1. Record Nr. UNINA9910869155903321

Titolo	Proceedings of the 5th China and International Young Scientist Terahertz Conference, Volume 1 : YTHZ 2024, 22-24 March, Chengdu, China / / edited by Chao Chang, Yaxin Zhang, Ziran Zhao, Yiming Zhu
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2024
ISBN	9789819737864
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (303 pages)
Collana	Springer Proceedings in Physics, , 1867-4941
Disciplina	621.3813
Soggetti	Submillimeter waves Biophysics Telecommunication Optical communications Optical materials Optical spectroscopy Terahertz Optics Microwaves, RF Engineering and Optical Communications Optical Communications Optical Materials Optical Spectroscopy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Contents -- THz Sensors and Detection -- Explosives Detection by Terahertz Spectroscopy and Artificial Neural Network -- 1 Introduction -- 2 Sample Preparation -- 3 Experimental Results -- 3.1 Distinguishing Between Explosives and Non-explosives -- 3.2 Identification of Explosive Classes -- References -- High-Performance Infrared to Terahertz Detector Based on Topological Semimetal ZrTe3 -- 1 Introduction -- 2 Results and Discussions -- 3 Conclusion -- References -- Design of an 89-183GHz Cold Optical and Quasi-Optical System -- 1 Introduction -- 2 Quasi-Optical Design Principle -- 2.1 Gaussian Beam -- 2.2 Reflectors and Lenses -- 3 Quasi-Optical Design -- 4 Quasi-Optical System Simulation -- 5 Conclusion -- References

-- A Compact Graphene-Based Hot Electron Bolometer System for Terahertz Radiation Detection -- 1 Introduction -- 2 Bolometer System -- 3 Results -- 4 Conclusion -- References -- A 340 GHz Waveguide-Coupled GaN HEMT Terahertz Detector -- 1 Introduction -- 2 Structure Design of the Detector -- 2.1 General Structure -- 3 Detector Simulation and Optimization -- 3.1 Waveguide-Microstrip Transition Structure -- 3.2 DC Differential Conductance -- 3.3 Gate Control and Frequency Characteristics of the Detector Terahertz Response -- 4 Conclusion -- References -- High-Performance MAPbI3 Infrared-Terahertz Wave Detector Based on Sulfonated Graphene Oxide Modification -- 1 Introduction -- 2 Results and Discussions -- 3 Conclusion -- References -- A 195-245 GHz Direct Up-Conversion Mixer with Wideband Active Balun -- 1 Introduction -- 2 Circuits Implementation -- 2.1 Active Balun Design -- 2.2 RF and LO Matching Network -- 3 Simulation Results -- 4 Conclusion -- References -- Terahertz Narrowband Metasurface Filter Based on Electromagnetically Induced Transparency -- 1 Introduction -- 2 Structural Design -- 3 Results and Discussion.
4 Conclusion -- References -- A THz Detection Method for GFRP Delamination Based on THz Time-Domain Signal Model and Transfer Learning -- 1 Introduction -- 2 Proposed Methods -- 2.1 Terahertz Echo Signal Model -- 2.2 Deep Learning Model for Delamination Detection -- 3 Experiments -- 3.1 Experiment Settings -- 3.2 Experiment Results -- 4 Conclusion -- References -- All-Metal Nested Square Rings THz Metamaterial for Sensitive Biosensor in the Detection of Glucose -- 1 Introduction -- 2 Structure Design -- 3 Experimental Results and Discussion -- 4 Conclusion -- References -- High Circular Dichroism Terahertz Chiral Metasurfaces Enabled by Quasi-Bound States in the Continuum -- 1 Introduction -- 2 Structure Design -- 3 Results -- 4 Summary -- References -- Injection Locking Study of Terahertz Quantum Cascade Laser Frequency Combs -- 1 Introduction -- 2 Result and Discussion -- 3 Conclusion -- References -- Metasurface-Based Terahertz Biosensors -- 1 Introduction -- 2 Progress Review -- 2.1 Modulation Methods and Sensing Principles -- 2.2 Cells Monitoring and Biomolecular Recognition -- 3 Conclusion -- References -- Rapid Detection of Paclitaxel-Induced Changes in Cervical Cancer Cells Using an Ultrasensitive Biosensor -- 1 Introduction -- 2 Result and Discussion -- 2.1 Viability of Hela Cells -- 2.2 Terahertz Spectroscopy Analysis of Paclitaxel Effect on HeLa Cells -- 3 Conclusion -- References -- Permittivity-Asymmetric Quasi-Bound States in the Continuum of Localized Spoof Surface Plasmons -- 1 Introduction -- 2 Results and Discussions -- 2.1 Structure Design -- 2.2 Simulation Configuration -- 2.3 Simulation Results -- 2.4 Discussions -- 3 Conclusion -- References -- Ultra-Wide Dual-Band Fingerprint Spectral Sensing -- 1 Abstract -- 2 Results and Discussion -- 3 Conclusions -- References.
Photoresponse Characteristics of Quantum Ratchet Detectors Grown by MOCVD -- 1 Introduction -- 2 Result and Discussion -- 3 Conclusion -- References -- Recent Progress on Terahertz Biosensors -- 1 Introduction -- 2 Progress Review -- 2.1 Metasurface-Based Terahertz Biosensors -- 2.2 Multi-mode Terahertz Sensor -- 3 Conclusion -- References -- Power Detection of Solid-State Terahertz Transmitters: Terahertz Induced Thermoacoustic Signal and Its Characteristics -- 1 Introduction -- 2 Results -- 3 Summary -- References -- Enhanced Fano Metasurfaces for Tailored Spectroscopic Detection and Exploration of Planar Structure Generality -- 1 Introduction -- 2 Method -- 3 Result -- References -- Analysis of Argon Gas Plasma Density and Transmittance Characteristics

by Terahertz Time-Domain Spectroscopy -- 1 Introduction -- 2 Experimental Setup -- 3 Experimental Result -- 4 Conclusion -- References -- Terahertz Biosensing Detections Based on Metasurfaces -- 1 Introduction -- 2 Metasurface Terahertz Biosensor -- 2.1 Cancer Detection -- 2.2 Biomolecule Detection -- 3 Conclusion -- References -- Refractive Index Sensing Based on Metasurface Coupled Surface Wave -- 1 Introduction -- 2 Results and Discussions -- 3 Conclusion -- References -- Preliminary Study of Intraocular Tissues Based on Infrared-Terahertz -- 1 Introduction -- 2 THz Imaging of Human Anterior Lens Capsule Tissue -- 2.1 Sampling of Specimens from Human Anterior Lens Capsule Tissue -- 2.2 Infrared-Terahertz Imaging -- 3 THz Imaging of Human Retinal Pathological Tissue -- 3.1 Sampling of Specimens from Human Macular Precursor -- 3.2 Infrared-Terahertz Imaging -- 3.3 Sampling of Specimens from Human Macular Precursor -- 3.4 Infrared-Terahertz Imaging -- 4 Result -- 5 Discussion -- References -- Rapid Detection of Pathogenic Microorganisms by Terahertz Spectroscopy -- 1 Introduction.
1.1 Detection of Bacterial Cells via THz Spectroscopy -- 1.2 Detection of Internal Components via THz Spectroscopy -- 1.3 Detection of Nucleic Acids via THz Spectroscopy -- References -- Multi-functional High-Efficiency Terahertz Polarization Converter Based on Graphene Metasurface -- 1 Introduction -- 2 Design and Simulation Setup -- 3 Results and Discussion -- 4 Summary -- References -- Fingerprint Spectrum Recognition Based on Surface Wave Propagation -- 1 Introduction -- 2 Results and Discussions -- 3 Conlusion -- References -- Ultrasensitive Terahertz Detection via Different Novel Metasurfaces -- 1 Electromagnetism-Induced Transparency (EIT) Based Metasensors -- 2 Quasi-BIC-Based Metasensors -- 3 Fano-Resonance-Based Metasensors -- 4 Toroidal-Resonance-Based Metasensors -- 5 Conclusion -- References -- Detection of Sepsis Inflammatory Factors Based on the Terahertz-Metasurface Biosensor -- 1 Introduction -- 2 Materials and Methods -- 2.1 Metasurface Framework -- 2.2 Detection Procedures -- 3 Results and Discussion -- 4 Conclusion -- References -- Research on Infrared and Terahertz Spectral Characterization Systems -- 1 Introduction -- 2 Overview of Infrared Spectral Characterization Systems -- 2.1 Nonlinear Crystal Tuning Spectral Characterization System -- 2.2 Broadband Supercontinuum Radiation Spectral Characterization System -- 2.3 Quantum Cascade Spectral Characterization System -- 3 Overview of Terahertz Spectral Characterization Systems -- 3.1 Fiber Type Terahertz Time-Domain Spectral Characterization System -- 3.2 Free Space Terahertz Time-Domain Spectral Characterization System -- 4 Conclusion -- References -- A Method to Improve the Detection Capability of Millimeter-Wave/Terahertz-Wave Personnel Security Screening Systems -- 1 Technical Background and Challenge -- 2 Method -- 2.1 Concept -- 2.2 Experimental Result.
3 Artifact Analysis -- 4 Application and Prospect -- References -- Terahertz Anapole-Mode Metasurface for Highly Sensitive Refractive Index Sensing -- 1 Introduction -- 2 Results and Discussion -- 2.1 Structure and Resonance -- 2.2 Anapole Mode Analysis -- 2.3 Sensing Performance -- 3 Conclusion -- References -- Realization of Quasi-Optical Output and Beam Deflection Based on Bifunctional Metasurface -- 1 Introduction -- 2 The Design of the Unit Cell -- 3 System Design and Simulation Results Analysis -- 4 Conclusions -- References -- Study of a Double-Open-Ring Terahertz Metamaterial Sensor -- 1 Introduction -- 2 Design and Simulation -- 3 Result and Discussion -- 3.1 Mechanistic Analysis -- 3.2 Performance Analysis -- 4 Conclusion -- References -- The Transmission Characteristics of Micrometer-Scale

Materials in the Terahertz Frequency Range -- 1 Introduction -- 2 Experiment Setup -- 2.1 Sample Preparation -- 2.2 Terahertz Systems -- 2.3 Data Processing Steps -- 3 Result and Analysis -- 4 Conclusion -- References -- Design of an Ultra-wide Band Rectangular Microstrip Patch Antenna for Early Breast Cancer Detection -- 1 Introduction -- 2 Methods and Models -- 2.1 Antenna Design -- 2.2 Breast Phantom Model Design -- 3 Results and Discussion -- 3.1 Analysis of Antenna Parameters in Free Space -- 3.2 Analysis of Antenna Parameters in the Breast Phantom Model -- 4 Conclusion -- References -- THz Bioeffect and Biophysics -- High-Frequency Terahertz Waves Regulate the Dynamics of Mitochondrial Network in Human Pluripotent Stem Cells, Induced Neuron Stem Cells and Motor Neurons -- 1 Introduction -- 2 Results and Discussion -- 2.1 Effects of High Frequency Terahertz Waves on Mitochondrial Fusion and Fission Factors -- 2.2 Effect of High Frequency Terahertz Wave on OXPHOS Content -- 3 Methods -- References.
Effect About Different External Terahertz Field on Permeability of Sodium Channel.

Sommario/riassunto

The Proceedings of the 5th China and International Young Scientist Terahertz Conference highlight important research and technological progresses on terahertz sensors, terahertz detection, terahertz biophysics and bioeffects, terahertz signal sources, terahertz transmission and regulation, terahertz device and materials, terahertz communication, terahertz radar and imaging, and the intersection and application of terahertz-related disciplines.