

IEEE AWPL Special Cluster 2021 on “Recent Advances in Antennas for Earth and Planetary Science”

Antenna systems for Earth and planetary science applications have been in the forefront of the research conducted by the Antennas and Propagation community for decades. With the ever-growing demands for the performance metrics of space missions launched worldwide in the quest for learning more about our Earth and the universe, and the limited weight, size, technological and cost budget requirements of launch vehicles to achieve these metrics, the design process of such antennas has become more and more challenging. Antenna design for Earth and planetary science has recently witnessed innovative solutions to address these challenges, from meshed reflector antennas with sophisticated deployment mechanisms to other forms of 3D printed conformal antennas to name a few. The development of low-weight, low-profile, cost-effective and robust antenna architectures without sacrificing the performance requirements has been the holy grail of the research efforts conducted in this field. In light of this, recent advances in this community have gradually evolved to include unusual types of antenna solutions, including, but not limited to, reflectarrays, metasurfaces, photovoltaic antennas and all-metal antennas for harsh environments with promising results.

The objective of this special cluster is to bring together the antenna community to present the state-of-the-art research conducted in this field and highlight the emerging antenna technologies in addressing the Earth and planetary science instrumentation. This special cluster will consider the latest advances in antennas for Earth and planetary science in, but not limited to, the following areas:

- Novel antenna architectures for small-space platforms, including CubeSats
- Novel antenna architectures for LEO Earth observation constellations and formation flying systems
- Antennas for data-downlink, remote sensing and radio-occultation systems
- Antennas for planetary exploration and science
- Antennas for harsh environments and deep space network applications
- Antennas with novel beam-synthesis techniques for Earth and planetary science
- Conformal and 3D printed antennas
- Photovoltaic antennas (antennas integrated with solar cells)
- Metasurface and leaky-wave antennas
- Semiconductor based antennas and on-chip systems and designs

The guest editors of this focused cluster are:

- | | |
|---|--|
| • Dr. Okan Yurduseven, Queen’s University Belfast, UK | okan.yurduseven@qub.ac.uk |
| • Dr. Mohsen Khalily, University of Surrey, UK | m.khalily@surrey.ac.uk |
| • Dr. Symon Podilchak, University of Edinburgh, UK | s.podilchak@ed.ac.uk |
| • Dr. Goutam Chattopadhyay, NASA Jet Propulsion Laboratory, USA | goutam.chattopadhyay@jpl.nasa.gov |
| • Prof. Ronan Sauleau, IETR, University of Rennes 1, France | ronan.sauleau@univ-rennes1.fr |
| • Dr. Nelson Fonseca, European Space Agency, the Netherlands | nelson.fonseca@esa.int |
| • Dr. Nacer Chahat, NASA Jet Propulsion Laboratory, USA | nacer.e.chahat@jpl.nasa.gov |

Prospective authors are encouraged to contact the Guest Editors for any questions or to determine the suitability of their contribution for this special cluster. Papers should be prepared following the same submission instructions as for regular IEEE AWPL manuscripts (four-pages technical content maximum and one reference page, double-column, IEEE format), available via the Information for Authors website (<http://awpl.eleceng.adelaide.edu.au/authors.htm>). The authors should indicate in the cover letter to the Editor-in-Chief that the manuscript is being submitted in response to the Call for Papers for the focused cluster. Prospective authors should refer to the timeline below for key dates. The publication charges will be at the standard rates for AWPL.

Key dates:

- Submission deadline: **March 31, 2021**
- First decision: May 15, 2021
- Revised manuscripts deadline: June 15, 2021
- Final decision: July 30, 2021
- Final manuscripts due by: September 1, 2021
- Online publication: shortly after final manuscript submission
- Cluster publication: November 2021 issue of AWPL