THE world has changed dramatically since we first agreed in early 2019 to serve as Guest Editors for this issue of the JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS (JSTQE). Many of us continue to experience the impact of the global COVID-19 pandemic. Significant measures have been imposed, including various forms of shutdowns or lockdowns of different businesses, educational institutions, places of worship or social gathering, and even borders; many of these restrictions are still in place. As scientific and academic communities, we face challenges in terms of (1) ensuring that students can continue to receive high quality education, largely through remote means of instruction, and (2) advancing research, especially with reduced access to the necessary facilities or support. On the other hand, we have seen the power of online meeting and collaboration tools; indeed, many international conferences have been held successfully in virtual format, allowing many students, educators, researchers, and scientists that would not otherwise have had a chance to attend to participate and hear of the latest research results.

With all of the global challenges that we have faced, it gives us tremendous pleasure to introduce to our readers the following special issue on optical signal processing (OSP) in JSTQE. The field of OSP is very broad and multidisciplinary; from the beginning, we had the difficult task of defining the topics that would be considered. Our ultimate objective was to provide a 'snap shot' of the latest results and key findings in optical signal processing technologies and techniques, including (1) nonlinear material and devices, (2) systems applications, and (3) mathematical modeling techniques.

The special issue features 14 invited articles and 30 contributed articles; we received just over 100 submissions. The invited articles, written by leading researchers in the field, span a variety of topics and provide an excellent overview of the state-of-the-art. There are papers on optical signal processing and switching for optical communications (e.g., fractional OFDM, Nyquist pulse transmission, wavelength regeneration, probabilistic shaping for optical phase conjugation, optical frequency combs, etc.), integrated platforms for nonlinear optical signal processing, modulation, and quantum optics, and structured light beams. The contributed articles report recent advances in the same areas, including nonlinear materials (e.g., antimony thin films or 2D tellurene nanosheets), new fiber and integrated devices and/or sub-systems, and applications from neuromorphic processing to optical fiber communications to radio-over-fiber transmission.

As Guest Editors, we would like to take this opportunity to thank our authors for their efforts in preparing and submitting their high-quality papers, as well as their patience in waiting for the review process to be completed. We would also like to thank our dedicated reviewers for taking the time to provide detailed reviews and feedback to the authors to ensure the quality of the papers. We would like to acknowledge the support from Prof. José Capmany, the Editor-in-Chief of JSTQE, for providing the opportunity to coordinate and publish this issue, and the tremendous efforts from the Publication Coordinator, Chin Tan Lutz, for keeping us on track.

Most of all, we would like to thank you, the reader and member of our valued scientific community. We trust that this issue will provide you with insight and stimulate your interest and further research in the field of OSP.

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He has researched topics to do with optical signal processing in varied optical communication systems, and has a current research interests include high capacity, high spectral efficiency systems enable by photonics. He is a Technical Program Committee Co-Chair of the Conference on Lasers and Electro-Optics, Pacific Rim (CLEO/PR) in 2020 and 2022. This special issue of the JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONIC is his first as a Guest Editor.

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