

## IEEE AWPL Special Cluster 2024 on “Advances in Reconfigurable Electromagnetic Devices”

Reconfigurable electromagnetic (EM) devices and antennas are critical for the success of future communication and defense systems. However, such devices often must meet strict mechanical and environmental survivability criteria, transmit at high-power levels, and operate in noisy environments all while offering reconfigurability and, more desirably, multiple functionalities. Moreover, in many applications there is competition within the available aperture for a multitude of instruments addressing various functionalities and frequency bands. Fortunately, recent developments in RF materials, additive manufacturing, optimization, and design techniques leveraged from other disciplines have led to tremendous advancements in reconfigurable EM devices.

The purpose of this special issue is to provide a forum to disseminate the latest research addressing recent advances in reconfigurable electrical, mechanical, electromechanical, and intelligent EM devices. We invite researchers to contribute original papers that describe emerging design techniques, tuning methods, optimization approaches, and machine learning techniques that advance the state-of-the-art in reconfigurable EM device design. Furthermore, the topic area extends to include the intricacies of reconfigurable devices tailored specifically for millimeter-wave applications. The editors welcome theoretical and experimental works that address the following topics:

- electrical, mechanical, and electromechanical reconfigurable EM devices;
- compliant mechanism- and origami-based devices;
- piezoelectric antennas;
- MEMs- and NEMs-based devices;
- phase change materials, ferroelectrics, graphene/2D materials;
- reconfigurable intelligent surfaces;
- liquid metal or liquid dielectric devices;
- liquid crystal based devices;
- smart materials;
- challenges in integration of reconfigurable devices into existing systems;
- specialized optimization techniques for reconfigurable systems;
- adaptive machine learning methods for reconfigurability/multifunctionality;
- real-time adaptive tuning.

The Guest Editors of this Special Cluster are:

- Dr. Sawyer D. Campbell, The Pennsylvania State University, USA [sawyer@psu.edu](mailto:sawyer@psu.edu)
- Mr. Galestan Mackertich-Sengerdy, The Pennsylvania State University, USA [gmackertich@psu.edu](mailto:gmackertich@psu.edu)
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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](#). 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.

### Key dates:

- Submission deadline: **March 31, 2024**
- First decision: May 15, 2024
- Revised manuscripts deadline: June 15, 2024
- Final decision: July 30, 2024
- Final manuscripts due by: September 1, 2024
- Online publication: Shortly after final manuscript submission
- Cluster publication: November (or December) 2024 issue of AWPL