



## Call for Papers for *Optical Networks & Systems Symposium*

### **SYMPOSIUM CO-CHAIRS:**

Marco Ruffini, Trinity College Dublin, email: [marco.ruffini@tcd.ie](mailto:marco.ruffini@tcd.ie)

Steve Hranilovic, McMaster University, Canada, email: [hranilovic@mcmaster.ca](mailto:hranilovic@mcmaster.ca)

### **SCOPE AND MOTIVATION:**

The recent pandemic has only underscored an accelerating trend of recent years and decades, the growing demand for more bandwidth everywhere. The need to connect synchronous video and audio applications, as well as asynchronous huge-data content applications, has become a critical need for an unprecedented number of users, assuming an almost lifeline quality. Further, growth is not only generated by people but also by machines, towards a real implementation of the paradigm of the Internet of Everything. Finally, coupled with rapidly increasing use of Big Data and cloud-based services, this is resulting in progressively vast volumes of data being transported across networks. These trends not only contribute to the growth in data volumes, but also pose entirely new challenges related to end-to-end performance in terms of latency, reliability, energy efficiency, achievability for allowing the user to be connected reliably everywhere and every time. In addition, as quantum technology develops at unprecedented pace, existing optical networks are now required to provide support for services such as quantum key distribution (QKD) and distributed quantum computing. This poses new challenges across all network segments from the edge (fixed and optical wireless access) up to the core (backbone/optical backhaul) and also datacenters, demanding substantial advances in optical systems and networks. Optical communications challenges in turn appear, involving the required evolution in fiber and wireless sides so as to support the challenges identified in the different network segments - while benefiting from recent paradigms such as Software Defined Networking, Network Infrastructure and Function Virtualization, Data Analytics and Artificial Intelligence, Cloud and Edge computing, and Optical Transmission Technologies. We invite original papers related to the latest research, development, and applications in these and other relevant areas of optical communication systems and networks.

***Submitted papers should be between 3 and 6 pages in length. Paper acceptance decisions will be based on novelty of the work, quality of results and clarity of the presentation.***

### **TOPICS OF INTEREST:**

The Optical Networks and Systems Symposium intends to showcase the latest developments in all research areas related to optical networks and systems. The Symposium cordially invites original contributions in, but not limited to, the following topical areas, plus others not explicitly listed but are closely related:

- Optical wireless and fibre systems & networks for 6G and beyond
- Virtualization and slicing in optical networks
- Artificial Intelligence and machine learning for optical systems and networks
- Optical access systems & networks in support of cost-effective edge compute deployment
- Systems & networks for open and disaggregated optical transport
- Experimental data-driven optical networking
- Data analytics for optical networks
- Software-defined optical networks including programmability, automation and disaggregation
- Quantum communication systems and networking
- Optical network security
- Optical network control and management
- Elastic, flexible rate, and flexi-grid optical networks
- Optical network architectures, design, and performance evaluation
- Energy-efficient optical networks
- Optical network survivability and availability
- Optical network for inter- and intra-datacentre connectivity
- Optical interconnects for data centres & high-performance computing
- Optical network testbeds and experiments
- Optical wireless channel characterization
- Coding, modulation, and signal processing for optical systems
- OFDM and MIMO for optical systems
- Optical and wireless network convergence and mobile x-haul
- Radio-over-fiber
- Free-space optical (FSO) communications and networks
- FSO-RF integration
- Intersatellite and space-based optical systems & networking
- Visible light (Li-Fi) communications and networks
- Modulation and coding for optical wireless systems
- Cross-layer design of optical networks
- Multiple access techniques for optical wireless systems
- Visible light positioning
- Camera communications
- Ultraviolet communications and networks
- Underwater optical communications
- Optical wireless vehicular networks

## **IMPORTANT DATES:**

**Deadline for paper submission:** 11 October 2021

**Date for notification:** 18 January 2022

**Deadline for final paper submission:** 15 February 2022