

Joshikai II for Future Scientists



Programme and Speaker Biographies

International Mentoring Workshop in Science and Engineering

**8–9 August 2018
Tokyo, Japan**



Foreword



In recent years, many countries have made important inroads in enhancing female representation in leadership positions, promoting women’s entrepreneurship, and encouraging more young women to take science, technology, engineering and mathematics (STEM) subjects. It is an issue that the OECD is addressing directly through various initiatives, thereby helping to increase the prominence of gender equality within national and global policy agendas. Yet gender gaps still persist in all areas of life and across countries. In the area of education, for example, while young women in OECD countries now obtain more years of schooling than young men, on average, girls are much less likely to study in science-related fields.*

For many countries, this represents a tremendous loss in opportunity and productivity. It makes sense for many nations to take additional steps to reduce the gender gap. We at the Nuclear Energy Agency (NEA) believe in the importance of such efforts because many of our member countries are finding that fewer young people are studying science, mathematics and engineering than was the case in previous generations, and this has a direct effect on the capabilities of our member countries in areas of science and technology relevant to our mission. Such a skills shortage would have serious implications for the future and it is, therefore, essential to ensure that all young people, including young women, have the opportunity to explore careers in science and technology. One way to ensure the necessary, skilled workforce for the future is to engage young scientists in attractive and innovative research projects. The NEA is pursuing this approach through its NEA Nuclear Education, Skills and Technology (NEST) Initiative.

Still, more needs to be done to enable more young women to take advantage of efforts such as NEST. In Japan, Prime Minister Shinzō Abe has made it a priority to bring more women into Japan’s workforce and to encourage them to explore opportunities in STEM fields. Following the Prime Minister’s lead, the NEA is co-operating with the Japan Atomic Energy Agency (JAEA) to take another step towards giving young Japanese women what may, for some, prove to be a life-changing experience at the two-day workshop, “Joshikai II for Future Scientists: International Mentoring Workshop in Science and Engineering”. Approximately 50 female students from Japanese high schools and junior high schools will have the unique experience of talking in an informal and personal manner with six highly accomplished women from Japan and from three additional countries about the lives, careers and experiences of women in science and engineering. This workshop builds on success and observations from a previous event in 2017. This year’s workshop will include, for the first time, a special session for parents and teachers to solicit their advice and input, as well as remarks from representatives of Prime Minister Abe’s government.

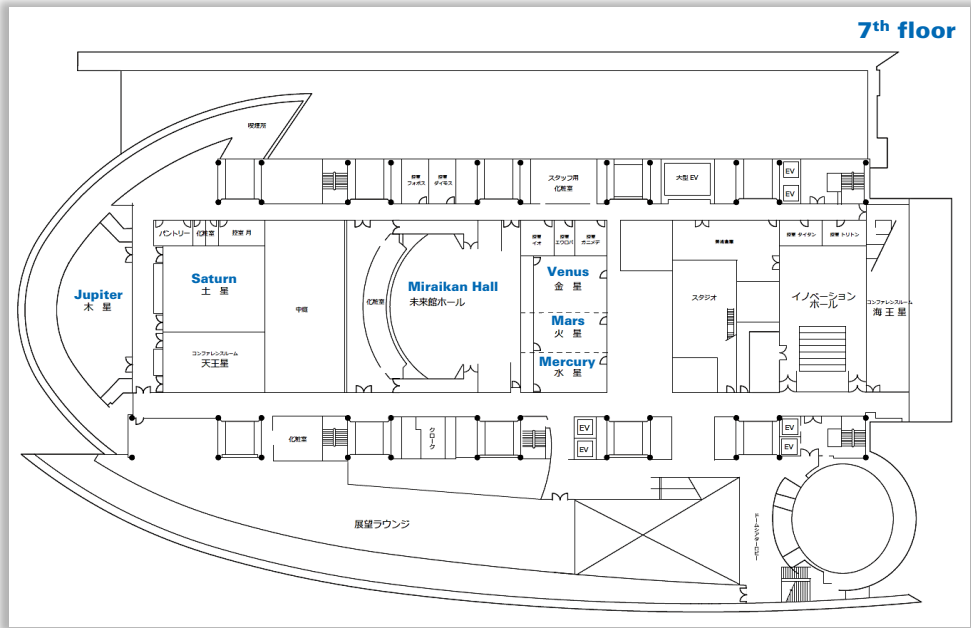
We recognise that workshops such as this will not close the STEM gender gap overnight. It is our strong belief, however, that if even a modest portion of the young women who participate in this workshop find the encouragement to become science and technology professionals, it will have been a very worthwhile effort.

William D. Magwood, IV
Director-General, Nuclear Energy Agency

* For more information, see OECD (2017), *The Pursuit of Gender Equality: An Uphill Battle*, OECD Publishing, Paris.

Workshop venue

Miraikan, National Museum of Emerging Science and Innovation
2-3-6 Aomi, Koto-ku, Tokyo 135-0064 Japan



Workshop programme

Day 1 | Wednesday, 8 August 2018

09:00-10:00 Registration – *Miraikan Hall*

Opening session and keynote lectures* | *Miraikan Hall*

10:00-10:30 **Opening remarks**

Toshio Kodama, President, Japan Atomic Energy Agency (JAEA)

William D. Magwood, IV, Director-General, Nuclear Energy Agency (NEA)

Yuhei Yamashita, Parliamentary Vice-Minister of the Cabinet Office, Japan

Hideki Niizuma, Parliamentary Vice-Minister of Education, Culture, Sports, Science and Technology (MEXT), Japan

10:30-10:40 Group photo

10:40-11:40 **Keynote lectures**

Ayumi Asai, Associate Professor, Astronomical Observatory, Graduate School Science, Kyoto University

Cait MacPhee, Professor, School of Physics and Astronomy, University of Edinburgh

Video message

Hélène Langevin-Joliot, distinguished nuclear physicist and granddaughter of Marie Skłodowska-Curie

11:40-11:55 **Orientation for students**

JAEA staff

11:55-12:50 Lunch break

* Open to the public until 11:40. Simultaneous translation will be provided in English and Japanese.

**Hands-on activities
“try it yourself”**

Venus, Mars, Mercury Room

**Parents and teachers
session***

Miraikan Hall

13:00-15:00 To be held in co-operation with Japan Analytical Instruments Manufacturers' Association (JAIMA).

Opening
Presentations
Q&A
Group dialogue, etc.

15:00-15:30 Break

Panel discussion* | Miraikan Hall

15:30-17:00 **Facilitator:** Sonoko Watanabe, Executive Director, JAEA

Panellists

Sama Bilbao y León, Head of the Division of Nuclear Technology Development and Economics, NEA

Kayo Inaba, Executive Vice-President for Gender Equality, International Affairs, and Public Relations, Kyoto University

Shizuko Kakinuma, Director of the Department of Radiation Effects Research, the National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology (QST)

Cait MacPhee, Professor, School of Physics and Astronomy, University of Edinburgh

Malgorzata Sneve, Director of the Regulatory Cooperation Programme, Norwegian Radiation Protection Authority (NRPA)

Group “ice-breaking” dialogue | Jupiter Room

17:00-18:00 Mentors and students will be divided into six groups.

18:00-19:30 Reception (Jupiter Room)

* Simultaneous translation will be provided in English and Japanese.

Day 2 | Thursday, 9 August 2018

"Frame your future – Tips for 2023" | Venus, Mars, Mercury Room

09:10-10:30 Presentations by students from Kyoto University, Fukushima University and/or National Institute of Technology, Fukushima College

Group discussion 1 | Venus, Mars, Mercury Room

10:30-12:00 Mentors and students will be divided into six groups.

12:00-13:00 Lunch

Group discussion 2 | Venus, Mars, Mercury Room

13:00-14:50 Mentors and facilitators will be reshuffled.

14:50-15:10 Break

Reporting and closing session* | Miraikan Hall

15:10-16:00 **Report from student groups**

16:00-16:20 **Report from Co-chairs**

Kayo Inaba, Executive Vice-President for Gender Equality, International Affairs, and Public Relations, Kyoto University

Cait MacPhee, Professor, School of Physics and Astronomy, University of Edinburgh

16:20-16:40 **Closing remarks on the Mentoring Workshop**

William D. Magwood, IV, NEA Director-General

Sonoko Watanabe, JAEA Executive Director

* Open to the public. Simultaneous translation will be provided in English and Japanese.

Speaker biographies

Opening remarks



Yuhei Yamashita, Parliamentary Vice-Minister of Cabinet Office, Japan

Mr Yamashita has been Parliamentary Vice-Minister of the Cabinet Office in charge of Gender Equality and Science and Technology Policy since 2017. Before being elected to the House of Councillors in 2013, he worked at Jiji Press Ltd. and the newspaper Nikkei Inc. He graduated from the Faculty of Law of Keio University in 2003. He was born on 27 August 1979 in Saga Prefecture.



Hideki Niizuma, Parliamentary Vice-Minister of Education, Culture, Sports, Science and Technology, Japan

Mr Niizuma has been Parliamentary Vice-Minister of Education, Culture, Sports, Science and Technology since 2017. Before being elected to the House of Councillors in 2013, he worked for Kawasaki Heavy Industries, Ltd from 1995 to 2012. He graduated from the Faculty of Engineering, Department of Aeronautics and Astronautics, University of Tokyo, in 1993 and completed a Master's course at the Graduate School of Engineering, Department of Aeronautics and Astronautics, University of Tokyo, in 1995.



Toshio Kodama, President, JAEA

Prior to his appointment as President of JAEA in 2015, Mr Kodama was the Vice President and the Director General of Technology Headquarters of Mitsubishi Heavy Industries (MHI) after four decades experience in the technology management of the MHI. His work experience at MHI include assignments to Takasago Research Center and Hiroshima Research Center. He graduated from the Department of Mechanical Engineering in the Faculty of Engineering, Nagoya University, in 1974 and completed a Master's course at the Graduate School of Engineering, Nagoya University, in 1976.



Sonoko Watanabe, Executive Director, JAEA

Ms Watanabe took up the position of Executive Director of the JAEA in April 2017. Prior to joining the JAEA, she was responsible for policy formulation at various positions in the Japanese government for more than 25 years, mainly in the fields of science and technology. From 2014 to 2017, she was assigned as the Director, Research and Development Infrastructure Division of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Prior to the assignment as Director at MEXT, she held the positions of Director of Science and Technology Policy-oriented Research at the National Institute of Science and Technology Policy (NISTEP) from 2013 to 2014, Director for Research Promotion in RIKEN Yokohama from 2011 to 2013 and Minister-Counsellor of the Permanent Delegation of Japan to UNESCO (in Paris) from 2009 to 2011. Ms Watanabe started her career at the Science and Technology Agency of the Prime Minister's Office in 1989 and has worked at MEXT, the Ministry of Economy, Trade and Industry (METI) and other ministries. In those organisations, she was engaged in administration in the fields of life science, computational science, outer space and atomic energy, including several "Big Science" projects such as the International Space Station (ISS) Program, the International Thermonuclear Experimental Reactor (ITER) and the "Earth-Simulator". She has a degree in biology from Nara Women's University.



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

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.



Ayumi Asai, Associate Professor, Astronomical Observatory, Graduate School of Science, Kyoto University

Dr Asai is interested in mechanisms of solar flares, the most energetic explosions in the solar system, and relating eruptive phenomena, as well as their impact on the earth, "space weather". Dr Asai obtained a doctorate in science in 2004. In 2014, she received the Young Scientists' Prize of the Commendation for Science and Technology from the Minister of Education, Culture, Sports, Science and Technology. In 2015, she received the Honorable Mention Award (Researcher Category) from Kyoto University, and the Morita Prize for Female Scientists from the Japanese Association of University Women. In 2016, she also received the Shiseido Female Researcher Science Grant.



H el ene Langevin-Joliot, Director of Research Emeritus, French National Center for Scientific Research (CNRS)

Dr Langevin-Joliot is the daughter of Ir ene Joliot-Curie and Fr ed eric 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, 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.

Co-chairs (also serving as mentors)



Kayo Inaba, Executive Vice-President for Gender Equality, International Affairs, and Public Relations, Kyoto University

Dr Inaba served as Dean of the Graduate School of Biostudies from April 2003 to March 2005, and Director of the Center for Women Researchers in Kyoto University from 2007 to 2014. She received a doctorate in science. She received the 2014 L'Oréal-UNESCO for Women in Science Award and the 2016 Medal with Purple Ribbon. Dr Inaba is known for her work on demonstrating the importance of dendritic cells, which act as "sentinels" of the immune system. She has also shown that these cells, loaded with antigen *in vitro*, stimulate immune responses by reinfusing into the body. In addition, she developed a method to generate dendritic cells from bone marrow precursor cells – a key advance that could lead to a new type of anticancer treatment or open a new path for cellular therapy.



Cait MacPhee, Professor of Biological Physics, School of Physics and Astronomy, the University of Edinburgh

Dr MacPhee's first academic post was in the Cavendish Laboratory at the University of Cambridge, where she was a Research Fellow of Girton College and then a Fellow of King's College. In 2005, she moved to the School of Physics and Astronomy at the University of Edinburgh, where she remains to the present day. She studies protein structure and function, and what happens when things go wrong. She investigates cases in which proteins inappropriately stick together, forming long filaments in the body, or how bacterial biofilms form and how to get rid of them. Dr MacPhee received her PhD in biophysics in Australia. She then received a postdoctorate from Chemistry Department of the University of Oxford, where she was awarded a Dorothy Hodgkin Fellowship by the Royal Society. In 2016, Dr MacPhee was awarded the "Commander of the Most Excellent Order of the British Empire" by Her Majesty The Queen in the New Year's Honours List for helping primary school teachers develop material to teach science topics in class.

Mentors



Sama Bilbao y León, Head of the Division of Nuclear Technology Development and Economics of the OECD Nuclear Energy Agency

Dr Bilbao y León joined the Nuclear Energy Agency as Head of the Division of Nuclear Technology Development and Economics in June 2018. She has worked in the nuclear industry (Nuclear Safety Analysis Engineer at Dominion Energy in the United States), in academia (Director of Nuclear Engineering Programs and Associate Professor at the Department of Mechanical and Nuclear Engineering at Virginia Commonwealth University [VCU] in the United States) and in international organisations (Technical Head of the International Atomic Energy Agency [IAEA] Water Cooled Reactors Technology Development Unit in Austria). She has worked in four countries (Spain, United States, Austria and France) performing cutting edge research at three universities (Escuela Técnica Superior de Ingenieros Industriales of the Universidad Politécnica in Madrid, University of Wisconsin – Madison and Virginia Commonwealth University).

Dr Bilbao y León holds a bachelor's degree in mechanical engineering and a master's degree in energy technologies from the Polytechnic University of Madrid; a master's degree and a PhD in nuclear engineering and engineering physics from the University of Wisconsin – Madison; and an MBA from Averett University. Her areas of expertise are nuclear thermal-hydraulics for both light water reactors and sodium-cooled reactors, nuclear reactor design, nuclear safety, energy and environmental policy, and complex decision making.

Dr Bilbao y León is captivated by Japan, its language and its culture, and has studied Japanese for a few years (although she does not yet speak it very well).

すばらしい才能と可能性に満ちた日本の若い女性の方々とお会いできることを、心から楽しみにしています。



Shizuko Kakinuma, Director of the Department of Radiation Effects Research, the National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology (QST) and Unit Leader of the QST Diversity Management Unit.

Dr 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). Dr 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, Dr 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. Dr 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. Dr Kakinuma received her PhD and Master of Science in pharmaceutical science from Kitasato University. Dr 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.



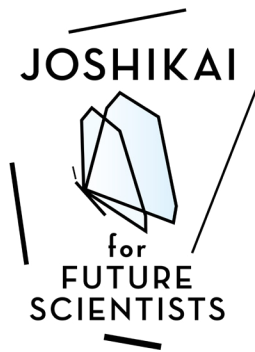
Marie Oshima, Professor, Interfaculty Initiative in Information Studies/Institute of Industrial Science (IIS), the University of Tokyo

Dr Oshima received a PhD in engineering from the Department of Nuclear Engineering at the University of Tokyo in March 1992. She has been working at Institute of Industrial Science (IIS), the University of Tokyo since 1992. She is currently a joint professor at Interfaculty Initiative in Information Studies and the IIS, and has been the director of the Office for the Next Generation (ONG) since 2011. She was the President of the Japan Society of Mechanical Engineers (JSME) in 2017. She also worked at Stanford University as a visiting scholar from March 1995 to March 1996, and was a joint associate professor at Tsukuba University and IIS from April 1999 to March 2000. Dr Oshima has been engaged in computational hemodynamics, particularly medical-image based modelling and blood flow simulation for cardiovascular diseases such as atherosclerosis. She has been working on flow visualisation and measurements using micro Particle Image Velocimetry (PIV) technique for blood flow related problems. She has also been engaged in Science, Technology, Engineering, (Arts), and Mathematics education for the young generation.



Malgorzata Sneve, Director, Regulatory Cooperation Programmes, Norwegian Radiation Protection Authority (NRPA)

Ms Sneve has been working for more than 24 years at the Norwegian Radiation Protection Authority in Norway on issues related to regulatory supervision of nuclear legacy sites and related problems. As the Director for Regulatory Cooperation Program, she is responsible for implementation of co-operation on regulatory and legislative aspects related to nuclear safety, radiological protection and environmental protection, with special focus on nuclear and radiological legacy problems, as well as on radioactive waste management. She has more than 20 years' experience in international co-operation as a part of the Norwegian government's international strategy for environmental and human health protection and nuclear safety. Her education background is in physics, and she is experienced in practical management of co-operation with different countries' authorities and organisations (military and civilian), within nuclear safety, environmental, health and radiological protection in Russia, Ukraine and Central Asian countries. In terms of bilateral co-operation, she has been involved in co-ordination and direct co-operation with other Scandinavian, British, French, and US experts and institutions, as well as international organisations such as the IAEA, NEA, EU, NATO and others. She has a good understanding of a wide range of technical, social and political issues related to radiation and nuclear safety. Ms Sneve was elected as a member of the International Commission on Radiological Protection (ICRP) Task Group 98, where issues related to the regulation of all types of legacy problems are addressed. In addition, Ms Sneve was elected as Chair of the NEA Expert Group for Legacy Management (EGLM). Since 2016, she became the first Chair of the European and Central Asian Safety Network (EuCAS), which is part of Global Nuclear Safety and Security Network (GNSSN) of the IAEA. She also served as a first Chair of the IAEA Regulatory Supervision of Legacy Sites Forum and member of several international projects and activities. Ms Sneve is fluent in four languages and has published nearly 100 publications.



[www.oecd-nea.org/general/events/
mentoring-workshop/2018.html](http://www.oecd-nea.org/general/events/mentoring-workshop/2018.html)

www.jaea.go.jp/joshikai

**Workshop venue: National Museum of Emerging
Science and Innovation (Miraikan)**

Co-organised by:



In co-operation with:

