1. Record Nr. UNINA9910686782003321

Titolo	Optical to Terahertz Engineering / / edited by Arijit Saha, Arindam Biswas, Kankat Ghosh, Nilanjan Mukhopadhyay
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	981-9902-28-2
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (XII, 181 p. 115 illus., 57 illus. in color.)
Collana	Progress in Optical Science and Photonics, , 2363-510X ; ; 23
Disciplina	621.36
Soggetti	Submillimeter waves Optical materials Photonics Optical engineering Telecommunication Materials Detectors Signal processing Terahertz Optics Optical Materials Photonics and Optical Engineering Microwaves, RF Engineering and Optical Communications Sensors and biosensors Signal, Speech and Image Processing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction to terahertz imaging applications -- Design of Super-achromatic phase controlling assemblies for THz Spectro-Polarimetric imaging system using metaheuristic optimization technique -- On the Photo-Emission from Quantum Confined Heavily Doped THz Materials -- Evolution of 6G and Terahertz Communication -- Some Aspects of Novel Materials from Optical to THz Engineering -- Optical Polarization Phase Modulation with Lithium Niobate -- Application of Fiber Optics for the Protection and Control of Power Systems -- Orbital Angular Momentum of light in helically twisted hollow core photonic crystal

fiber -- Review of Various Codes and Transmitter-Receiver Architecture used in Optical Code Multiple Access System -- Error Detection and Correction of High-Resolution Remote Sensing Images Using Cyclic Code -- Segmentation of used Biodegradable and Non- Biodegradable Products of Covid 19 Patients using Thermal Image Processing.

Sommario/riassunto

This book highlights advances in the field of THz engineering along with limitations of radio frequency (RF) technology. All engineering applications have been designed to operate over a specific frequency or wavelength range in electromagnetic spectrum. In recent years, the unexplored domain of THz range of electromagnetic spectrum has paved the way for terahertz technology due to its nonionizing nature and sensitivity to water content. A wide range of applications with THz techniques such as terahertz time-domain spectroscopy (THz-TDS), biological, medical and pharmaceutical sciences, explosives inspection, information and communication technology (ICT) sector and many more, have potential to be the technology of future. Different designing aspects and evolving application areas are addressed to enrich the technical knowledge of readers. This book provides an overview of state of the art in terms of research and industrial progress in THz spectrum.