10:00 – 10:20 Coffee Break
- Session chairs: D. Hartmann (ECL) and M. Ohta (TU)
- 10:20 – 12:00 **Session Engineering for Health (1)**
- 12:00 – 13:00 Lunch
- Session chair: H. Zahouani (ECL)
- 13:00 – 14:00 **Session Engineering for Health (2)**
- Session chairs: C. Boller (Saarland University) and N. Mary (INSA-Lyon)
- 14:00 – 15:25 **Session Energy (1)**
- 15:25 – 15:45 Coffee Break
- Session chairs: J. Courbon (INSA-Lyon) and K. Adachi (TU)
- 15:45 – 18:00 **Session Energy (2)**
- Chairman: H. Kosukegawa, G. Diguët, M. Kanda
- 18:00 – 19:15 **Poster Session**
- 19:30 – 21:30 Banquet
- Saturday, October 8, 2016
- Session chairs: H. Alfredsson (KTH) and M. Kubo (TU)
- 08:30 – 10:10 **Session Transportation (1)**
- Session chairs: D. Mazuyer (ECL) and T. Takeno (TU)
- 10:30 – 12:00 **Session Transportation (2)**
- Session chairs: M. Sato (TU) and JY. Cavaille (INSA-Lyon)
- 12:00 – 12:30 **Presentations of the 3 main scientific topics (3 x 10')**
Materials and structure design by E. Maire and A. Chiba,
Surfaces and interfaces by C. Minfray and T. Takeno,
Simulation and modeling by P. Chantrenne and T. Tokumasu (*presentation by ELyT Global leaders*).
- 12:30 – 13:00 T. Uchimoto(TU), J. Fontaine(ECL), D. Fabrègue(INSA-Lyon)
Discussion on general aspects for the future of ELyT Global – Closure of the meeting
- 13:00 – 14:00 Lunch

[Event] TFC Workshop for Advanced Maintenance on Composite Materials

- Date: Wednesday, February 15, 2017 – Thursday, February 16, 2017
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Speakers
 - Philippe Benoist (M2M)
 - Gerd Dobmann (Saarland University)
 - Matthias Goldammer (Siemens AG)
 - Mahmoodul Haq (Michigan State University)
 - Henning Heuer (Fraunhofer Institute)
 - Hiroyuki Kosukegawa (Tohoku University)
 - Sunao Sugimoto (JAXA)
 - Lalita Udpa (Michigan State University)

- Participants: 45
- Time Schedule
 - Wednesday, February 15, 2017
 - 13:30 – 13:35 Opening Toshiyuki Takagi (Tohoku University)
 - 13:35 – 14:25 Philippe Benoist (M2M)
Advanced phased array ultrasonic method to inspect composite parts
 - 14:40 – 15:30 Lalita Udpa (Michigan State University)
NDE Technologies for Rapid Inspection of Composite Structures
 - 15:45 – 16:35 Henning Heuer (Fraunhofer Institute)
From NDT to Analytics - new concepts for composite inspection by ultrasound and Eddy Current techniques

16:50 – 17:40 Hiroyuki Kosukegawa (Tohoku University)
Eddy Current Testing for NDT of CFRP - Electromagnetic Numerical Analysis and Functionalization in Detectability -

Thursday, February 16, 2017

10:00 – 10:50 Matthias Goldammer (Siemens AG)
Non-destructive Testing of Fiber Reinforced Composites - results from the German Cluster Research Programme MAIzfp

11:05 – 11:55 Mahmoodul Haq (Michigan State University)
Tailorability of Structural Composites and Dissimilar Material Joints: Integrated NDE and Computational Approach

12:00 – 13:00 Lunch Break

13:30 – 14:20 Sunao Sugimoto (JAXA)
Nondestructive Evaluation Techniques of Advanced Composites and application examples in JAXA

14:35 – 15:25 Gerd Dobmann (Saarland University)
NDT of Fiber Reinforced Composites (Polymer-Matrix- and Metal-Matrix-Based) - a critical view back - an optimistic view forward

15:25 – 15:30 Closing Gerd Dobmann (Saarland University)

[Event] TFC Conference Lecture

■ Date: Wednesday, March 22, 2017

■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University

■ Speaker: Helmut Clemens (Montanuniversität Leoben)

■ Participants: 18

■ Time Schedule

10:00 – 10:05 Introduction Shigeru Obayashi (Institute of Fluid Science, Tohoku University)

10:05 – 11:35 Helmut Clemens (Montanuniversität Leoben)
Intermetallic titanium aluminides – an example how research on innovative materials has a sustainable impact on environmental-friendly aviation

11:35 – 12:00 Coffee with discussion

[Other Related Event] Composite Materials Supporting Hydrogen Economy (The 6th Lecture of Seminar for CFRP)

■ Date: Friday, January 27, 2017

■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University

■ Speakers

- Hiroshi Kobayashi (JPEC)
- Hiroyuki Kosukegawa (Tohoku University)
- Noriyuki Sato (ITIM)
- Toshio Takano (JFE Container)
- Tetsuya Uchimoto (Tohoku University)
- Keisuke Ura (ITIM)

■ Participants: 60

■ Time Schedule

13:30 – 13:35 Opening Toshiyuki Takagi (Tohoku University)

13:35 – 14:00 Hiroyuki Kosukegawa (Tohoku University), Keisuke Ura (ITIM), Noriyuki Sato (ITIM)
Reporting of Session “Inspection/Evaluation” and “Recycle” of the Seminar for CFRP

14:00 – 15:00 Tetsuya Uchimoto (Tohoku University)
Lecture 1

15:15 – 16:15 Hiroshi Kobayashi (JPEC)
Lecture 2

16:30 – 17:10 Toshio Takano (JFE Container)
Lecture 3

17:10 – 17:15 Closing Kazuhiko Mori (ITIM)

Junior Research Program 2016 | Program Code: 2016JRP

Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

[Event] International Workshop Interdisciplinary Approach to the Protection of Human Rights: Building Integrated Networks between Academic, State and Societal Actors

■ Date: Wednesday, July 6, 2016

■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University

■ Speakers

- Maki Aoki - Okabe (IDE-JETRO)
- Kaoru Aoyama (Kobe University)
- Laura Hackney (AnnieCannons, Inc.)
- Jyosuke Ikeda (Toyama University)
- Mirte Postema (Stanford Law School, Stanford University)
- Kana Takamatsu (International Christian University)
- Chiharu Takenaka (Rikkyo University)
- Claret Vargas (Stanford Law School, Stanford University)
- Tomoko Yamashita (Kyoto University)

■ Participants: 30

■ Time Schedule

09:10 - 10:40 **Panel 1: Human Rights Issues in East Asia and the Americas: Legal and Political Challenges and Achievements**

11:00 - 12:30 **Panel 2: Human Rights and the Global South**

14:00 - 15:30 **Panel 3: Human Trafficking in Southeast Asia: Regional Insights and Global Lessons**

16:00 - 17:30 **Panel 4: Transparency, Institution Building and Human Rights Protection in East Asia and Latin America**

17:30 - 18:00 **Discussion and concluding remarks**

[Event] Special Seminar on Reevaluating Human Trafficking: The Case of Burmese Women as Chinese Brides

■ Date and time: Friday, July 8, 2016 16:20 - 17:50

■ Venue: 2F Small Conference Room, Multidisciplinary Research Building, Kawauchi South Campus, Tohoku University

■ Speaker: Laura Hackney (AnnieCannons, Inc.)

■ Participants: 15

Other Activities

TFC Hosted Events

International Spintronics School		
<ul style="list-style-type: none"> ■ Date: Wednesday, August 31, 2016 ■ Venue: Espase, 2nd Floor, Kitamon Commons, Katahira Campus, Tohoku University ■ Invited Lecturers <ul style="list-style-type: none"> • Masamitsu Hayashi (University of Tokyo) • Atsufumi Hirohata (University of York) • Kyung-Jin Lee (Korea University) • Stéphane Mangin (Université de Lorraine) • Fumihiro Matsukura (Tohoku University) • Adam Micolich (University of New South Wales) • Chang-Man Park (Tokyo Electron U.S. Holdings, Inc.) • Kaushik Roy (Purdue University) • Oleksandr Serha (TU Kaiserslautern) • Seigo Tarucha (University of Tokyo, RIKEN) ■ Participants: 63 ■ Time Schedule <ul style="list-style-type: none"> 09:25 – 09:30 Opening 09:30 – 10:05 Kaushik Roy (Purdue University) Spin as State Variable for Computation: Prospects and Perspectives 10:05 – 10:40 Stéphane Mangin (Université de Lorraine) Magnetization Manipulation in Spintronic Devices 10:40 – 10:55 Coffee Break 10:55 – 11:30 Adam Micolich (University of New South Wales) 	<ul style="list-style-type: none"> 11:30 – 12:20 The 0.7 Anomaly: How Spin Affects Transport in Quantum Point Contacts [Special Lecture] Seigo Tarucha (University of Tokyo, RIKEN) Coherent Control of Spin in Semiconductor Quantum System 12:20 – 13:20 Lunch 13:20 – 13:55 Fumihiro Matsukura (Tohoku University) Magnetization Dynamics in (Ga,Mn)As 13:55 – 14:30 Chang-Man Park (Tokyo Electron U.S. Holdings, Inc.) Roadmap for Spintronics Technology, Tokyo Electron 14:30 – 14:45 Coffee Break 14:45 – 15:20 Oleksandr Serha (TU Kaiserslautern) Advances in Magnonics 15:20 – 15:55 Atsufumi Hirohata (University of York) Lateral Nano-Spintronic Devices 15:55 – 16:10 Coffee Break 16:10 – 16:45 Masamitsu Hayashi (University of Tokyo) Spin Current and Spin Orbit Interaction in Metallic Heterostructures 16:45 – 17:20 Kyung-Jin Lee (Korea University) Various Phenomena at Magnetic Interfaces Subject to Spin-Orbit Coupling 	
Falling Walls Lab Sendai 2016		
<ul style="list-style-type: none"> ■ Date: Friday, September 9, 2016 ■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University ■ Hosted by: Tohoku University ■ In association with: Tohoku Forum for Creativity ■ Supported by: Tokyo Electron Limited ■ Participants: about 50 ■ Time Schedule <ul style="list-style-type: none"> 13:00 – 13:15 Welcome and introductory remarks 13:15 – 13:50 Presentations (scholar presentations 1-7) 	<ul style="list-style-type: none"> 13:50 – 14:20 Networking break 14:20 – 14:55 Presentations (scholar presentations 8-14) 14:55 – 15:25 Networking break 15:25 – 15:50 Presentations (scholar presentations 15-20) 15:50 – 16:40 Group picture / Networking break Evaluation session 16:40 – 19:00 Farewell Reception@1st floor, TOKYO ELECTRON House of Creativity (17:00 – 17:15) Award ceremony 	
Discovery Event for Aspiring Female Scientists		
<ul style="list-style-type: none"> ■ Date: Saturday, October 15, 2016 – Sunday, October 16, 2016 ■ Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University ■ Hosted by: Tohoku Forum for Creativity, Tohoku University ■ Cosponsor: <ul style="list-style-type: none"> • Tohoku University Center for Gender Equality Promotion • Tokyo Electron Limited ■ Navigator: Noriko Osumi (Graduate School of Medicine, Tohoku University) ■ Lecturers: <ul style="list-style-type: none"> • Mami Tanaka (Graduate School of Engineering, Tohoku University) • Tamaki Yano (Graduate School of Pharmaceutical Sciences, Tohoku University) ■ Facilitator: Tohoku University Science Angels (Female graduate students of Tohoku University) ■ Participants: 20 ■ Time Schedule <ul style="list-style-type: none"> Saturday, October 15, 2016 <ul style="list-style-type: none"> 12:30 – 13:00 Reception 13:00 – 13:05 Opening remarks 1 Noriko Osumi (Graduate School of Medicine, Tohoku University) 13:05 – 13:15 Opening remarks 2 	<ul style="list-style-type: none"> Sadayoshi Ito (Director of Tohoku Forum for Creativity, Tohoku University) 13:15 – 13:25 Greetings from Tokyo Electron Limited Sumie Segawa (Director of Development Planning Dept., Advanced Semiconductor Technology Division) 13:25 – 14:05 Lecture 1 Mami Tanaka (Graduate School of Engineering, Tohoku University) 14:05 – 14:15 Break 14:15 – 14:55 Lecture 2 Tamaki Yano (Graduate School of Pharmaceutical Sciences, Tohoku University) 14:55 – 15:25 Group photo and Break 15:25 – 15:35 Activity Report from Tohoku University Science Angels 15:40 – 16:30 Move to Accommodation (Akiu, Sendai) 17:00 – 18:20 Group Discussion 18:30 – 20:30 Dinner & Free time Sunday, October 16, 2016 <ul style="list-style-type: none"> 08:00 – 08:50 Report of Group Discussion 09:00 – 10:00 Move to next destination 10:00 – 11:20 Tour of disaster-struck areas (Arahama, Yuriage) 11:20 – 12:00 Return to Sendai 12:00 Finish at TFC / Sendai Station 	
Science Day Award 2016 The Prize of Tohoku Forum for Creativity Commemorative Event		
<ul style="list-style-type: none"> ■ Date and time: Sunday, October 16, 2016 10:00-15:00 ■ Venue: TOKYO ELECTRON House of Creativity, Katahira Campus, Tohoku University ■ Hosted by: <ul style="list-style-type: none"> • Tohoku Forum for Creativity, Tohoku University • Miyagiken Sendai Daini High School ■ Supported by: Institute of Multidisciplinary Research for Advanced Materials, Tohoku University (IMRAM) 	<ul style="list-style-type: none"> ■ Participants: about 30 ■ Time Schedule <ul style="list-style-type: none"> • Lecture 1 Atsushi Muramatsu (Director, IMRAM, Tohoku University) • Lecture 2 Shingo Ishihara (IMRAM, Tohoku University) • Lecture 3 Hitoshi Kasai (IMRAM, Tohoku University) Yoshitaka Koseki (IMRAM, Tohoku University) • Speech from graduated students • Poster Session 	

Special Lecture by Professor Sven Lidin: The history and future of the Nobel Prize

- Date and time: Friday, March 10, 2017 15:00 – 16:30
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Speaker: Sven Lidin (Lund University)

- Title: **The history and future of the Nobel Prize**
- Participants: 62

Outreach for the public: Aging Science

- Date: Saturday, March 25, 2017
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Hosted by:
 - Institute of Development, Aging and Cancer, Tohoku University (IDAC)
 - Tohoku Forum for Creativity, Tohoku University
- Cosponsor: Tokyo Electron Limited
- Lecturers:
 - Yasuyuki Taki (Institute of Development, Aging and Cancer, Tohoku University)
 - Kiyoshi Toshima (Graduate School of Arts and Letters, Tohoku University)
- Participants: 56

- Time Schedule
 - 14:00 – 14:15 **Opening remarks 1**
Sadayoshi Ito (Director of Tohoku Forum for Creativity, Tohoku University)
Yuji Ogino (Director of CSR Promotion, Tokyo Electron Limited)
Ryuta Kawashima (Director, IDAC, Tohoku University)
 - 14:20 – 15:05 **Lecture 1**
Yasuyuki Taki (IDAC, Tohoku University)
 - 15:15 – 16:00 **Lecture 2**
Kiyoshi Toshima (Graduate School of Arts and Letters, Tohoku University)
 - 16:00 – 16:30 Coffee break

Quattro Seminars

- The Twelfth Seminar Wednesday, May 11, 2016 16:30 – 18:00
Venue: Large Conference Room, 11F, New Humanities Building, Kawauchi South Campus, Tohoku University
Title: Statistical Computing and Data Analysis with R
Speaker: Satoshi Miyata (School of Medicine, Tohoku University)
Participants: about 30

- The Thirteenth Seminar Wednesday, June 29, 2016 16:30 – 18:00
Venue: Large Conference Room, 11F, New Humanities Building, Kawauchi South Campus, Tohoku University
Title: Japanese Social Sciences and Japanese Studies abroad: Two Academic Communities and Discussions on Modernization Theory
Speaker: Takehiko Kariya (Sociology of Japanese Society, University of Oxford)
Participants: about 30

TFC Co-Hosted or Nominally Supported Events

EURAXESS Share Tohoku 2016

- Date: Monday, April 25, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Organizer: EURAXESS Japan
- Speakers:

- Sadayoshi Ito (Director of Tohoku Forum for Creativity, Tohoku University)
- Matthieu Py (Representative, EURAXESS Japan)
- Tom Kuczynski (Science and Technology Section, Delegation of the EU to Japan)

Special Seminar of Graduate Program in Spintronics by Prof. Peter A. Grünberg

- Date and Time: Monday, May 30, 2016 13:30 – 15:00
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University

- Organizer: Graduate Program in Spintronics, Tohoku University
- Speaker: Peter A. Grünberg (Research Center Jülich Germany, Nobel Laureate in Physics 2007)

p-adic methods in arithmetic geometry at Sendai, 2016

- Date: Monday, October 31, 2016 – Wednesday, November 2, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Organizers:
 - Nobuo Tsuzuki (Tohoku University)
 - Tomoyuki Abe (Kavli Institute for the Physics and Mathematics of the Universe (WPI), University of Tokyo)

- Speakers:
 - Masataka Chida (Tohoku University)
 - Shin Hattori (Kyushu University)
 - Shinichi Kobayashi (Kyushu University)
 - Yoichi Mieda (University of Tokyo)
 - Abdellah Mokrane (Université Paris 8)
 - Tomomi Ozawa (Tohoku University)
 - Kanetomo Sato (Chuo University)
 - Seidai Yasuda (Osaka University)

JSPS A3 foresight workshop “Modeling and Simulation of Hierarchical and Heterogeneous Flow Systems with Applications to Materials Science III”

- Date: Monday, November 14, 2016 – Wednesday, November 16, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Organizers:
 - Yasumasa Nishiura (Tohoku University)
 - Hyeonbae Kang (Inha University)
 - Pingwen Zhang (Peking University)
- Speakers:
 - Kazunori Ando (Ehime University)
 - Masao Doi (Beihang University)
 - Emerson G. Escobar (Tohoku University)
 - Jun-ichi Fukuda (National Institute of Advanced Industrial Science and Technology)

- Xueying Huang (Xiamen University)
- Hyeonbae Kang (Inha University)
- Ah-Ram Kim (Handong Global University)
- Ruoli Li (Peking University)
- Hisashi Naito (Nagoya University)
- Hisashi Okamoto (Kyoto University)
- Jinhae Park (Chungnam National University)
- Sung-Ik Sohn (Gangneung-Wonju National University)
- Karel Svadlenka (Kyoto University)
- Yuan Yao (HKUST & Peking University)
- Seung Yeal Ha (Seoul National University)
- Hui Zhang (Beijing Normal University)
- Lei Zhang (Peking University)

Indo Japan Workshop on “Magnetism at the Nanoscale”

- Date: Thursday, December 1, 2016 – Friday, December 2, 2016
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Organizers:
 - Koki Takanashi (Tohoku University)
 - Subhankar Bedanta (National Institute of Science Education and Research)
 - Anjan Barman (S. N. Bose National Centre for Basic Sciences)
 - Takeshi Seki (Tohoku University)
- Speakers:
 - Anjan Barman (S. N. Bose National Centre for Basic Sciences)
 - Subhankar Bedanta (National Institute of Science Education and Research)
 - Subrojati Bosu (National Institute for Materials Science)

- Vadapalli Chandrasekhar (National Institute of Science Education and Research)
- Yasuhiro Fukuma (Kyushu Institute of Technology)
- Takahide Kubota (Tohoku University)
- Hiroaki Mamiya (National Institute for Materials Science)
- Seiji Mitani (National Institute for Materials Science)
- Masaki Mizuguchi (Tohoku University)
- Shigemi Mizukami (Tohoku University)
- Pranaba Kishor Muduli (Indian Institute of Technology Delhi)
- Yoshichika Otani (University of Tokyo)
- Yuya Sakuraba (National Institute for Materials Science)
- Debakanta Samal (Institute of Physics, India)
- Parmanand Sharma (Tohoku University)
- Koki Takanashi (Tohoku University)
- Weinan Zhou (Tohoku University)

JSPS A3 Workshop on soft matter

- Date: Wednesday, January 18, 2017 – Friday, January 20, 2017
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Organizers:
 - Masao Doi (Beihang University)
 - Yasumasa Nishiura (Tohoku University)
 - Jinhae Park (Chungnam National University)
 - Yana Di (Chinese Academy of Sciences)
 - Xianmin Xu (Chinese Academy of Sciences)
 - Natsuhiko Yoshinaga (AIMR Tohoku University, MathAM-OIL AIST)

- Speakers:
 - Yana Di (Chinese Academy of Sciences)
 - Jun-ichi Fukuda (AIST)
 - Ko Okumura (Ochanomizu University)
 - Jinhae Park (Chungnam National University)
 - Kuniyasu Saito (AIMR Tohoku University)
 - Ryohei Seto (OIST)
 - Karel Svadlenka (Kyoto University)
 - Xianmin Xu (Chinese Academy of Sciences)
 - Natsuhiko Yoshinaga (AIMR Tohoku University, MathAM-OIL AIST)

TDART 2017 (Topological Data Analysis and Related Topics)

- Date: Wednesday, February 8, 2017 – Friday, February 10, 2017
- Venue: TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
- Organizers:
 - Yasuaki Hiraoka (AIMR, Tohoku University)
 - Miroslav Kramar (AIMR, Tohoku University)

- Speakers:
 - Omer Bobrowski (Technion - Israel Institute of Technology)
 - Magnus Bakke Botnan (Technical University of Munich)
 - Claudia Colonnello (Simon Bolivar University)
 - Pawel Dlotko (INRIA)
 - Trinh Khanh Duy (Kyushu University)
 - Anthea Monod (Columbia University)
 - Primoz Skraba (Jozef Stefan Institute)
 - Bei Wang (University of Utah)

Neuro Global Spring School for Training Academic English: Intensive Course Academic English for Researchers

- Date: Monday, March 6, 2017 – Friday, March 17, 2017
- Venue: Life Sciences Project Research Laboratory, Katahira Campus, Tohoku University

- Organizer: The Neuro Global Program, Tohoku University
- Instructors: Russell Mayne and Louise Pullen (English Language Teaching Unit, University of Leicester)

4th Japanese-German Workshop on Computational Mechanics

- Date: Monday, March 27, 2017 – Tuesday, March 28, 2017
- Venue:
 - TOKYO ELECTRON House of Creativity 3F, Lecture Theater, Katahira Campus, Tohoku University
 - Hotel Matsushima Taikanso, Conference Hall, located in Matsushima
- Organizers:
 - Japan Society for Computational Engineering and Science (JSCES)
 - German Association for Computational Mechanics (GACM)
- Speakers:
 - Keynote**
 - Laura de Lorenzis (TU Braunschweig)
 - Takahiro Yamada (Yokohama National University)
 - Marek Behr (RWTH Aachen)
 - Masuhiro Beppu (National Defense Academy)
 - Manfred Bischoff (Universität Stuttgart)

- Robert Fleischhauer (TU Dresden)
- Blaž Hudobivnik (Leibniz Universität Hannover)
- Yohsuke Imai (Tohoku University)
- Sven Klinkel (RWTH Aachen)
- Mayu Muramatsu (Tohoku University)
- Udo Nackenhorst (Leibniz Universität Hannover)
- Alexander Popp (TU München)
- Mikio Sakai (University of Tokyo)
- Katrin Schulz (Karlsruhe Institute of Technology)
- Akiyuki Takahashi (Tokyo University of Science)
- Seizo Tanaka (University of Tsukuba)
- Koji Uenishi (University of Tokyo)
- Niels Viebahn (Universität Duisburg-Essen)
- Takayuki Yamada (Kyoto University)
- Yuki Yamakawa (Tohoku University)

Leading Young Researcher Overseas Visit Program

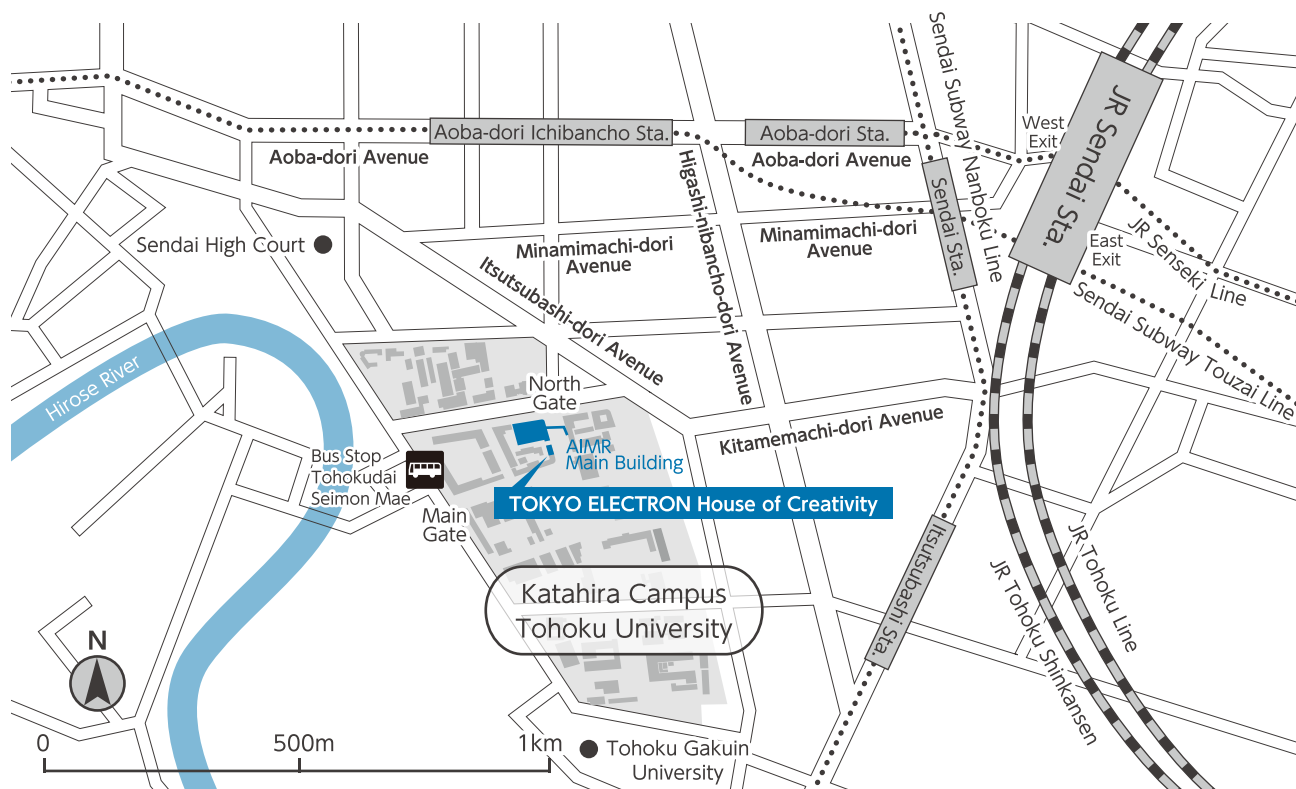
Visitors List

Period	Name	Affiliation	Position	Visiting institute	Research theme
Feb. 18, 2015 Feb. 17, 2016	Tetsuji Aoyagi	Medicine	Lecturer	University of Michigan (USA)	IL-36 of Novel IL-1 Family Members in Acute Lung Injury and Acute Respiratory Distress Syndrome
Mar. 30, 2015 Mar. 27, 2016	Toshiya Takahashi	Tohoku Univ. Hospital	Clinical Fellow	University of California, San Diego (USA)	The Recycle System of Organelle by Macroautophagy in Epidermal Development
Sep. 26, 2015 Aug. 24, 2016	Hiroshi Naganuma	Engineering	Assistant Prof.	Unite Mixte de Physique CNRS/Thales (France)	Creation of interdisciplinary fusion fields by noble multiple cross correlation effects in multiferroic tunnel junctions
Sep. 29, 2015 Sep. 28, 2016	Takahisa Anada	Dentistry	Associate Prof.	Department of Orthopaedic Surgery, Stanford University (USA)	Development of a highly functional interface between biomaterials and cells for bone regenerative therapy
Jan. 20, 2016 Sep. 29, 2016	Shuichi Ogawa	IMRAM	Assistant Prof.	Fritz Haber Institute (Germany)	Development of the near-ambient photoelectron spectroscopy under water vapor condition and its application for oxidation kinetics at metal/semiconductor interface
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
Mar. 22, 2016 Jul. 21, 2016	Kiyoto Kamagata	IMRAM	Assistant Prof.	University of California, Los Angeles (USA)	Single-molecule functional analysis of DNA binding proteins based on DNA array method "DNA garden"
Jun. 21, 2016 Dec. 28, 2016	Hitomi Anzai	FRIS	Assistant Prof.	Zurich University of Applied Sciences (Switzerland)	Modelization of endothelial cells under flow condition
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	Hideobu Yajima	FRIS	Assistant Prof.	University of Maryland (USA)	Revealing the Co-evolution of First Galaxies and Massive Black Holes
Sep. 25, 2016 Sep. 18, 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

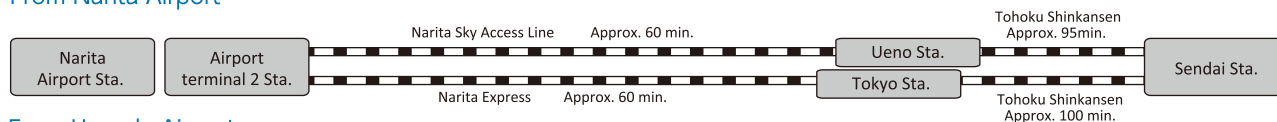
Achievement

- Hitomi Anzai, Norman Juchler, Makoto Ohta, Sven Hirsch, Daniel A. Rüfenacht, Isabel Wanke, "Correlating MR Wall Enhancement and Wall Shear Stress: Does CFD work to predict aneurysm instability?", 13th International IntraCranial Stent Meeting, Nov. 26-27, 2016, Kobe, Japan
- Hitomi Anzai, Norman Juchler, Makoto Ohta, Sven Hirsch, Daniel A. Rüfenacht, and Isabel Wanke, "Where does CFD identify lesion instability in small aneurysms?", 5th International Conference on Computational and Mathematical Biomedical Engineering, April 10-12, Pittsburgh, US

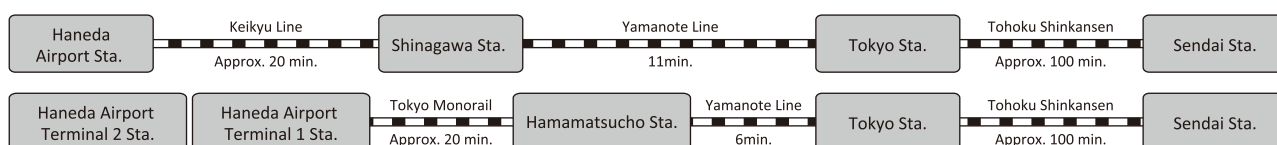
Access and Contact



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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