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IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on “Advances in Synthetic Aperture Ladar Systems and Imaging”

Synthetic aperture ladar(SAL) is the combination of synthetic aperture technology in microwave synthetic aperture radar (SAR) community and traditional laser coherent detection technology. SAL extends radar detection signal from microwave band to optical band, which has the advantages of high spatial resolution, strong anti-electromagnetic interference ability. Due to the operating wavelength is in the optical band, compared with other ladar systems, SAL has the characteristics of ultrahigh resolution, ranging accuracy and ultrashort synthetic aperture time. It has important application value in aircraft barriers, aircraft landing, automatic navigation, driving detection and landform monitoring, which has attracted attention of many research scholars in recent years.

In 2018, the US air force launched the ESPA-Augmented Geostationary Earth Orbit Laboratory Experiment (EAGLE). With an inverse synthetic aperture ladar, the EAGLE could obtain a high-resolution image of target. Innovative system designs, such as work mode and key devices, as well as innovative SAL concepts and experiments are needed to realize high resolution and wide swath imaging capabilities. More accurate SAL imaging model and processing algorithms need to be proposed for spaceborne/airborne/ground platform, due to the much greater bandwidth, more sensitive motion errors and faster changing system errors involved. Difficulties including sensor, modeling and processing methods need to be solved to pave a way for new operational applications.

The broad topics include (but are not limited to):

- Advanced SAL systems/mode
- Innovative SAL concepts and experiments
- Innovative SAL sensor techniques
- Multi-channel synthetic aperture ladar
- Ultra-high resolution SAL imaging
- Inverse synthetic aperture ladar imaging
- Synthetic aperture ladar interferometry
- FMCW Ladar 3D Imaging
- New application of coherent ladar

Schedule

Oct. 1, 2022: Submission system opening

Apr. 30, 2023: Submission system closing

Format

All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on <http://mc.manuscriptcentral.com/jstars>, using the Manuscript Central interface and select the “**Advances in Synthetic Aperture Ladar Systems and Imaging**” special issue manuscript type. Prospective authors should consult the site <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768> for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions. Please note that as of Jan. 1, 2020, IEEE J-STARS has become a fully open-access journal charging a flat publication fee \$1,250 per paper.

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