

## Introduction to the ECOC 2020 Special Issue

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# Introduction to the ECOC 2020 Special Issue

PETER VAN DAELE,<sup>1,\*</sup> TON KOONEN,<sup>2</sup> JOHAN BAUWELINCK,<sup>3</sup> AND ODED RAZ<sup>2</sup>

<sup>1</sup>Universiteit Gent, Ghent, Belgium

<sup>2</sup>Technische Universiteit Eindhoven, Eindhoven, Netherlands

<sup>3</sup>Ghent University - imec, Ghent, Belgium

\*Corresponding author: peter.vandaele@intec.ugent.be

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**This special issue includes extensions of invited and top-scored optical networking papers that were presented at the European Conference on Optical Communication (ECOC) 2020, held virtually, December 6–10, 2020. © 2021 Optical Society of America**

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Welcome to the *Journal of Optical Communications and Networking* (JOCN) ECOC 2020 Special Issue. This is the first time that JOCN has partnered with ECOC to publish extensions of invited and top-scored optical networking papers from the conference. Most of the papers appear in the August 2021 issue, with a few in the September 2021 issue.

The authors were required to include significant new material as compared to their ECOC paper. All papers underwent the usual JOCN peer-review process. All of the authors, reviewers, and editors are acknowledged for their diligence in producing this high-quality special issue. ECOC 2020 was postponed by roughly 10 weeks, which necessitated producing this special issue in a very short timeframe to ensure that all papers would be published prior to the start of the ECOC 2021 conference.

The issue includes two excellent invited tutorials. One presents an overview of high-port-count optical-circuit-switch architectures for future intra-datacenter networks. It advocates utilizing both the space and wavelength dimensions for future scalability. The second tutorial is a comprehensive discussion of modern-day protocols for control and management of optical networks. It addresses modeling languages, data models,

telemetry protocols, and controllers, complemented by an experimental evaluation of the ecosystem.

The majority of the other papers are focused on the network edge, covering topics such as software-defined passive optical networks (PONs), 50G PONs, optical architectures in support of 5G and in support of wireless LANs, deterministic edge latency, and network function virtualization orchestration in disaggregated metro networks.

One of the more unique papers explores the important topological properties of optical networks. It demonstrates that traditional synthetic-graph generation techniques do not adequately model real optical networks. The authors demonstrate why it is important to incorporate controls over inter-nodal distance.

We look forward to future partnerships between JOCN and ECOC.

Peter Van Daele, ECOC 2020 General Co-Chair

Ton Koonen, ECOC 2020 General Co-Chair

Johan Bauwelinck, ECOC 2020 Technical Programme Co-Chair

Oded Raz, ECOC 2020 Technical Programme Co-Chair