

IEEE Open Journal of the Solid-State Circuits Society

CALL FOR PAPERS

Special issue on

Electronic-photonic integrated circuits (EPIC)

Combining the advantages of devices, circuits, and architectures in both electronic and photonic domains can profoundly impact both fields resulting in advances in several areas such as communications, computation, imaging, and sensing. With the rapid growth of artificial intelligence systems, video streaming, and cloud services, we are witnessing an ever-increasing demand for higher capacity and faster networks. By leveraging the CMOS-compatible silicon photonics and the advanced electronic processes, optical transceivers for next generation networks can be implemented. The co-design of the photonic devices with RF and mm-wave electronic circuits enables realization of high-speed low-power and low-cost integrated transceivers. Furthermore, the low loss of the optical medium (such as waveguides), as well as high bandwidth available in optical frequencies can be utilized to improve the performance of an existing electronic system. Low-loss optical delays and high quality factor resonators available in the photonic integrated circuits can be used to perform optically assisted electrical signal processing as well as low noise microwave signal generation and control.

Integrated electronic-photonic co-design has also enabled realization of low-cost and highly scalable optical phased arrays with applications such as solid-state LiDAR and 3D imaging.

Authors are invited to submit papers following the IEEE Open Journal of the Solid-State Circuits Society (OJ-SSCS) guidelines, within the remit of this Special Issue call.

Topics include novel advances in integrated electronic-photonic circuits and systems including but not limited to:

- Low-power high data-rate optical transceivers for data centers
- Free-space optical communication systems
- Optical phased arrays, imagers, and LiDAR systems
- Electronic-photonic sensing systems
- Integrated microwave photonic systems
- Low phase noise clocks
- Integrated photonic-electronic computing systems
- Non-silicon integrated photonic circuits

Submission Guidelines: All submitted manuscripts must

- (i) conform to OJ-SSCS' normal formatting requirements and page count limits;
- (ii) incorporate no less than 70% of new (previously unpublished) material;
- (iii) validate principal claims with experimental results;
- (iv) be submitted online at: <https://mc.manuscriptcentral.com/oj-sscs> Please note that you need to select "Electronic-photonic integrated circuits (EPIC)", when you submit a paper to this Special Issue.

Deadlines

Call open for Submissions: April 1, 2021
Paper Submission: July 1, 2021
Completion of First Review: August 15, 2021
Completion of revised manuscript: September 15, 2021
Completion of Final Review: October 15, 2021
Target Publication: November 2021

Guest Editor

Dr. Firooz Aflatouni
University of Pennsylvania, Email: firooz@seas.upenn.edu