

IEICE Society Conference 2019 Symposium

A: Engineering Sciences Society [Click here to see ditails.](#)

ABS-1. Challenge to electromagnetic wave applications in the sea

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

ABS-1. Challenge to electromagnetic wave applications in the sea

BS-1. Small antenna design for IoT technologies

BS-2. Evolution of wireless network towards Beyond 5G / 6G

BS-3. Power systems, battery and device technologies empowering smart communities

BS-4. Network and Service Design, Control and Management

BS-5. Special Poster Session ~ Network Technology ~

C: Electronics Society [Click here to see ditails.](#)

CS-1. Electromagnetic Fields in Periodic Structures

CS-2. Recent Progress in Vital-sign Sensing Using Microwave or Millimeter wave

A: Engineering Sciences Society

ABS-1. Challenge to electromagnetic wave applications in the sea

The use of electromagnetic (EM) waves in seawater has been recently attractive research fields since Japan has a huge amount of potential resources in the exclusive economic zone (EEZ).

Their target applications include telecontrol or telemetry with autonomous underwater vehicle(AUV), wireless power transmission, remote sensing on buried/installed equipment, and so on.

In this symposium, research and development for further advancements such as system design, antenna/device development, demonstration, and application evaluation for the use of electromagnetic waves in the sea are called for presentation.

B: Communications Society

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BS-1. Small antenna design for IoT technologies

High-performance small antennas are highly required as IoT communication devices with RF module are downsized. Since there is a trade-off relationship between miniaturization of antennas and their high-performance, technical progress for antenna miniaturization is strongly demanded. This symposium is intended to provide a forum for the exchange of information on state-of-the-art research in small antennas for IoT devices.

BS-2. Evolution of wireless network towards Beyond 5G / 6G

Now that the commercialization development for the 5th generation mobile communication system (5G) is coming to a close, development and implementation of ultra-reliable and low-latency communication (URLLC) and massive Machine Type Communications (mMTC) are expected to be accelerated for further evolution of the 5G system, following the commercialization of enhanced Mobile Broadband (eMBB). Therefore, it is meaningful to deepen the discussion on the future of 5G from the viewpoints of services and technologies, based on the current progress. In this session, we will explore the new ideas in the area of URLLC and mMTC in addition to eMBB, and also discuss technical challenges and future direction of the next generation system (e.g. B5G).

BS-3. Power systems, battery and device technologies empowering smart communities

Smart communities as distributed energy systems have been expanding significance in recent society and technologies for new energy systems are facing urgent demand. In this symposium, various technical issues concerning smart communities are to be discussed.

BS-4. Network and Service Design, Control and Management

Various advanced information and communication technologies, e.g., IoT, connected car, and edge computing, are expected to be widely used in near future. Therefore, the network and service design, control and management are getting more important. In this session, authors are invited to submit their papers regarding the network design, control and management technologies from various aspects such as performance, quality, reliability, security, and usability.

BS-5. Special Poster Session ~ Network Technology ~

This session handles themes on Network Technology. The presentation style is 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.

C: Electronics Society

CS-1. Electromagnetic Fields in Periodic Structures

Periodic structures have been widely used as wavelength and polarization selective components in microwave, millimeter-wave, and optical wave regions, and applications based on the metamaterials induce researchers' attentions again for the periodic structures. When we simulate the electromagnetic fields in the periodic structures, numerical error is comparatively easy to accumulate in the structures, and careful treatments are necessary in many problems. Furthermore, recently developed applications often use the evanescent wave and/or the polarimetric information, and they require highly accurate numerical modeling. This session will cover recent progress in the analytical and numerical approaches to electromagnetic fields in the periodic structures, and related applications.

CS-2. Recent Progress in Vital-sign Sensing Using Microwave or Millimeter wave

Along with the recent declining birth rate and aging population, it is predicted that the risk of lifestyle diseases and adult diseases such as cancer will increase, and the medical devices and health care systems for early detection and prevention have been developing. Therefore, we will propose a following symposium; the technology from the basic to application for medical and healthcare-related devices using microwave, millimeter wave and Terahertz technologies will be presented and discussed not only the latest trends but also future prediction.