

URSI-Japan Centennial Celebration Symposium 1922-2022

**Progress in Radio Science Research in Japan
and
the 100 Years Activities of the Japan National Committee of URSI**

November 12, 2022

Program and Abstracts



**Science Council of Japan
7-22-34 Roppongi, Minato-ku, Tokyo, Japan**

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Conference Organization

- Sponsored by:
Japan National Committee of URSI
Steering Committee for the URSI-Japan Centennial Celebration Symposium 1922-2022 (URSI-JPN CCS Steering Committee)
- Technically Co-sponsored by:
International Union of Radio Science (URSI)
- Supported by:
Ministry of Internal Affairs and Communications
Ministry of Education, Culture, Sports, Science and Technology (*planned*)
Ministry of Land, Infrastructure, Transport and Tourism
Ministry of Economy, Trade and Industry (*planned*)
Japan Tourism Agency
Japan National Tourism Organization

Aims and Scope of the Symposium

The “URSI-Japan Centennial Celebration Symposium 1922-2022” is an important scientific event associated with the “XXXVth General Assembly and Scientific Symposium of the International Union of Radio Science” (URSI GASS 2023) to be held on August 19 – 26, 2023 in Sapporo, Japan. The URSI GASS 2023 is currently under preparation by the Japan National Committee of URSI. The International Union of Radio Science (URSI) was established in 1919. Japan became an URSI member country in 1922, three years after URSI was established. Therefore, the year 2022 is a very important year marking centennial celebration of URSI-Japan. At this Symposium, we will review the history from the born of URSI-Japan in 1922 to today, Japan’s contributions to various URSI activities, and advanced radio science research being conducted in Japan. This Symposium aims at addressing the great importance of radio science to the researchers working in the field of radio science and to general public.

On the occasion of this Symposium, we have invited URSI Officials (URSI President, Immediate Past URSI President, Past URSI President, URSI Vice-Presidents, URSI Secretary-General, URSI Assistant Secretary-Generals, etc.). During the lunch break of the Symposium, they will pay a courtesy call to the Executive Board Members of the Science Council of Japan (SCJ) and the Governing Board Officers (Japanese members) of the International Science Council (ISC), and discuss international collaborations among these organizations.

The first part of this Symposium will include welcome speeches by SCJ and URSI representatives, guest speeches, and a keynote lecture by the URSI Secretary-General for commemorating the 100th anniversary of URSI-Japan. In the second and third parts, prominent Japanese scientists working in the area of radio science will deliver special lectures on the history as well as present and future prospects of the cutting-edge radio science research in Japan.

URSI marked the centennial year in 2019 and organized various special events worldwide during 2019-2021. One of them was the publication of the book entitled, “100 Years of the International Union of Radio Science” (Editors: Philip Wilkinson, Paul S. Cannon, and W. Ross Stone; 618 pages, URSI Press, Gent, Belgium, 2021). URSI-Japan contributed to this book by one chapter (40 pages), where the history of URSI-Japan since its born in 1922, contributions of URSI-Japan to various URSI activities, and the leading radio science research conducted by URSI-Japan are addressed in detail. This book is available by free of charge via the following URSI website:

<https://www.ursi.org/publications.php>

Scientific Program

◆ Part I: Commemorative Session for URSI-Japan Centennial Celebration

10:00 – 12:00

(Auditorium, 1st Floor)

◆ Session Chair:

Kazuya Kobayashi (Associate Member, Science Council of Japan; Vice-President, URSI; Assistant Secretary-General (AP-RASC), URSI; Vice-President, Japan National Committee of URSI; Professor, Chuo University, Japan)¹

- 10:00 – 10:10 Opening Remarks / Welcome Speech:
Satoshi Yagitani (Associate Member, Science Council of Japan; President, Japan National Committee of URSI; Professor, Kanazawa University, Japan)
- 10:10 – 10:20 Welcome Speech on behalf of Science Council of Japan:
Takaaki Kajita (President, Science Council of Japan; 2015 Nobel Prize Laureate in Physics; Distinguished University Professor, The University of Tokyo, Japan)
- 10:20 – 10:25 Welcome Speech on behalf of URSI (Video message):
Piergiorgio L. E. Uslenghi (President, URSI; Distinguished Professor Emeritus, The University of Illinois at Chicago, USA)
- 10:25 – 10:35 Welcome Speech on behalf of URSI:
Peter Van Daele (Secretary-General, URSI; Professor, Ghent University, Belgium)
- 10:35 – 10:45 Guest Speech:
Hiroshi Matsumoto (Past President, URSI; Director, International Institute for Advanced Studies, Japan; Professor Emeritus, Kyoto University, Japan)
- 10:45 – 10:55 Welcome Speech from URSI Official:
Makoto Ando (Associate Member, Science Council of Japan; Immediate Past President, URSI; Professor Emeritus, Tokyo Institute of Technology, Japan)
- 10:55 – 11:05 Welcome Speech from URSI Official:
Sana Salous (Assistant Secretary-General (WIRS), URSI; Professor, Durham University, UK)²
- 11:05 – 11:50 Commemorative Lecture for URSI-Japan Centennial Celebration:
“URSI: 100 Years of Radio Science Activities”
Peter Van Daele (Secretary-General, URSI; Professor, Ghent University, Belgium)
- 11:50 – 12:00 Guest Speech:
Sawako Shirahase (Council Member, Section I, Science Council of Japan; Vice President, International Science Council; Professor, The University of Tokyo, Japan)

Lunch Break

(General Participants: 12:00 – 13:30, Courtesy Call Attendees: 12:00 – 12:40)

¹ AP-RASC: Asia-Pacific Radio Science Conference

² WIRS: Women In Radio Science

◆ Courtesy Call by the Board Members of URSI to the Executive Board Members of the Science Council of Japan and the Governing Board Officers of the International Science Council
12:40 – 13:25

Attendees for the Courtesy Call:

- Executive Board Members, Science Council of Japan; Governing Board Officers, International Science Council
Takaaki Kajita (President, Science Council of Japan; 2015 Nobel Laureate in Physics; Distinguished University Professor, The University of Tokyo, Japan)
Yukari Takamura (Vice-President, Science Council of Japan; Professor, The University of Tokyo, Japan) (Online)
Sawako Shirahase (Council Member, Section I, Science Council of Japan; Vice President, International Science Council; Professor, The University of Tokyo, Japan)
- Current and Past Officers of the Board, URSI
Paul Cannon (Past President, URSI; Professor, University of Birmingham, UK)
Peter Van Daele (Secretary-General, URSI; Professor, Ghent University, Belgium)
Giuliano Manara (Vice-President, URSI; Professor, University of Pisa, Italy)
Willem Baan (Assistant Secretary-General (AT-RASC), URSI; Senior Scientist Emeritus, Netherlands Institute for Radio Astronomy (ASTRON), the Netherlands)³
W. Ross Stone (Assistant Secretary-General (GASS and Publications); President, Stoneware Ltd., USA) (Online)
Sana Salous (Assistant Secretary-General (WIRS), URSI; Professor, Durham University, UK)
Makoto Ando (Associate Member, Science Council of Japan; Immediate Past President, URSI; Professor Emeritus, Tokyo Institute of Technology, Japan)
Kazuya Kobayashi (Associate Member, Science Council of Japan; Vice-President, URSI; Assistant Secretary-General (AP-RASC), URSI; Vice-President, Japan National Committee of URSI; Professor, Chuo University, Japan)
Hiroshi Matsumoto (Past President, URSI; Director, International Institute for Advanced Studies, Japan; Professor Emeritus, Kyoto University, Japan)
- Officers, Japan National Committee of URSI
Satoshi Yagitani (Associate Member, Science Council of Japan; President, Japan National Committee of URSI; Professor, Kanazawa University, Japan)
Yasuhide Hobara (Designated Associate Member, Science Council of Japan; Secretary, Japan National Committee of URSI; Professor, The University of Electro-Communications, Japan)
- Speakers of Special Lectures
Masashi Hayakawa (Past Chair, Commission E, URSI; Professor Emeritus, The University of Electro-Communications, Japan; CEO, Hayakawa Institute of Seismo Electromagnetics Co. Ltd., Japan)

³ AT-RASC: Atlantic Radio Science Conference

Michiko Kuroda (Associate Member, Science Council of Japan; Chair, WIRS Chapter in Japan, URSI; Professor Emeritus, Tokyo University of Technology, Japan)

Hiroko Shinnaga (Associate Member, Science Council of Japan; Co-Chair, WIRS Chapter in Japan, URSI; Professor, Kagoshima University) (Online)

Ryuji Kohno (Associate Member, Science Council of Japan; Professor Emeritus, Yokohama National University, Japan; Vice-President, YRP International Alliance Institute, Japan)

Yoshiharu Omura (Past Chair, Commission H, URSI; Professor, Kyoto University, Japan)

Koichi Ito (Designated Associate Member, Science Council of Japan; Chair, Commission K, URSI; Professor Emeritus and Visiting Professor, Chiba University, Japan)

◆ Part II: Leading Radio Science Research and Future Prospects in Japan 1

13:30 – 15:45

(Auditorium, 1st Floor)

◆ Session Chair:

Yasuhide Hobara (Designated Associate Member, Science Council of Japan; Secretary, Japan National Committee of URSI; Professor, The University of Electro-Communications, Japan)

13:30 – 14:15 Special Lecture 1:

“Study of electromagnetic noise for 50 years”

Masashi Hayakawa (Past Chair, Commission E, URSI; Professor Emeritus, The University of Electro-Communications, Japan; CEO, Hayakawa Institute of Seismo Electromagnetics Co. Ltd., Japan)

14:15 – 15:00 Special Lecture 2:

“URSI-Japan centennial celebration and Women in Radio Science”

Michiko Kuroda (Associate Member, Science Council of Japan; Chair, WIRS Chapter in Japan, URSI; Professor Emeritus, Tokyo University of Technology, Japan)

15:00 – 15:45 Special Lecture 3 (Online):

“Radio astronomy — A century of the history”

Hiroko Shinnaga (Associate Member, Science Council of Japan; Co-Chair, WIRS Chapter in Japan, URSI; Professor, Kagoshima University)

Break (15:45 – 16:15)

◆ Part III: Leading Radio Science Research and Future Prospects in Japan 2

16:15 – 18:35

(Auditorium, 1st Floor)

◆ Session Chair:

Satoshi Yagitani (Associate Member, Science Council of Japan; President, Japan National Committee of URSI; Professor, Kanazawa University, Japan)

- 16:15 – 17:00 Special Lecture 4:
“Harmonization of scientific and commercial radio uses, and their social services and industrial innovation”
Ryuji Kohno (Associate Member, Science Council of Japan; Professor Emeritus, Yokohama National University, Japan; Vice-President, YRP International Alliance Institute, Japan)
- 17:00 – 17:45 Special Lecture 5:
“Active experiments of plasma wave excitation in space environments”
Yoshiharu Omura (Past Chair, Commission H, URSI; Professor, Kyoto University, Japan)
- 17:45 – 18:30 Special Lecture 6:
“Therapeutic technologies of electromagnetic fields for cancer treatment”
Koichi Ito (Designated Associate Member, Science Council of Japan; Chair, Commission K, URSI; Professor Emeritus and Visiting Professor, Chiba University, Japan)
- 18:30 – 18:35 Closing Remarks:
Kazuya Kobayashi (Associate Member, Science Council of Japan; Vice-President, URSI; Assistant Secretary-General (AP-RASC), URSI; Vice-President, Japan National Committee of URSI; Professor, Chuo University, Japan)