

# IEICE General Conference 2023 Symposium

## B: Communications Society [Click here to see details.](#)

BS-1. RIS/IRS Technology for Beyond 5G/6G

BS-2. Emerging Technologies and Applications for Future Terrestrial and Non-Terrestrial Communication Networks(English Session)

BS-3. Energy technology to support SDGs

BS-4. Frequency sharing technology from a new perspective with a view to the 2030s

BS-5. Advancing underwater wireless technologies with sound, radio and optical frequencies

BS-6. Special Poster Session ~ Network Technology ~

BS-7. Poster Session for Young Researchers - Internet Architecture

## D: Information and Systems Society [Click here to see details.](#)

DS-1. COMP-AFSA Student Symposium

## B: Communications Society

### BS-1. RIS/IRS Technology for Beyond 5G/6G

For further development of 5G and 6G, high frequency bands of mm-waves and THz bands are being investigated for ultra-high speed, capacity and reliability. On the other-hand, it is difficult to obtain multipath and wide coverage because of the high straightness of radio wave in these frequency bands. To solve these problems, technologies relating to RIS (Reconfigurable Intelligent Surface) / IRS (Intelligent Reflecting Surface) that controls the phase of reflected and transmitted waves of incident waves have been studied in recent years. For RIS/IRS realization, there are various topics such as system design, measurement, propagation, and implementation. This session is soliciting research presentations on these technologies.

### BS-2. Emerging Technologies and Applications for Future Terrestrial and Non-Terrestrial Communication Networks (English Session)

The technologies for non-terrestrial networks (NTNs) using unmanned aerial vehicles (UAVs), low earth orbit (LEO), and autonomous underwater vehicles (AUVs) are expected to become a key innovation in the fifth generation (5G) and sixth generation (6G) era, as well as those for terrestrial networks (TNs). In addition, the development related to the novel applications, including extended reality (XR) and cloud gaming, is also essential to fully utilize both TNs and NTNs. This symposium aims to present, discuss, and share the state-of-the-art results on TNs and NTNs that will lead to next-generation network systems and services. Topics of interest include, but are not limited to: network control, networking, communication, and application techniques for TNs and NTNs.

### BS-3. Energy technology to support SDGs

In recent years, the society has faced numerous challenges such as climate change, poverty, conflict and infectious diseases. The United Nations has set the development goals for society to be sustainable for a long time as Sustainable Development Goals (SDGs). The SDGs have a wide range of 17 development goals, including clean energy, recycling, resources and disasters, as well as climate change. We believe that this will affect the development of energy systems and power sources in the future. At this symposium, we will report and discuss the status of research and development and research results that contribute to the SDGs. And I would like to make it an opportunity to use it for the development of electronic communication energy technology in the future. We propose the above contents.

### BS-4. Frequency sharing technology from a new perspective with a view to the 2030s

As research and development for 6G accelerates, it is becoming important to make the most efficient use of limited frequency resources. Frequency sharing technology has been discussed since around 2000, but further development is expected due to the development of new frequency resources such as sub-THz and the emergence of new technologies such as AI and blockchain. The purpose of this symposium is to study frequency sharing from a new perspective with an eye on the 2030s. It is expected that the direction of frequency sharing technology from a new perspective will be discussed through the introduction of the latest research trends by researchers in Japan and overseas.

### BS-5. Advancing underwater wireless technologies with sound, radio and optical frequencies

In recent years, activities in water have attracted attention in various fields such as industrial creation, infrastructure construction, maintenance, and leisure use. Underwater robots are one of the typical tools to support these activities. To make full use of underwater robots, it is important to apply position estimation, sensing, communications, and power supply technologies. However, to provide these by wireless technologies, many problems need to be solved. Therefore, at this symposium, we will promote the knowledge sharing on the latest research results in acoustics, electromagnetic and optical frequencies with the aim of solving problems in underwater wireless technologies.

### BS-6. Special Poster Session ~ Network Technology ~

This session handles themes on Network Technology. The presentation style is a poster session so that people in the room including speakers could hold an active and fruitful discussion anytime during the session and could have feedback or tips for his or her own study. As the session aims to have a discussion about research topics in progress, 1 written paper would be sufficient.

## **BS-7. Poster Session for Young Researchers - Internet Architecture**

Since 2016, the technical committee on internet architecture (TCIA) regularly provides a poster session for young researchers in General Conference in each year. Young researchers including students are encouraged to submit one or two page manuscripts for the poster session. The poster presenters must bring their posters to the session. English or Japanese language is allowed to use in the manuscript and poster. TCIA will select excellent poster awards.

## D: Information and Systems Society

### DS-1. COMP-AFSA Student Symposium

In the field of theoretical computer science, wide spread view over various topics is necessary for outstanding researches, and only those with such view can develop the research frontier. Therefore, academic exchange among students with different research themes is effective for supporting the growth of high-level researchers. The purpose of this symposium is to provide opportunities for their research communication. The presenters are required to be students, while the other coauthors may be regular members.