

**Announcement of an *IEEE/OSA*  
*Journal of Lightwave Technology Special Issue on:*  
DSP in Next Generation Optical Access Networks**



Intensity modulation with direct detection (IM-DD) has been widely used in nearly all optical networks for several decades at rates of 10 Gb/s and lower. Starting in approximately 2010, DSP based coherent technology began being deployed for long-haul optical networks allowing much higher data rates (e.g. 100 Gb/s vs 10 Gb/s) to be sent over long spans of fiber (>1,000 km). Currently, optical access networks still rely on IM-DD at 10 Gb/s and lower. However, new services like 5G mobile X-haul, edge computing and HD video distribution combined with stringent requirements like low latency, flexibility, and scalability are transforming the need for future access networks. To keep up with increased bandwidth demand and support future mobile traffic, next generation access networks supporting over 50 Gb/s per single wavelength, while ensuring coexistence with legacy access systems in a cost-effective manner will be needed. An attractive approach to enable this is the use of advanced modulation and detection techniques, enabled by digital signal processing (DSP), to provide these high-speed transmissions with low-cost limited bandwidth optical components as well as being able to compensate for dispersion and nonlinearities. Furthermore, DSP based optical access technology could be a good fit for future converged optical, wireless and copper based broadband access networks to meet the stringent requirements of these new services across the whole network.

The special issue will address the following topics:

- How to modify long-haul DSP technology for optical access
- Burst mode DSP
- Interoperability and DSP
- Reusing DSP in wireless and copper-based access networks for optical access
- Coherent PON
- DSP-based equalization
- Power consumption
- New services enabled by DSP
- Flexible optical access
- Next generation services for optical access
- Joint optical and wireless DSP for 5G networks
- Optimize DSP for low latency, flexibility, and scalability

On behalf of the Guest Editors and the Editor-in-Chief, we encourage you to submit your work for inclusion in this Special Issue. Accepted papers will appear in the Jan/Feb 2020 hardcopy issue with accepted papers posted online within one week of author final file upload. Mandatory page charges of \$260.00 per page are enforced for Original Contributions in excess of 7 pages and in excess of 10 pages for Invited Papers. Tutorial presenters will be invited to write articles that are up to 16 pages in length. The same mandatory fees apply to each Tutorial paper in excess of 16 pages.

Submissions by website only: <http://mc.manuscriptcentral.com/jlt-ieee>

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