Workshop Proposal for the 2018 Asia Communications and Photonics Conference

Title: **Optical 5G Transport Networks - How to Face Reliability with Virtualization?**

Organizers:

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Abstract:

In order to satisfy the stringent service requirements envisioned for future-proof 5G networking solutions, optical networks are undergoing a multi-faceted evolution towards flexible and dynamic systems supporting millisecond end-to-end delay, ubiquitous connectivity, and over five nine service availability. To provide these conditions and support the forthcoming services related to, e.g., massive Internet of Things, tactile Internet, autonomous vehicles, or cooperative robots, optical networks are relying on rapid proliferation of software-defined networking (SDN) and network function virtualization (NFV) paradigms. The virtualized 5G-enabled optical network architecture will have to encompass an end-to-end orchestration system, SDN controllers, NFV managers and resource allocation brokers that will span the converged core, the compute- and storage-enabled programmable metro, and the multi-service integrated access segments.

The workshop will discuss the performance and operational requirements envisaged for the 5G adoption, as well as their impact on the overall design, realization, and reliability of future 5G-compliant optical networks. Existing 5G architectural guidelines and solutions will be analyzed, examining the role of the data plane, the control plane, the management and orchestration plane, and the services and applications plane in realizing a communication ecosystem providing five nines or higher availability. A special focus will be put on virtualization aspects dealing with optical infrastructure network slicing in relation to service guarantees for the virtual network users, and with the instantiation of various orchestration, management and control entities. Different 5G stakeholders, including infrastructure owners, network operators, and service providers, will present their viewpoints and outline their visions on how to address the reliability challenges.