1. Record Nr. UNINA9910736002303321

Titolo	Adventures in Contemporary Electromagnetic Theory / / edited by Tom G. Mackay, Akhlesh Lakhtakia
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-24617-9
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (548 pages)
Disciplina	929.374 530.141
Soggetti	Electronic circuits Nanoelectromechanical systems Metamaterials Electronic Circuits and Systems Nanoscale Devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- 1. Our Werner always brought us joy -- 2. Scalar potentials and applications -- 3. A novel approach to electromagnetic constitutive relations -- 4. On the anatomy of Voigt plane waves -- 5. Electromagnetic radiation by finite-sized electric and magnetic dipoles embedded in homogeneous uniaxial dielectric materials -- 6. Near-field microwave imaging employing measured point-spread functions -- 7. Electromagnetic wave propagation inside rectangular chirowaveguides using the coupled mode method -- 8. On a Steklov spectrum in electromagnetics -- 9. Using boundary conditions with the Ewald–Oseen extinction theorem -- 10. Spatial sampling and interpolation techniques in computational electromagnetics and beyond -- 11. Light-matter interaction at the sub-wavelength scale: Pathways to design nanophotonic devices -- 12. Integrated photonics with near-zero index materials -- 13. Correlated disorder in broadband dielectric multilayered reflectors -- 14. Scattering from reconfigurable metasurfaces and their applications -- 15. Specular reflection and transmission of electromagnetic waves by disordered metasurfaces --

16. Continuity of field patterns for exceptional surface waves and exceptional compound waves -- 17. Cavity modes and surface plasmon waves coupling on nanostructured surfaces for enhanced sensing and energy applications -- 18. Analysis of diffraction from all-dielectric gratings using entire-domain integralequation techniques -- 19. Rigorous coupled-wave approach and transformation optics -- 20. Mind the gap between theory and experiment -- 21. Theoretical future — Vision 2030.

Sommario/riassunto

This book describes the most recent advances in electromagnetic theory, motivated and partly informed by developments in engineering science and nanotechnology. The collection of chapters provided in this edited book, authored by leading experts in the field, offers a bird’s eye view of recent progress in electromagnetic theory, spanning a wide range of topics of current interest, ranging from fundamental issues to applications. Provides a single-source reference to recent developments in theoretical, experimental, and applied electromagnetics; Describes in each sub-discipline research trends, state-of-the-art, and the vision of a research leader for that area; Assembles in a coherent, single volume content otherwise available only in numerous, disparate research articles.