Workshop programme

Day 1 – Tuesday, 25 July 2017

9:00-10:00 Registration
Tokyo Bay Makuhari Hall

Joint session with QST International Symposium “Quantum Life Science”
10:00-11:40, Tokyo Bay Makuhari Hall – Hall A

10:00-10:05 Opening remarks
Toshio Hirano, President, National Institutes for Quantum and Radiological Science and Technology (QST)

10:05-10:10 Greetings I
TBD, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan*

10:10-10:15 Greetings II
Aiko Shimajiri, Special Advisor to the Minister, Cabinet Office, Government of Japan

10:15-10:25 Greetings III/Introduction of video message
Claudie Haigneré, Senior Advisor to the Director-General, European Space Agency (ESA)

10:25-10:35 Greetings IV (video message)
Hélène Langevin-Joliot, Director of Research Emeritus, French National Center for Scientific Research (CNRS)

10:35-11:40 Keynote lecture – Quantum biology
Johnjoe McFadden, Professor, University of Surrey, United Kingdom

11:40-13:00 Lunch break

* At the time of printing, confirmation had not been received.
### Joshikai for Future Scientists: International Mentoring Workshop in Science and Engineering

13:00-13:10  **Orientation for students**
QST staff

Master of ceremony for the workshop: *Aditi Verma*, PhD candidate in the Department of Nuclear Science and Engineering, Massachusetts Institute of Technology (MIT)

13:10-13:35  **Lecture 1**
*Cynthia Pederson*, Regional Administrator, US Nuclear Regulatory Commission (NRC)

13:35-14:00  **Lecture 2**
*Noriko Hosoya*, Lecturer, Laboratory of Molecular Radiology, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, University of Tokyo

14:00-14:25  **Lecture 3**
*Rumina Velshi*, Board Member, Ontario Energy Board; former Commissioner with the Canadian Nuclear Safety Commission

14:25-14:40  **Break**

14:40-15:05  **Lecture 4**
*Asako Nakamura*, Professor, College of Science, Ibaraki University, Japan

15:05-15:30  **Lecture 5**
*Tatiana Ivanova*, Head of the Division of Nuclear Science, Nuclear Energy Agency (NEA)

15:30-15:55  **Lecture 6**
*Sachiko Yano*, Visiting Researcher of the National Institute of Science and Technology Policy (NISTEP), Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan

15:55-16:10  **Break**

16:10-18:00  **Group dialogues**
*Mentors and students will be divided into 6 groups.*

18:10-20:40  **Joint reception and poster presentation** *(in banquet hall and poster room)*
Day 2 – Wednesday, 26 July 2017

Joshikai for Future Scientists: International Mentoring Workshop in Science and Engineering
08:15-11:20, Tokyo Bay Makuhari Hall – Joshikai room

08:15-08:30 Presentation by Claudie Haigneré

08:30-10:20 Group dialogues
Mentors and students will be divided into 6 groups.

10:20-11:20 Report back (each mentor will have 10 minutes to report)

11:20 Transfer to QST Symposium
Workshop participants will move to Hall A

Joint session with QST International Symposium “Quantum Life Science”
11:30-12:15, Tokyo Bay Makuhari Hall – Hall A

11:30-12:00 Report of mentoring workshop/Conclusion
Claudie Haigneré (ESA) and Shizuko Kakinuma (QST)

12:00-12:05 Closing remarks for the mentoring workshop
William D. Magwood, IV, Director-General, Nuclear Energy Agency (NEA)

12:05-12:15 Congress photo

Facility tour: National Institute of Radiological Sciences (NIRS)
12:30-15:40

12:30-13:00 Departure by bus for the National Institute of Radiological Sciences (NIRS)

13:00-13:45 Lunch

13:45-14:05 Video presentation

14:05-14:35 Facility of Heavy Particle Beam Therapy/Hospital

14:35-15:05 Radiation Emergency Medical Response

15:05-15:10 Back to meeting room

15:10-15:40 Departure from NIRS and return to Tokyo Bay Makuhari Hall
Speaker biographies

Opening session of the International Symposium “Quantum Life Science”

Toshio Hirano, President, National Institutes for Quantum and Radiological Science and Technology (QST)

After obtaining his medical degree from the Faculty of Medicine at Osaka University in 1972 and a PhD in 1979, President Hirano held many positions of responsibility at Osaka University and other academic institutions over the years. These roles have included several professorships, Dean of the Graduate School of Frontier Biosciences, Dean of the Graduate School of Medicine, and President of Osaka University. He has also acted as a President of the Japanese Society for Immunology and as an Executive member of Council for Science, Technology and Innovation Cabinet Office, Japan. Most recently, in 2016, he was appointed as the first President of the National Institutes for Quantum and Radiological Science and Technology, QST. With more than 250 peer-reviewed publications to his name, President Hirano is an eminent researcher in the field of molecular immunology. He is best known for the important discovery of the interleukin-6 (IL-6) gene in 1986 and for the clarification of the role of this gene in chronic inflammatory and autoimmune diseases. This work has led to him being honoured with some of the most prestigious Japanese and international awards for scientific research, including the Novartis Prize for Immunology in 1992, the Emperor’s Purple Ribbon Medal in 2006, the Crafoord Prize in 2009 (of which he was the first ever Japanese recipient), and the Japan Prize in 2011. Given his status as a world-renowned scientist, President Hirano is passionate about advancing QST as a world-class institution. President Hirano plans to lead QST in its aspiration to become a platform for quantum science and technology R&D at the world’s highest level, in order to contribute to the promotion of a peaceful and spiritually rich human society through the creation of harmonious diversity via quantum science and technologies.

Aiko Shimajiri, Special Advisor to the Minister, Cabinet Office, Government of Japan

Ms Shimajiri was appointed in August 2016 as Special Advisor to the Minister, Cabinet Office. Prior to her current position, she held various positions including: Minister of State for Science and Technology Policy (Minister of State for Okinawa and Northern Territories Affairs, Minister of State for Space Policy, Minister in charge of Information Technology Policy) (2015); Chairperson, Federation of Okinawa Prefecture, Liberal Democratic Party of Japan Branches (2015); Chairperson, Committee on Environment of the Upper House (2014); Parliamentary Vice-Ministers of Cabinet Office (2012-2013); Director, Women’s Affairs Division, Liberal Democratic Party of Japan (2011). Ms Shimajiri studied at Sophia University, faculty of humanity.
Hélène Langevin-Joliot, Director of Research Emeritus, French National Center for Scientific Research (CNRS)

Dr Langevin-Joliot is the daughter of Irène Joliot-Curie and Frédéric Joliot, and the granddaughter of Marie and Pierre Curie, all of whom were Nobel Prize recipients. Dr Langevin-Joliot is a distinguished nuclear physicist, doctor of science and Director of Research Emeritus at the French National Center for Scientific Research (CNRS). In 1957 she contributed to the inauguration of the Institute of Nuclear Physics in Orsay, France, which was created following her mother’s initiative. In 1979 she became the Institute’s Director, a position which she kept until 1983. From 1981 to 1985, she served as Chair of the CNRS Committee for Nuclear Physics. She was a member of the Advisory Committee for Science and Technology to the Parliamentary Office of France from 1985 to 1992. In 2012, Dr Langevin-Joliot was awarded France’s highest honour, the Legion of Honour. Throughout her career and into retirement, Dr Langevin-Joliot has continuously encouraged young women to pursue scientific careers, using her mother and grandmother as prime examples of women who overcame challenges to succeed in their professional careers.

Johnjoe McFadden, Professor, University of Surrey, United Kingdom

Mr McFadden is currently Professor of Molecular Genetics at the University of Surrey, a position he has held since 2002. He began working at the University of Surrey in 1988 as Lecturer in the school of biological sciences, and from 1994 to 2001 was Reader at the university. From 1984 to 1988, Mr McFadden was a research fellow in the Department of Surgery at St George’s Hospital Medical School in London. Prior to that he was a research fellow in the Department of Biochemistry at St Mary’s Hospital Medical School. Mr McFadden received his PhD in biochemistry from the Imperial College of the University of London and he received his BSc in biochemistry from Bedford College of the University of London.
Co-Chairs

Claudie Haigné, Senior Advisor to the Director-General of the European Space Agency (ESA)

Ms Haigné was selected by the French National Centre for Space Studies (CNES) in 1985 as an astronaut candidate. She trained in Star City Russia, and completed her first space mission (16 days) on board the Mir Space Station in 1996. She became a member of the European Astronaut Corps for the European Space Agency (ESA) in 1999 and completed a second mission (10 days) on board the International Space Station (ISS) in 2001. From 2002 to 2004, Ms Haigné was Delegate Minister for Research in the French government under the presidency of Jacques Chirac. In 2004, she became Delegate Minister for European Affairs. Ms Haigné served as an advisor to ESA’s Director-General for the European space strategy from 2005 to 2009. Following her time at the ESA, she held the position of CEO at the Universcience science museum (Palais de la Découverte and Cité des Sciences et de l’Industrie) in Paris from 2009 to 2015 before returning to ESA in her current position as Senior Advisor to the Director-General. Ms Haigné has a PhD in neurosciences and is a doctor of medicine in rheumatology. She is a Doctor Honoris Causa from the École Polytechnique Fédérale de Lausanne in Switzerland and from the University of Mons (Belgium). In addition, Ms Haigné is Professor Honoris Causa from the University of Belhang in Pekin, China. She is a Grand Officier of the French Legion of Honour, a member of the French Académie des Technologies, Académie des Sports, Académie des Sciences de l’Outre-Mer and the Académie des Sciences in Belgium. Since 2016, she has served as President of the Association Solidarité Défense and is a Colonel (ADER network - Action, Development, Engagement, Reflection) in La Réserve Citoyenne de l’Armée de l’Air.

Shizuko Kakinuma, Director of the Department of Radiation Effects Research (NIRS, QST) and Unit Leader of the QST Diversity Management Unit

Ms Kakinuma is a radiation molecular biologist who has more than 20 years’ experience and more than 60 publications to her name. Since 2016, she has been the Director of the Department of Radiation Effects Research at the National Institute of Radiological Sciences (NIRS), National Institutes for Quantum and Radiological Science and Technology (QST). Ms Kakinuma worked with the Radiobiology for Children’s Health Research Programme at the NIRS, first as a researcher (1997-2006) then as a team leader (2006-2016). Prior to working for the NIRS, she was a researcher at The Kitasato Institute (1984-1990 and 1992-1997). From 1990 to 1992, she was a researcher at Bristol-Myers Squibb Institute. During her career, Ms Kakinuma worked on the International Space Station (ISS) experiment, “Lifetime Heritable Effect of Space Radiation on Mouse Embryos Preserved for a Long-term in ISS (Embryo Rad)”. She has taught radiation biology at the universities of Ibaraki, Hiroshima and Toho, and has also taught students at elementary and junior high school levels, as well as speaking publicly on the health effects of radiation. Ms Kakinuma was part of the investigation committee for the accident at the Fukushima Nuclear Power Plant and was on the expert panel for the follow-up of recommendations to the Japanese government. Ms Kakinuma received her PhD and Master of Science in pharmaceutical science from Kitasato University. Ms Kakinuma is a member of the Japan Radiation Research Society, the Japanese Cancer Association, the Japanese Society for Immunology, the Molecular Biology Society of Japan and the Japanese Association for Cancer Prevention.
William D. Magwood, IV, Director-General

Mr Magwood took up his duties as Director-General of the NEA on 1 September 2014. He has extensive experience in both the regulatory and developmental aspects of nuclear energy, including at the international level. From 2010 to 2014, he served as one of the five Commissioners appointed by the US President and confirmed by the US Senate to the US Nuclear Regulatory Commission (NRC). While a commissioner, he advocated the importance of nuclear regulatory independence and the necessity of maintaining strong, credible and technically sound nuclear regulation in the United States and all countries that use nuclear power. Prior to his appointment at the NRC, from 2005 to 2010 he provided independent strategic and policy advice to US and international clients on energy, environmental and technology policy issues. During this time, he also sat on various advisory groups and provided technical and policy advice to members of the US Congress on nuclear research, education and climate change policy. From 1998 to 2005, Mr Magwood was Director of Nuclear Energy at the US Department of Energy (DOE). During his tenure, he launched several important initiatives including the US Nuclear Power 2010 programme and the Generation IV International Forum (GIF). He was also actively involved in the work of the NEA, serving as a Steering Committee bureau member from 1999 to 2003, and as Chair in 2004 and early 2005. Prior to his experience at the DOE, Mr Magwood managed electric utility research and nuclear policy programmes at the Edison Electric Institute in Washington, DC, and was a scientist at Westinghouse Electric Corporation in Pittsburgh, Pennsylvania. Mr Magwood, a US national, holds Bachelor’s degrees in Physics and English from Carnegie Mellon University and a Master of Fine Arts from the University of Pittsburgh.

Yeonhee Hah, Head of the Division of Radiological Protection and Human Aspects of Nuclear Safety (RP-HANS)

Ms Hah took up her duties at the NEA on 7 September 2015. The Division of Radiological Protection and Human Aspects of Nuclear Safety focuses on radiological protection principles, regulation and application, and on the human aspects of nuclear safety in such areas as safety culture, human and organisational factors, personnel training policies and practices, and safety-related public communication and stakeholder engagement. The division gives technical and administrative support to the Committee on Radiological Protection and Public Health (CRPPH), facilitating the execution of the programme of work, and assists NEA safety-related committees, including the Committee on Nuclear Regulatory Activities (CNRA), the Committee on the Safety of Nuclear Installations (CSNI) and the Radioactive Waste Management Committee (RWMC) in the areas of responsibility of the respective divisions. Ms Hah is an expert in international co-operation with 20 years’ experience working for the Korea Institute of Nuclear Safety (KINS). She has extensive expertise in areas such as international co-operation, public communication, education and training, regulatory policy and development, and interaction with various stakeholders. From 2010 to April 2014, Ms Hah chaired the CNRA Working Group on Public Communication of Nuclear Regulatory Organisations. Ms Hah, a Korean national, holds a Master’s degree in Communications from Ewha Women’s University.
Mentors

Noriko Hosoya, Lecturer, Laboratory of Molecular Radiology, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, University of Tokyo

Ms Hosoya has been a lecturer at the Laboratory of Molecular Radiology at the University of Tokyo since 2012. She has been working at the University of Tokyo since 2003 when she began as a Project Assistant Professor in the Department of Cell Therapy and Transplantation Medicine. She then became Assistant Professor within the same department, and in 2006 she became Assistant Professor in the Laboratory of Molecular Radiology. Prior to her positions at the University of Tokyo, Ms Hosoya was a resident at the University of Tokyo Hospital from 1993 to 1994, and from 1994 to 1995 was a resident at the National Center for Global Health and Medicine. In 1999, she was a clinical research fellow in the Department of Hematology and Oncology at the University of Tokyo Hospital, and in 2000 she worked as a research fellow at the Japan Society for the Promotion of Science. Ms Hosoya has an MD from the Faculty of Medicine of the University of Tokyo and a PhD from the University of Tokyo’s Graduate School of Medicine. She serves as a Councillor for the Japanese Cancer Association (JCA) and the Japanese Radiation Research Society (JRRS).

Tatiana Ivanova, Head of the Division of Nuclear Science of the Nuclear Energy Agency (NEA)

Ms Ivanova leads NEA activities associated with nuclear science and technology, and international co-operation. She works on developing new approaches to enhanced horizontal co-operation within the NEA and with external bodies in order to advance the scientific knowledge needed to enhance the performance and safety of current nuclear systems. Ms Ivanova has 28 years of experience in both developmental and safety assessment aspects of nuclear energy, including at the international level. Prior to joining the NEA, she enjoyed a nine-year career with the French Institute for Radiological Protection and Nuclear Safety (IRSN), most recently as the Deputy Head of the Reactor Physics Research and Safety Assessment Laboratory. Previously, she had worked with the Institute of Nuclear Physics (IPN) of the French National Centre for Scientific Research (CNRS) and the Institute of Physics and Power Engineering (IPPE) in Obninsk, Russia. During her successive posts in research institutions in France and Russia, her extensive technical and managerial experience included work on fast reactor design; validation, verification and uncertainty quantification for nuclear reactors and fuel cycle applications; nuclear data processing and validation; and design, evaluation and analysis of integral experiments. Throughout her career, Ms Ivanova has been at the forefront of international science projects. She has been actively involved in the work of the NEA, most notably as the Chair, from 2007 to 2014, of the NEA Working Party on Nuclear Criticality Safety (WPNCS) Expert Group on Uncertainty Analysis for Criticality Safety Assessment. Ms Ivanova, a dual French and Russian citizen, holds a Doctorate in Physics and Mathematics from the I.I. Leypunsky Institute of Physics and Power Engineering (IPPE), and a Master’s degree in Nuclear Engineering from the Obninsk branch of the National Research Nuclear University MEPhI (Moscow Engineering Physics Institute).
Asako J. Nakamura, Professor, College of Science, Ibaraki University

Ms Nakamura is a radiation cellular biologist specialising in the mechanisms of genome integrity, DNA double-strand break repair and mammalian ageing. She is currently a Professor at Ibaraki University’s College of Science where she began working in 2013 as an Associate Professor. From 2011 to 2013, Ms Nakamura was a Junior Associate Professor in the Department of Anatomy and Cell Biology at the Osaka Medical College. Prior to this position, she was a Visiting Fellow (2007-2009) and then a Research Fellow (2009-2011) at the National Institutes of Health, National Cancer Institute and Laboratory of Molecular Pharmacology. From 2004 to 2007, Ms Nakamura was a special volunteer of the Japan Society for Promotion of Science for Japanese Biomedical and Behavioural Researchers at the National Institute of Health (NIH), and from 2002 to 2004 she was a Post-Doctoral Research Fellow of the Japan Society for the Promotion of Science. Ms Nakamura has a Master’s degree and a PhD in pharmaceutical science from Hiroshima University. In addition to her work at Ibaraki University, Ms Nakamura is a mentor for the National Institute of Health’s summer student programme. She is a member of the Radiation Research Society, the Japanese Cancer Association and the Japan Radiation Research Society.

Cynthia Pederson, Regional Administrator, United States Nuclear Regulatory Commission (NRC)

In October 1983, Ms Pederson joined the United States Nuclear Regulatory Commission (NRC) as a Resident Inspector at a Boiling Water Reactor facility in Illinois and later at a Pressurised Water Reactor facility in Michigan where she inspected nuclear plant safety performance. Since that time, she has held a number of progressively more responsible positions where she was in charge of safety oversight of nuclear power plants, nuclear plant operator examinations, fuel cycle facilities, medical/academic/industrial materials users, incident response and allegation/enforcement resolution. In August 2013, Ms Pederson was appointed to the position of Regional Administrator, the first women to be selected for such a position. As Regional Administrator, Ms Pederson leads a staff of approximately 200 people whose mission is to protect public health and safety by inspecting 23 civilian nuclear power reactors, and licensing and inspecting over 1,000 materials licensees in eight states in the central United States. Ms Pederson graduated from the University of Minnesota with a degree in Chemical Engineering. She is a recipient of the Presidential Meritorious Rank Award in recognition of her service to the US Government as a high-performing senior career employee with sustained extraordinary accomplishments. Ms Pederson is also a champion of encouraging girls to pursue Science, Technology, Engineering and Mathematics (STEM) by initiating and leading her organisation’s outreach to school age children in the community.
Rumina Velshi, Board Member, Ontario Energy Board; former Commissioner with the Canadian Nuclear Safety Commission

Rumina Velshi was appointed part-time Board member of the Ontario Energy Board (OEB) in March 2017. Ms Velshi brings to the OEB extensive technical and regulatory expertise in the area of nuclear energy. Most recently she served for five years as a Commission Member of the Canadian Nuclear Safety Commission, which regulates the use of nuclear energy and materials to protect health, safety, security and the environment. She has had a long career in the energy sector working in various capacities at Ontario Hydro and Ontario Power Generation where she was Director, Planning and Control, for the Darlington New Nuclear Project. Ms Velshi holds a Bachelor of Applied Science (Civil Engineering), a Master’s of Engineering (Chemical Engineering) and a Master’s of Business Administration, all from the University of Toronto.

Sachiko Yano, Visiting Researcher of the National Institute of Science and Technology Policy (NISTEP), Japanese Ministry of Education, Culture, Sport, Science and Technology (MEXT)

Ms Yano is currently a Visiting Researcher of the National Institute of Science and Technology Policy (NISTEP), Japanese Ministry of Education, Culture, Sport, Science and Technology (MEXT) where she is working on science technology foresight in order to make scenarios for an ideal society in the future using leading-edge technologies. She is also a Senior Associate Engineer at the Japan Aerospace Exploration Agency (JAXA) where she is in charge of the JAXA life science experiment, including cell culture and plant cultivation under a microgravity environment. In addition, she works as an Education Program Advisor at the University of Yamanashi and a part-time lecturer at Hosei University. From 1997 to 2003, Ms Yano worked at the National Space Development Agency of Japan (NASDA) as an engineer. For one year (2012-2013), she was a mission scientist with JAXA for life science experiments on board the International Space Station (ISS). Ms Yano received her Master’s degree from the Graduate School of Biosystem Studies at the University of Tsukuba and received her PhD in science from the Graduate School of Natural Science and Technology at the University of Kanazawa. Ms Yano serves as a Councillor on the Japanese Society for Biological Sciences in Space and is a co-chairperson of the programme subcommittee for the Space Life Sciences session at the International Symposium on Space Technology and Science (ISTS).

Young mentor

Aditi Verma, PhD candidate in the Department of Nuclear Science and Engineering, Massachusetts Institute of Technology (MIT)

Ms Verma’s doctoral research focuses on the techno-organisational interactions of nuclear safety. Ms Verma has served as a teaching assistant for undergraduate, graduate and professional courses at the departments of Physics and Nuclear Engineering at MIT. She has also participated in MIT Science and Technology Initiative’s Global Teaching Lab programs in Germany and Italy. She has held internships at Areva, the International Atomic Energy Agency in Vienna, and at the Center for Study of Science, Technology and Policy in Bangalore, India. She has been a Burchard Scholar and was twice awarded the Kelly Douglas Fellowship to pursue independent projects in the humanities alongside her summer internships in fields of nuclear engineering.