Guest Editorial

An OFC for the History Books

AFTER more than a year of planning the Optical Fiber Communication Conference (OFC) 2020, due to the emergence of the COVID-19 pandemic, the Program Committee had the enormous challenge of rapidly re-planning the entire conference in less than two weeks. A U.S. travel ban on China affected a large portion of our community, including presenters, attendees and exhibitors. The cancellation of the very large Mobile World Congress 2020 in Barcelona sent shockwaves throughout the communications industry. Other conferences, quickly followed suit. Many of the OFC exhibitors withdrew and companies imposed travel restrictions on their employees. Daily meetings were held between the Program Committee and the OFC Management to review and evaluate all options, which included outright cancelling OFC 2020. In the end, the decision was reached to hold the conference, but to allow remote (virtual) and pre-recorded participation. What better way to showcase the optical communications technology our community had worked so hard to develop!

The OFC team then worked with state and local health departments to ensure that the safety precautions at the time would be implemented. Despite all these logistical challenges, OFC 2020 took place in March, both in San Diego, CA and remotely for attendees unable to travel. The plenary session and a 50th anniversary celebration event were live-streamed with speakers presenting on-site. A large majority of the papers were presented as scheduled. The popular rump session remained as the top attended event, with over 400 virtual and in-person attendees. On March 12th, the very last day of the conference, the California government announced the start of lock-downs, including closing of the San Diego Convention Center. Had OFC been scheduled to end one day later, we would not have been allowed to finish.

The creative approach by OFC 2020 for a semi-virtual conference presented a model for other conferences in our field to follow during the pandemic. We are proud of the efforts made by so many people at the last minute to make OFC 2020 a success.

On This JLT Special Issue

As guest editors for this Special Issue of the IEEE/OSA JOURNAL OF LIGHTWAVE TECHNOLOGY (JLT), we are pleased to present a broad selection of the important contributions to the OFC 2020. This special issue documents the state of the art in optical fiber technology and networks in greater depth than is possible in the limited format of the conference technical digest.

Many of the invitees took the opportunity to submit a more detailed manuscript to this Special Issue. The issue includes an expanded version of the Corning Student Paper by Mengfan Fu *et al*., the Tingyi Li Innovation Prize paper by Di Che *et al.,* papers expanding the latest research results reported in a post-deadline presentation, as well as five tutorial papers providing a broad overview of advances in the science and technology of optical communications and networks.

The papers published in this Special Issue cover many diverse topics from the three OFC tracks (network, system, device) of the conference program. In the network-track, we explore space laser communications for small satellites and constellations, DMT technology for LTE-5G mobile fronthaul networks, transformation algorithms for mapping (ROADM)-based physical models based on disaggregation technology, and finally cross-industry Open Cables concept for characterizing optical performance of undersea cables.

In the systems and devices tracks, start-of-the-art demonstrations are reported, including spectral design of silicon integrated Bragg gratings, high capacity transmission in a three-core fiber, a 128 GSa/s SiGe DAC enabling 1.52 Tb/s single carrier transmission, over 300-Gbps DMT modulation of directly modulated laser, a silicon photonics transceiver for mmWave-over-fiber, wide-band inline-amplified WDM transmission using optical parametric amplification, the transmission of 61 C-band channels using hollow-core-fiber, bi-directional optical wireless communications employing incoherent and low-coherence spatial modes, 200 Gb/s direct modulation of a 50 GHz class laser, ultra-broadband bismuth-doped fiber amplifier, and single-pixel imaging using silicon photonic phased array through multimode fiber.

We would like to thank the authors and reviewers whose dedicated efforts maintain the high technical standard of this journal. We would also like to thank JLT's Publication Staff, Douglas Hargis and Sonal Parikh, who produced a high-quality print volume under the tight schedule required for a special issue of this kind.

We hope that this Special Issue will serve as a useful archival reference, providing access to information presented at OFC 2020 to a broader audience than those who attended the conference. We would like to invite you to attend and participate in OFC 2021 on June 6-10 in San Francisco, CA.

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