



***Seminar on Science Diplomacy: Trends and Future Challenges***

21st October 2016

Embassy of Japan in the UK

## Programme

**11:00-11:05**      **Opening Remarks**  
His Excellency Mr Koji Tsuruoka, Ambassador of Japan to the United Kingdom

### 11:05-12:05      **Part 1. Science Diplomacy: common challenges & global partnerships**

**11:05-11:20**      **Japanese Science and Technology Diplomacy**  
Prof. Teruo Kishi  
Science and Technology Advisor to the Minister for Foreign Affairs

**11:20-11:35**      **The UK's Science and Technology Diplomacy**  
Prof. Robin Grimes  
Chief Scientific Adviser to the Foreign and Commonwealth Office

**11:35-12:05**      **Discussion with Audience**  
Prof. Teruo Kishi  
Prof. Robin Grimes  
Facilitator: Prof. Nabil Ayad, Director, The Academy of Diplomacy and International Governance, Loughborough University in London

**12:05-13:00**      **Networking lunch**

### 13:00-15:10      **Part 2. Science Diplomacy towards innovation**

**13:00-13:20**      **Overall presentation on the Cross-ministerial Strategic Innovation Promotion Programme (SIP)**  
Mr. Shiro Takegami  
Director, SIP, Cabinet Office  
Q&A

#### **Thematic Presentations**

**13:20-13:35**      **#1) Structural Materials for Innovation (SM<sup>4</sup>I)**  
Mr. Masahiro Takemura  
Director, SIP, Japan Science and Technology Agency (JST)  
Q&A

**13:35-13:50**      **#2) Enhancement of Societal Resiliency against Natural Disasters**  
Ph.D. Kenichiro Tsuda  
Senior Researcher, SIP, Cabinet Office  
Q&A

- 13:50-14:05**      **#3) Infrastructure Maintenance, Renovation and Management**  
Ph.D. Takayuki Ishizuka  
Fellow, SIP, Japan Science and Technology Agency (JST)  
Q&A
- 14:05-14:20**      **#4) Automated Driving System**  
Mr. Shiro Takegami  
Director, SIP, Cabinet Office  
Consulting fellow, Research Institute of Economy, Trade and Industry  
(RIETI)  
Q&A
- 14:20-14:40**      **Science and Innovation in the UK**  
Ms. Charlotte Heyes  
Deputy Director, Business Innovation Directorate  
Department for Business, Energy and Industrial Strategy  
Q&A
- 14:40-15:10**      **Floor Discussion**
- 15:10**              **Ends**

## - Abstracts and Biographies -

### **Prof. Teruo Kishi**

Science and Technology Advisor to the Minister for Foreign Affairs

#### Biography

Teruo Kishi is Science and Technology Advisor to the Minister for Foreign Affairs from September 2015. Concurrently, he is the President of Innovative Structural Materials Association (ISMA). He is also the Program Director for SIP (Cross-ministerial Strategic Innovation Promotion Program) at Cabinet Office, Government of Japan. He is NIMS Advisor Emeritus of the National Institute for Materials Science (NIMS) after serving as the first President of NIMS from April 2001 till June 2009 and Professor Emeritus, the University of Tokyo.

Teruo Kishi received the degree of Doctor of Engineering from the University of Tokyo in 1969. His expertise is materials science, especially fracture mechanics and nondestructive testing of metal, ceramics and composite materials. He was Associate Professor, the Institute of Space and Aeronautical Science (ISAS), the University of Tokyo in 1974, Professor, the Research Center for Advanced Science and Technology (RCAST), the University of Tokyo in 1988, Director General of RCAST in 1995, and Director General of the National Institute for Advanced Interdisciplinary Research, Ministry of International Trade and Industry (MITI) in 1997. He was Vice President of the Science Council of Japan in 2003 and the President of the Japan Federation of Engineering Societies in 2007. He is also Advisor of Four University Nano-micro Consortium, Advisor of Tsukuba Innovation Arena, Director of Strategic International Program of Japan Science and Technology Agency (JST), Management Council Member of the University of Tokyo, Tohoku University and University of Tsukuba.

At present, Teruo Kishi devotes to the research and development of structural materials such as steels, nonferrous metals, composite materials for automobiles and aircrafts at ISMA and SIP program, respectively.

Teruo Kishi received the following awards: Fellow of the Society, the American Ceramic Society (1996), Officer de l'Ordre National du Merite, France (2004), Honda Memorial Award, Honda Foundation (2006), Barkhausen Award, Dresden, Germany (2007), Carl-von-Bach-Medal Award, Germany (2009), Distinguished Life Membership, ASM, USA (2010), Ostwald Fellowship, BAM, Germany (2010), and Fellow of the Japan Federation of Engineering Societies, etc.

#### **Japanese Science and Technology Diplomacy**

Prof. Kishi will outline the roles and challenges of science and technology advisors to diplomatic authorities, touching upon his recent inputs to G7 Summit process and International Conference on African Development (TICAD-VI).

## **Professor Robin Grimes**

Chief Scientific Adviser to the Foreign and Commonwealth Office  
Professor of Materials Physics, Imperial College London

### Biography

Robin Grimes is the current UK Foreign and Commonwealth Office Chief Scientific Advisor (CSA), looking across the full range of FCO policy. As CSA he ensures that foreign policy is informed by the best available science and has access to appropriate science networks. He also provides advice to the Foreign Secretary and Ministers.

He is Professor of Materials Physics at Imperial College. His research is focused on the use of high performance computing techniques to understand the behaviour of materials for energy applications including nuclear fission and fusion, fuel cells, batteries and solar cells. He is also Principal Investigator of the Research Council's UK Nuclear Fission consortium project and was founding Director of the Imperial College Centre for Nuclear Engineering.

Robin Grimes has advised the House of Lords Science and Technology Committee's inquiry into nuclear research requirements, and is a member of the UK's Scientific Advisory Group for Emergencies, which provided official advice on the 2011 Fukushima disaster. He has considerable experience of high-level international work with HM Government, including heading the UK delegation to the 58<sup>th</sup> and 60<sup>th</sup> IAEA General Conferences. He is a Fellow of the Royal Academy of Engineering.

### **The UK's Science and Technology Diplomacy**

Prof. Grimes will describe the UK government's science and technology structures including the roles and responsibilities of its science advisors and science attachés overseas. He will describe his experiences of being a science diplomat and how he has tried to embed science into the UK's Foreign and Commonwealth Office.

## **Professor Nabil Ayad**

Director, The Academy of Diplomacy and International Governance  
Loughborough University in London

### Biography

Professor Ayad pioneered the concept of presenting postgraduate Diplomacy programmes integrating theory and practice in the UK and has over 30 years of experience directing innovative postgraduate degrees in Diplomacy and the associated disciplines. Nabil also established the Diplomatic Academy of London (DAL) at the University of Westminster and the London Academy of Diplomacy (LAD) at the University of East Anglia London Campus.

## Mr. Shiro Takegami

Director for Cross-ministerial Strategic Innovation  
Promotion Program (SIP),  
Cabinet Office

### Biography

Mr. TAKEGAMI is a Director for Innovation Promotion, Ministry of Economy, Trade and Industry (METI). He also works as the director for Cross-ministerial Strategic Innovation Promotion Program (SIP) at the Cabinet office.

In 1992, he started his carrier in METI (then MITI), and was appointed to the current position in 2016 after appointed as a director of Science and Technology Policy Planning Office of METI. At METI, he also served as a Director of Iron and Steel Technology Office as well as a Medical and Assistive Device Industries Office. Prior to this, he served as a diplomat (economic attaché) at the Japanese Embassy in Saudi Arabia from 1999 to 2002.

He received his master's degree in Chemical Engineering from Kyoto University in 1992. He also served as the visiting researcher at New Mexico University in the United States and the author of the following research paper. Currently, he also works as a research fellow of NICHe (New Industry Creation Hatchery Center) and a management committee member of FRIS (Frontier Research Institute for Interdisciplinary Science) at Tohoku University and a consulting fellow of RIETI from 2013.

*“Lessons learned about technology transfer”, Technovation, vol.21, no.4, p253-262, Everett M. Rogers, Shiro Takegami, Jing Yin.*

### **Overall presentation on the Cross-ministerial Strategic Innovation Promotion Programme (SIP)**

Science, technology, and innovation are core drivers of Japan’s economic resurgence and sustainable growth. The Council for Science, Technology and Innovation has, under the leadership of the Prime Minister of Japan and the Minister of State for Science and Technology Policy, promoted planning and coordination for comprehensive basic science, technology and innovation policies, taking a bird’s eye view of Japan’s entire science and technology landscape. With the goal of strengthening its own headquarters function, the Council for Science, Technology and Innovation proposed a new program, SIP.

## Mr. Masahiro Takemura

SIP Director, Structural Materials for Innovation, SIP  
Department of Innovation Platform  
Japan Science and Technology Agency (JST)

### Biography

Masahiro Takemura is currently Research Manager of the Japan Science and Technology Agency (JST), responsible for Structural Materials for Innovation (SM4I), a project of the Cross-ministerial Strategic Innovation Promotion Program (SIP), sponsored by the Cabinet Office of the Government of Japan.

Mr. Takemura received Bachelor and Master Degrees in aeronautics from the University of Tokyo in 1985 and 1987, respectively. In 1987, he entered NKK Corporation in charge of the development of heat resistant and corrosion resistant steels and alloys. In 1993, he was sent to the University of Illinois at Chicago and received Master Degree in Metallurgy in 1995.

In 2003, Mr. Takemura was moved to the National Institute for Materials Science (NIMS), mostly responsible for international collaboration as Office Chief of International Affairs Office. In April, 2014, he was transferred to the JST and has been engaged in SIP-SM4I since then.

### **#1) Structural Materials for Innovation (SM<sup>4</sup>I)**

Program overview: Accelerate the development of innovative lightweight, heat- and environment-resistant materials for Japan's aviation industry. Use the materials integration concept to reduce development time through advanced computer science and other technologies. Contribute to energy savings and CO<sub>2</sub> reduction for dramatic advancements in Japan's component materials industry and major gains in Japan's aviation and electric power generation industries.



## **Ph.D. Kenichiro Tsuda**

Senior Policy Researcher, Science, Technology and Innovation, Cabinet Office

### Biography

#### ***Work Experience***

Apr., 1995 Central Research Laboratories, Fundamental Research Laboratory, NEC Cooperation.

Apr., 2005 Bio-IT Business Promotion Center

Apr., 2007 Manager for Bio-IT Business Promotion Center

Apr., 2008 Principal Researcher for Nano-electronics Research Laboratory

Apr., 2009 Expert for Research Planning Division

July., 2011 Senior Manager for Green Innovation Research Laboratory

Apr., 2012 Senior Manager for Green Platform Research Laboratory

Mar., 2015 Seconded to Cabinet Office as Senior Policy Researcher, Science, Technology and Innovation

#### ***Education***

Mar., 1989 Bachelor of Science in Chemistry (Quantum Chemistry), Hokkaido University

Mar., 1991 Master of Science in Chemistry (Quantum Chemistry), Hokkaido University

Mar., 1995 Ph.D. in Chemistry (Molecular Science), Graduate University for Advanced Studies

#### **#2) Enhancement of Societal Resiliency against Natural Disasters**

Program overview: Developing a real-time data sharing system of information related to major earthquakes, tsunamis, heavy rains, tornado, and other natural disasters and utilizing the latest science and technologies, hence improving the capacity of disaster prevention and response in our society and citizens.

## Ph.D. Takayuki Ishizuka

Fellow, SIP Infrastructure Maintenance, Renovation and Management Project  
Japan Science and Technology Agency (JST)

### Biography

1972-1988 & 1988-1998: Shimizu Corporation, Japan

Worked as a civil/structural engineer for research, technology development, design and construction supervision of civil structures. His main area of technical experience covers various kinds of bridges which include long-span precast or cast-in-situ segmental concrete box girders, cable-stayed bridges, suspension bridges, continuous PC box girder and precast-prestressed concrete girders.

1988-1995: Parsons-Polytech Inc. (JV company of Parsons Corporation (USA) and Shimizu Corp.)

Worked for various civil/building projects as a project manager and/or a design manager.

The projects include Jakarta Fair Redevelopment Project and the design project of Surabaya-Madura Strait-crossing Bridge in Indonesia.

1998-2004: Taiyo Engineering Co. Ltd. (Japan) (From 1999 to 2002, he was seconded to Pacific Consultants International to work for Thanh Tri Bridge Project in Hanoi, Vietnam)

2004-2013: Chodai Co. Ltd, Japan

Worked for ODA projects of road and bridge as a project manager or a design manager. Countries worked include Vietnam, Turkey, Sri Lanka, Tanzania, Rwanda, etc.

2004 to present: TTES, Inc. Japan

Worked as the senior technical engineer for bridge maintenance system (BMS), structural health monitoring (SHM) and construction management. He works also as a director.

2015 to present: Japan Science and Technology Agency, Japan

Worked as a technical advisor and a coordinator for technology development projects of infrastructure maintenance, renovation and management.

### *Education*

1970: Bachelor of Engineering, Civil Engineering, Tokyo Institute of Technology

1972: Master of Engineering, Civil Engineering, Tokyo Institute of Technology

1987: Doctor of Philosophy (Ph.D.), Civil Engineering, University of Washington (Seattle, Washington)

### **#3) Infrastructure Maintenance, Renovation and Management**

Program overview: A large portion of today's infrastructure was built during the period of our high economic growth several decades ago and in recent years numerous cases of infrastructure deterioration have surfaced, presenting the danger of devastating accidents and other serious related issues. This program will take advantage of world-leading information and robotics technologies to create systematized infrastructure management to restrain infrastructure lifecycle costs through preventive maintenance. The goal is to create sustainable maintenance industry and globalize the newly developed infrastructure management technologies.

## Mr. Shiro Takegami

Director, Cross-ministerial Strategic Innovation Promotion Program(SIP), Cabinet Office  
Consulting fellow, Research Institute of Economy, Trade and Industry(RIETI)

### Biography

Mr. TAKEGAMI is a Director for Innovation Promotion, Ministry of Economy, Trade and Industry (METI). He also works as the director for Cross-ministerial Strategic Innovation Promotion Program (SIP) at the Cabinet office.

In 1992, he started his carrier in METI (then MITI), and was appointed to the current position in 2016 after appointed as a director of Science and Technology Policy Planning Office of METI. At METI, he also served as a Director of Iron and Steel Technology Office as well as a Medical and Assistive Device Industries Office. Prior to this, he served as a diplomat (economic attaché) at the Japanese Embassy in Saudi Arabia from 1999 to 2002.

He received his master's degree in Chemical Engineering from Kyoto University in 1992. He also served as the visiting researcher at New Mexico University in the United States and the author of the following research paper. Currently, he also works as a research fellow of NICHe (New Industry Creation Hatchery Center) and a management committee member of FRIS (Frontier Research Institute for Interdisciplinary Science) at Tohoku University and a consulting fellow of RIETI from 2013.

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### **#4) Automated Driving System**

Program overview: The policy target has been settled to reduce the number of annual traffic fatalities to 2,500 or fewer as well as to create the world’s safest traffic environment by the year of 2020. The target also aims to develop automated driving systems, including next-generation urban transportation infrastructure. By promoting energetic discussion from technological point of view as well as legal and societal point of views, through this SIP program, the relevant ministries and agencies work together to realize Japan’s vision of a future mobility society, which means a major leap forward in travel convenience.

## **Ms. Charlotte Heyes**

Deputy Director, Business Innovation Directorate  
Department for Business, Energy and Industrial Strategy

### Biography

I joined the Civil Service in 2000, starting my career in the Home Office. I have worked in a range of different Government departments as a policy official, and have a breadth of experience including in policy development, policy implementation, legislation and regulation. Prior to joining the Business Innovation Directorate, in BEIS, in 2015, I was Head of Growth Deals Policy in the Government's Cities and Local Growth Unit. My current portfolio includes responsibility for local & regional innovation policy, and international business innovation policy.