FOREWORD

Special Section on Opto-electronics and Communications for Future Optical Network

In recent years, incredible data traffic growth mainly caused by video streaming internet services, enhances the necessity for large-capacity optical communications. In addition to these internet services, 5G communication services which have started in this year, or the recent shifting to teleworking which is led by pandemic of COVID-19 on a global scale will require more data traffic. Under these situation, expectations for optical communication are increasing, and the development of optical devices that are key to opto-electronics and communications has become very important. The international conference "Opto-electronics and Communications Conference (OECC)" has been recognized for long time to support the technical growth of this opto-electronic communication systems. The 24th OECC in 2019 was held from July 7 to 11, 2019 in Fukuoka, jointed with Photonics in Switching and Computing 2019.

We discussed in the next sections as the main issues related to the research and development of opto-electronics and communications.
O1: Core / Access / Data Center Networks and Subsystems
O2: Transmission Systems and Subsystems
O3: Optical Fibers, Cables and Fiber Devices
O4: Optical Active Devices and Modules
O5: Optical Passive Devices and Modules
P1: Photonics in Switching Technologies, Systems and Architectures for Communications and Networking
P2: Photonics in Switching Technologies, Systems and Architectures for Computing and Big Data

We have also discussed special symposium as shown as below.
S1: Future Technologies for Optical Transport Network Support of Post 5G Mobile Services
S2: Photonics Technologies in Automotive Application ~from Networks to Devices~
S3: Advanced Optical Technologies for Bigdata / IoT Service

This special section on IEICE Transaction on Electronics, is organized to provide an overview of the key topics which were discussed at the OECC/PSC 2019. In this special section, we have 8 papers in total, including 4 excellent invited papers on the technical categories O4, O5, P1. I would like to appreciate to all of the authors for their contributions to the special section, as well as to the editorial committee members and the reviewers.

Special section Editorial Committee
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Hiroshi Aruga *(Member)* received the B.E. degree in materials science from Tohoku University, Miyagi, Japan in 1992, and the M.E. degree in electrical engineering from Sophia University, Tokyo, Japan, in 1994. He joined Mitsubishi Electric Corporation Kamakura Works, in 1994, where he engaged in research and development on microwave, millimeter-wave components and active phased array antennas for space satellites. He then joined Mitsubishi Electric Corporation High Frequency & Optical Device Works between 2004 and 2009, where he engaged in the research and development on transmitter and receiver optical subassemblies at the data rate of 10Gbps for optical transceivers. He is currently with Mitsubishi Electric Corporation Information Technology R&D center from 2009, where he engaged in the research and development on integrated optical components at the data rate of 40 / 100Gbps, BiDi / Triplexer modules for 10G Passive Optical Network and All-Optical Wavelength converter components. He is now General Manager of Communication Technology Department in Information Technology R&D Center, where he has been managing research and development on communication technologies which include private radio networks, 5G, high speed signal processing as well as optical communication networks. He is a Member of the IEEE Photonics Society and the Institute of Electronics, Information and Communication Engineers of Japan.