**Call for Papers**

*Springer Photonic Network Communications*

*Optimization Design for Next Generation Cloud Optical Networks*

**Deadline: May 1, 2015**

**URL:**

http://www.springer.com/computer/communication+networks/journal/11107

The incoming era of cloud computing imposes huge pressure on the design of access network, which will become the bandwidth bottleneck between user ends and data centers. The traditional Passive Optical Network (PON) will undoubtedly suffer from severe challenges in service provisioning due to its limited transmission capacity and underutilized bandwidth resource. Next Generation PON (NG-PON) is expected to advance towards higher transmission rate, stronger robustness, more flexible bandwidth allocation and ubiquitous high-speed access, so as to support better Quality of Service (QoS) and Quality of Experience (QoE). Fortunately, the emerging concepts such as Optical Orthogonal Frequency Division Multiplexing (O-OFDM), converged wireless-optical communication and network virtualization provide a lot of technological guidelines for the cloud computing of NG-PON.

On the other hand, the elastic virtual network mapping has gained extensive attentions in the cloud Optical and Data Center Network (ODCN), with the improvement of spectrum utilization. This is because that the elastic lightpath needs variable number of continuous O-OFDM subcarriers, instead of the fixed amount of spectrum. Meanwhile, WaveBand Switching (WBS) is able to further reduce the number of optical switching ports by aggregating lightpaths into a waveband route. Thus, in the cloud ODCN, the elastic virtual tunnels including lightpaths and waveband routes will be mapped onto the physical links under the new constraints of routing, O-OFDM subcarriers and waveband assignment.

Finally, we urgently need the help of some emerging technologies such as Software Defined Network (SDN) that we had not before, when we make the optimization design for cloud computing in next-generation optical networks. For all these reasons, we solicit contributions for a special issue of Springer Photonic Network Communications on “Optimization Design for Next Generation Cloud Optical Networks”.

**TOPICS OF INTEREST INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:**

1. O-OFDM for cloud computing in NG-PON
2. Cross-layer optimization for cloud computing in NG-PON
3. SDN and virtualization for cloud computing in NG-PON
4. Spectrum-efficient transmission in NG-PON
5. Integration of O-OFDM and WBS in cloud ODCN
6. Routing, O-OFDM subcarriers spectrum and waveband assignment in cloud ODCN
7. SDN for the cloud computing in ODCN
8. Virtual network mapping for WBS and cloud ODCN

**SCHEDULE**
Submission Deadline: 1 May 2015
First Notification: 1 July 2015
Revised Paper Due: 1 August 2015
Second Notification: 15 August 2015
Final Manuscript Due: 30 August 2015
Publication (tentative): 4rd Quarter 2015

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