

Special Issue Preface

Welcome to the special issue of the Journal of the Applied Computational Electromagnetics Society (ACES). Most of the papers included here are extended versions of ones presented at the ACES-2023 conference (Monterey, California, April 2023).

In recent years ACES has broadened its focus from “traditional” engineering electromagnetics to include optics and photonics, materials science, high performance computing, and lately machine learning and quantum computing. Papers now range from scientific theoretical and mathematical to engineering applications and device design.

The contents of this special issue mirror this trend. New computational methodologies are introduced in

“A Path Integral Representation Model to Extend the Analytical Capability of the Nonstandard Finite-Difference Time-Domain Method” (ACES-2023, paper 22727);

A Simple, Method of Moments Solution for the Integral Equations for Multiple Dielectric Bodies of Arbitrary Shape in Time Domain (ACES-2023, paper 23087);

“Nonstandard Finite Difference Time Domain Methodology to Simulate Light Propagation in Nonlinear Materials” (ACES-2023, paper 23363).

On the other hand

Parameter Sensitivity Analysis of 3D-Printed W-Band Reflector Fresnel Lens Antenna

Based on Acrylonitrile Butadiene Styrene Plastic (ACES-2023, paper 23497);

Reconfigurable multifunctional transmission metasurface polarizer integrated with PIN diodes working at an identical frequency band (ACES-2023, paper 2831)

use computational methods as a tool to design practical devices. Finally

Impact Evaluation of an External Point Source to a Generalized Model of the Human Neck (ACES-2023, paper 23499)

develops a model for medical applications.

The diversity of ACES conferences and their inclusiveness foster crosstalk between academic researchers and scientists in corporate and government laboratories, and in the broader engineering community to create an environment that incubates new ideas and collaborations.

We hope that this special issue will encourage you, the reader, to contribute your own results to future ACES conferences or publish them in the ACES journal or special issues such as this.

Prof. Yasushi Kanai, Dr. James B. Cole, and Dr. Saswatee Banerjee, editors.

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