
FOREWORD

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

Data traffic is continuing to grow steadily at the rate of 20 to 40% per year even though the world economy is still stagnant. The robust R&D activities in optical fiber transmission and network technologies have yielded transport systems to support this growing traffic demand, and over the last 10 years, we have seen some remarkable progress in commercial use transport systems that have realized 40 Gbit/s DQPSK modulation and optical switching as ROADM systems. They have already shifted to new paradigms so as to further enhance spectral efficiency with the help of coherent communication and high speed digital signal processing, to explore multi-core fiber transmission, and to increase node throughput with the advancement of network functionality based on the multi-granularity architecture. On the basis of this background, 15th OptoElectronics and Communications Conference (OECC2010) was held in Hokkaido, Japan on July 5–9, 2010. Its five categories covered a wide range of topics from systems to components: 1) Core/access networks and switching subsystems, 2) Transmission systems and their subsystems, 3) Optical fibers, cables, and fiber devices, 4) Optical active devices and modules, 5) Optical passive devices and modules, and organized four symposia: 1) New horizons in optical communication technologies: Towards 2030 and beyond, 2) Future optical transport network to support 100GE era and beyond, 3) State of the art nanophotonics, and 4) Phonic devices for advanced modulation formats.

This joint special section is organized to chronicle the technical advancements introduced by OECC2010, and the Transaction on Communications in the special section consists of two excellent invited papers and seven contributed papers, which were selected from 13 submissions within the range covered in categories 1) and 2). Papers included in categories 3), 4), and 5) have been published in the Transaction on Electronics.

Tragic events occupied my mind when preparing this issue. An earthquake and dreadful tsunami have just struck the Tohoku area of Japan. I am writing to express our heartfelt sympathy to the people who have been injured or displaced by this disaster. I hope that our dedication to the advancement of communication technology will help and encourage all.

Finally, I would like to express my sincere appreciation to all the authors for their excellent papers, and to the reviewers and editorial committee members for their great efforts and commitment to making this outstanding joint special section possible.

Editorial Committee

Guest Editors: Joji Maeda (Tokyo University of Science), Hiroaki Harai (NICT)

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Masafumi Koga, Guest Editor-in-Chief

Masafumi Koga (*Fellow*) received the B.E. and M.E. degrees in electronics engineering from the Kyushu Institute of Technology, Fukuoka, in 1981 and 1983, respectively, and received the Dr. Eng. degree from Osaka University, Osaka, in 1993. In 1983, he joined the NTT Electrical Communications Laboratories, Yokosuka-shi, Japan. Since 1994, he has been engaging photonic transport network systems. Since Oct., 2006, he has been working in Oita University. Current interest is the R&D on the generation of carrier-envelope offset controlled light that is seeded from laser diode. Prof. Koga is a member of the Institute of Electrical and Electronics Engineers (IEEE). He received IEICE Achievement Award in 2000 for contributing to the research of photonic transport networks, and is the author of several major patents on optical circulators.

