

Call for Papers

Announcing an Issue of the IEEE
JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS on
Lidars and Photonic Radars

Submission Deadline: December 1, 2021
Hard Copy Publication: September/October 2022

The IEEE Journal of Selected Topics in Quantum Electronics (JSTQE) invites manuscript submissions in Lidars and Photonic Radars. The emerging field of Lidars and Photonic Radars has opened up new horizons for extensive transfer of state-of-the-art technologies coming from the areas of quantum electronics, lasers and electro-optics to high-precision wireless detection and sensing. Lidars have developed so fast that they are becoming the key sensors in applications including autonomous vehicles, augmented reality (AR) and virtual reality (VR), etc. Photonic radars achieve dramatically improved performance over traditional radars, enabling high resolution and fast detection in all-day and all-weather conditions. New trends of lidar and photonic radar have attracted much attention such as AI-enhanced system, lidar-radar fusion system and single-photon lidar and so on. The purpose of this issue of JSTQE is to highlight the recent progress and trends in developing leading-edge lidars and photonic radars technologies. Areas of interest include (but are not limited to):

Lidars and the key enabling technologies

- Emerging lidar techniques including time-of-flight (TOF) lidars, frequency-modulated continuous-wave (FMCW) lidars, flash lidars, Doppler lidars, differential absorption lidars, coherent lidar, multi-functional, solid-state, miniaturized and intelligent lidars etc.
- Key components for lidar system including laser sources, optical modulators, optical receivers, photodetectors, beam-steering devices etc.
- Solid-state lidar techniques including 3D flash LiDAR, scanned solid-state LiDAR, on-chip lidar, MEMs beam-steering, optical phase array etc.
- Lidar data processing techniques, high-resolution imaging, 3D real-time imaging, etc.

Photonic radars and the key enabling technologies

- Photonic radar signal generation and processing, including photonic digital-to-analog conversion, photonic analog-to-digital conversion, microwave photonic frequency multiplication and mixing, microwave phase controlling, etc.
- Optically controlled true time delay and phased array radar, photonic MIMO radar and fiber-connected radar networks
- Novel photonic radar architectures and photonic radar applications including target positioning, imaging, and DOA estimation, etc.
- Photonic integration and chip-based photonic radars

Development of novel lidar, photonic radar and new applications.

- Novel lidar including ghost lidars, single-photon lidars, super-resolution full-waveform lidars, lidars enabled by optical combs, non-scanning 3D imaging lidars etc.
- Artificial intelligence for lidar and photonic radar systems and applications
- Photonics-based lidar-radar systems for multi-sensor fusion
- Photonic cognitive radar and adaptive signal processing
- Lidars and radars applications for autonomous driving, AR/VR, etc.

The Primary Guest Editor for this issue is **Prof. Ming LI**, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China. The Guest Editors are: **Prof. Antonella Bogoni**, Scuola Superiore Sant'Anna, Pisa, Italy; **Mr. Li ZENG**, Huawei Technologies Co., China.

The deadline for submission of manuscripts is **December 1, 2021**. Hardcopy publication of the issue is scheduled for **September/October 2022**. Unedited preprints of accepted manuscripts are normally posted online on IEEE Xplore within 1 week of the final files being uploaded by the author(s) on ScholarOne Manuscripts. Posted preprints have digital object identifiers (DOIs) assigned to them and are fully citable. Once available, the preprints are replaced by final copy-edited and XML-tagged versions of manuscripts on IEEE Xplore. This usually occurs well before the hardcopy publication date. These final versions have article numbers assigned to them to accelerate the online publication; the same article numbers are used for the print versions of JSTQE.

For inquiries, please contact: IEEE Photonics Society JSTQE Editorial Office - Chin Tan Lutz (E-mail: c.tanlutz@ieee.org). The following documents located at <http://mc.manuscriptcentral.com/jstqe-pho> are required during the mandatory online submission.

1) PDF manuscript (double column format, up to 12 pages for an invited paper, up to 8 pages for a contributed paper). Manuscripts over the standard page limit will have an overlength charge of \$220.00 per page imposed. Biographies of all authors are mandatory, photographs are optional. See the Tools for Authors link: www.ieee.org/web/publications/authors/transjnl/index.html.

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