

Guest Editorial

OFC 2019 Special Issue

AS GUEST editors for this Special Issue of the IEEE/OSA JOURNAL OF LIGHTWAVE TECHNOLOGY (JLT), we are pleased to present a broad selection of the important contributions to the Optical Fiber Communications Conference (OFC) 2019, which was held in San Diego, CA, USA in March of 2019. This Special Issue documents the state of the art in optical fiber technology and networks in greater depth than is possible in the limited format of the conference technical digest.

To capture a broad range of subjects, we invited authors of accepted post-deadline papers, tutorial presenters, and the winner of the Corning Student Award to submit a contribution to this Special Issue. We encouraged all authors to augment their papers by providing more details and additional content. All of the submissions to this Special Issue underwent the standard peer-review process, thus assuring the accuracy, completeness, and quality expected of a JLT publication.

Many of the invitees took the opportunity to submit a more detailed manuscript to this Special Issue. This issue includes an expanded version of a paper by Ryota Tanomura *et al.*, who won the Corning Student Award, 13 papers expanding the latest research results reported in a post-deadline presentation, as well as four tutorial papers providing a broad overview of advances in the science and technology of optical communications and networks.

The contents of this Special Issue reflect the rapid progress taking place in the field and the breadth of the conference, covering all aspects of optical communications and fiber-optic technologies. The papers published in this Special Issue cover a number of topics, including novel optical component design, data transmission using advanced modulation formats and fibers, as well as transceivers for short-reach links and datacenter interconnects. Passive optical networks and Radio-over-Fiber networks are also addressed in this issue.

We would like to thank the authors and reviewers, whose dedicated efforts maintain the high technical standard of this

journal. We would also like to thank JLT's Publication Staff Douglas Hargis, Sonal Parikh, and Christopher Perry, who have produced a high-quality print volume under the tight schedule required for a Special Issue of this kind.

We hope that this Special Issue will serve as a useful archival reference, providing access to information presented at OFC 2019 to a broader audience than those who attended the conference. We would like to invite you to attend and participate in the OFC 2020, which is to be held between March 8–12 in San Diego.

GABRIELLA BOSCO, *Guest Editor*
Politecnico di Torino
Turin 10129, Italy

JÖRG-PETER ELBERS, *Guest Editor*
ADVA Optical Networking
82152 Munich, Germany

LAURENT SCHARES, *Guest Editor*
IBM Research
Yorktown Heights, NY 10598 USA

CHONGJIN XIE, *Guest Editor*
Alibaba Group
Sunnyvale, CA 94085 USA

JUN-ICHI KANI, *Guest Editor*
NTT Access Network Service
Systems Laboratories
Yokosuka 239-0847, Japan

PO DONG, *Guest Editor*
II-VI Incorporated
Sunnyvale, CA 94089 USA



Gabriella Bosco (S'00–M'02–SM'13–F'19) received the Ph.D. degree in electronic and communication engineering from Politecnico di Torino, Turin, Italy, where she held a postdoctoral position from 2002 to 2011 and where she was an Assistant Professor from 2011 to 2014. She is currently an Associate Professor with the Department of Electronics and Telecommunications. She has co-authored more than 200 papers in leading journals and conferences. Her main research interests include the performance analysis and design of optical transmission systems and the application of digital signal processing techniques in optical links. Since 2011, she has been on the program committees of several international conferences, including the Conference on Lasers and Electro-Optics (CLEO), the IEEE Photonics Society's Annual Meeting (IPC), and the Optical Fiber Communication (OFC) conference, for which she acted as Program Chair in 2017 and General Chair in 2019. She is currently the Editor-in-Chief of the IEEE/OSA JOURNAL OF LIGHTWAVE TECHNOLOGY, for which she was an Associate Editor from 2014 to 2017 and Deputy Editor in 2018. She was elevated to Fellow of the OSA in 2017 for contributions to the modeling and design of coherent optical communication systems.



Jörg-Peter Elbers received the Dipl.-Ing. and Dr.-Ing. degrees in electrical engineering from Technical University Dortmund, Dortmund, Germany, in 1996 and 2000, respectively. After working in the Optical Networks Unit of Siemens, Marconi, and Ericsson, in 2007, he joined ADVA Optical Networking, Munich, Germany, where he is currently the Senior Vice President for Advanced Technology, Standards & IPR. His responsibilities include technology strategy, applied research, standardization, and intellectual property management. He has authored or co-authored more than 100 papers, authored four book chapters, and holds more than 15 patents. He heads the German VDE ITG expert committee on communication technologies and is on the board of the European Technology Platform on Networks (Networld2020). He was the Technical Program Chair and General Chair of the Optical Fiber Communications Conference in 2017 and 2019, respectively, and is a Member of the OFC Long Range Planning Committee, as well as a Member of the European Management Committee of the European Conference on Optical Communication.



Laurent Schares (S'99–M'04–SM'17) received the Ph.D. degree in physics from the Swiss Federal Institute of Technology (ETH) Zurich, Switzerland, in 2004. He is a Research Staff Member with the IBM T. J. Watson Research Center, Yorktown Heights, NY, USA, where his research focuses on integrating optical technologies into data center and supercomputer networks. He has authored or co-authored more than 100 publications and 15 patents. He has led or contributed to numerous projects on optical switch and interconnect demonstrations in computing systems, for which he has received an IBM Outstanding Technical Achievement and multiple Research Division awards. He has been a longtime volunteer organizing the Optical Fiber Communications Conference, for which he was a Technical Program Co-Chair for 2017, a General Co-Chair for 2019, and has been on the Steering Committee since 2018. He has widely served in the optical communications community on funding/award selection committees and in various roles on technical program committees of leading conferences (CLEO, OFC, OECC, OSA Adv Phot Congr (APC), IEEE Summer Topicals, HiPEAC, and IEEE MCSoc). He is an

Associate Editor for the IEEE/OSA JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING (JOCN) and was a Guest Editor of a JOCN Special Issue on Optical Data Center Networks in 2018.



Chongjin Xie (SM'05) received the M.Sc. and Ph.D. degrees from the Beijing University of Posts and Telecommunications, Beijing, China, in 1996 and 1999, respectively. He is a Senior Director of the Alibaba Group, Sunnyvale, CA, USA, leading an optical network team working on datacenter optical interconnect. Prior to joining Alibaba in 2014, he was a Distinguished Member of Technical Staff with Bell Labs and Alcatel-Lucent, doing research on optical communications. He was a Postdoctor with the Chalmers University of Technology, Gothenburg, Sweden, from 1999 to 2001. He has authored one book, five book chapters, and more than 200 papers. He is a Fellow of OSA.



Jun-ichi Kani (M'98–SM'18) received the M.E. and Ph.D. degrees in applied physics from Waseda University, Tokyo, Japan, in 1996 and 2005, respectively. In 1996, he joined NTT Optical Network Systems Laboratories, where he was engaged in research on optical multiplexing and transmission technologies. Since 2003, he has been with NTT Access Network Service Systems Laboratories, Yokosuka, Japan, where he has been engaged in R&D and standardization of optical communication systems for access and metro applications and currently heads Access Systems Technology Group. He has been an Associate Rapporteur of Question 2 (optical systems for fiber access networks) with the ITU-T Study Group 15 since 2009 and the Chair of the Full Service Access Network initiative since 2015.



Po Dong (M'10–F'18) received the B.Sc. and M.Sc. degrees from Jilin University, Changchun, China, and the Ph.D. degree in electrical engineering from McGill University, Montreal, QC, Canada. He is currently a Senior Director of II-VI Incorporated, Sunnyvale, CA, USA, developing next-generation photonics platforms. Prior to joining II-VI Incorporated, he was the Department Head of the Silicon Photonics Group, Bell Labs, Nokia USA. Before Bell Labs, he was a Principal Research Engineer with Kotura, Inc. He was an Associate Editor of *Optics Express* for six years and has been a Committee Member or Chair for various conferences. He is a Fellow of OSA.