IEEE AWPL Special Cluster 2023 on
"Recent Advances in Applications Involving Mutual Coupling"

Antenna mutual coupling occurs naturally through radiation and scattering of the electromagnetic field in their vicinity. It is sometimes neglected in array design with profound consequences, especially in recent 6G and defence applications where antennas are closely packed. On the other hand, mutual coupling has also been used to improve the performance of arrays by placing the elements closer together (e.g. the cutting-edge tightly-coupled array) or by exploiting nearby parasitics. Nowadays detailed design is possible through accurate simulation software that is available, although as always better understanding through better models provides inspiration for modern designs.

This special cluster aims to provide an international forum for antenna researchers to disseminate their latest findings on the techniques, applications and understanding of mutual coupling in antenna design. The topics are expected to cover coupling in arrays for particular applications, use of mutual coupling in single antennas such as feeds, and unintentional coupling such as in co-sited antennas. The editors especially welcome both theoretical and experimental works that cover the following topics:

- electromagnetic theory;
- antenna history;
- arrays of antennas consisting of wires, microstrip patches, waveguides or horns;
- conformal arrays;
- infinite arrays and array truncation;
- co-sited antennas on masts and other bearers such as vehicles or ships;
- MIMO antennas;
- large arrays;
- tightly coupled arrays;
- shaped beam antennas, beamforming and interferometric antennas;
- design and minimizing its effects in arrays;
- decoupling and signal processing techniques to handle mutual coupling;
- models for mutual coupling characterization;
- antenna array decoupling surface, meta-surface and metamaterials for mutual coupling suppression;
- noise performance of arrays and its minimization;
- techniques for measurement and assessment of its effects; and
- array calibration.

The Guest Editors of this Special Cluster are:

- Dr. Hoi-Shun Antony Lui, University of Technology Sydney, Australia. lui@ieee.org
- Prof. Christophe Craeye, Université Catholique de Louvain, Belgium. christophe.craeye@uclouvain.be
- Prof. Trevor Bird, University of Technology Sydney, Australia. ts.bird@ieee.org

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.

Key dates:

- Submission deadline: **March 31, 2023**
- First decision: May 15, 2023
- Revised manuscripts deadline: June 15, 2023
- Final decision: July 30, 2023
- Final manuscripts due by: September 1, 2023
- Online publication: Shortly after final manuscript submission
- Cluster publication: November 2023 issue of AWPL