

Announcement of
IEEE/OSA Journal of Optical Communications and Networking (JOCN)
Special Issue on
Advanced Monitoring and Telemetry in Optical Networks

Submission Deadline: 24 February 2021

Publication Date: Third Quarter 2021

Service providers have made it clear that they are looking beyond physical capabilities when selecting their networking ecosystems. The network's ability to collect, aggregate and analyze performance metrics, and take action in response to this data analysis is of growing importance, with an increased emphasis on streaming telemetry rather than legacy polling techniques. In contrast to network attributes such as transmission capacity where growth has been slowed by physical realities, advancements in monitoring and processing capabilities have accelerated the potential use of telemetry to drive network operation. The challenge is to hone the effort and harness the tracked data to maximize the advantages that can be obtained. To more fully investigate these challenges, this special issue is focused on the intelligent use of monitoring and telemetry to control and manage optical networks.

The scope of the special issue includes but is not limited to the following topics:

- Evaluation of which optical-network telemetric measures are the most beneficial to track and their optimal tracking frequency
- Application and configuration of monitoring tools, including optoelectronic devices
- Applications of telemetry for quality-of-transmission estimation, quality-of-experience evaluation, dynamic resource optimization, anomaly detection, failure prediction, misconfiguration prevention, and security
- Centralized vs. distributed vs. hierarchical monitoring and processing of telemetry in an optical network
- Optical-layer techniques for scalable data capture, storage, visualization, correlation and integration
- Pros/cons of proactive response to telemetric anomalies: e.g., avoiding failures vs. false positives
- Machine-learning based applications of telemetry in optical networks
- Protocols/interfaces best suited for telemetry and real-time monitoring given bandwidth & latency constraints
- Monitoring and telemetry in open/disaggregated optical systems, e.g., interoperability issues, determining the faulty entity when a problem arises
- Monitoring and telemetry in multi-layer / multi-domain / multi-band / multi-technology networks
- Security issues and practical use of blockchain to track the veracity of collected telemetry

Submissions to the special issue should be prepared according to the usual standards for the *Journal of Optical Communications and Networking* and will undergo the normal peer review process. Manuscripts must be uploaded through OSA's [online submission system](#) specifying from the Feature Issue drop-down menu that the manuscript is for the issue on *Advanced Monitoring and Telemetry in Optical Networks*.

Special Issue Guest Editors

Luis Velasco, Universitat Politècnica de Catalunya (UPC), Spain (Lead Guest Editor)

Patricia Layec, Nokia Bell Labs, France

Francesco Paolucci, CNIT, Italy

Noboru Yoshikane, KDDI Research, Inc., Japan