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for Advancing the Medical Diagnosis -- Micro-Sized Graphene-based UWB Annular Ring Patch Antenna for Short-Range High-Speed Terahertz Wireless Systems -- Surrogate Optimization Assisted Dual Band THz Inverted F Coplanar Graphene Antenna -- Recent Advances in Graphene Oxide- Ferrite Hybrid Framework as Radar Absorbing Material -- Graphene-Based THz Antenna: Rudiments, Fabrication, and Forthcoming Opportunity -- Design of Monopole Ground Graphene Disc Inserted THz Antenna for Future Wireless Systems -- Graphene Based D-shaped Gold Coated Photonic Crystal Fiber for Transformer Oil Moisture Sensing -- Recent Advances in Graphene Based Adsorbents for Fluoride Removal from Groundwater -- Design and Analysis of Fractal-based THz Antenna with Co-axial Feeding Technique for Wireless Applications -- Application of Graphene, its Derivatives, and their Nanocomposites. .

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### Sommario/riassunto

There are growing advantages to the use of graphene-based nanophotonics in communication, sensing, security, safety, spectroscopy, manufacturing, biomedicine, agriculture, imaging, and other fields. These advantages, as well as the numerous challenges associated with this technology and proposed solutions to these challenges, are summarized in this book. The key objective of the book is to serve as a single-source reference for the rapidly expanding application aspects of the technology of graphene-based nanophotonics, as well as the number of modules required for their successful implementation. This book seeks to give readers a comprehensive understanding of several elements of graphene-based nanophotonics, such as emerging application areas, the design and modelling of sensors, absorbers, optical fiber, encoders, etc. A complete view of the progress and breakthroughs in novel materials for sensing, detecting and encoding technology is presented. The book also emphasizes the consequences of THz signals on human health, as well as the environmental components of THz. This book will be of tremendous value for those with an interest in electronic engineering, particularly those keeping an eye on this emerging technology.

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