

1. Record Nr.	UNINA9910484418103321
Autore	Wang Shiyu
Titolo	Graphene field-effect transistor biosensors / / Shiyu Wang [and three others]
Pubbl/distr/stampa	Singapore : , : Springer, , [2021] ©2021
ISBN	981-16-1212-9
Descrizione fisica	1 online resource (xiii, 117 pages) : illustrations
Disciplina	610.28
Soggetti	Biosensors Graphene
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Acknowledgments -- Contents -- 1 Fundamental of Graphene -- 1.1 Graphene Conductive Ink -- 1.2 Graphene Supercapacitor -- 1.3 Microbial Fuel Cells -- 1.4 Graphene Flexible Sensing -- 1.5 Graphene Nanogenerator -- 1.6 Thermal Applications -- 1.7 Biomedical Applications -- 1.7.1 Drug Delivery -- 1.7.2 Cell Imaging -- 1.7.3 DNA Sequencing -- 1.7.4 Tumor Therapy -- 1.7.5 Biological Detection -- 1.7.6 Graphene Biosafety Research -- References -- 2 Graphene Electrical Characteristics -- 2.1 Room Temperature Electrical Characteristics -- 2.2 Low-Temperature Electrical Characteristics -- 2.2.1 Magic Angle Graphene -- 2.2.2 Moire Pattern -- References -- 3 Graphene Manufacture -- 3.1 Mechanical Exfoliation Method -- 3.2 Chemical Vapor Deposition -- 3.2.1 Pretreatment -- 3.2.2 CVD Graphene -- 3.2.3 Transferring -- 3.3 Epitaxial Growth -- 3.3.1 Epitaxial Graphene Preparation -- 3.3.2 Graphene Characterization -- 3.4 Other Methods -- 3.4.1 Directly Synthesis on SiO <sub>2</sub> -- 3.4.2 Reduced Graphene Oxide (R-GO) -- References -- 4 Graphene Field-Effect Transistor Biosensor -- 4.1 Electrical Double Layer -- 4.1.1 Stern Model (1924) -- 4.1.2 BDM Model (1963) -- 4.2 Debye Length -- 4.3 Graphene Field-Effect Transistor -- 4.4 Graphene Field-Effect Transistor Biosensors -- 4.5 Mechanism of the Graphene Field-Effect Transistor Biosensors -- 4.6 Biological Applications -- References -- 5 Graphene FET Biosensor Based

on the Avidin-Biotin Technology -- 5.1 Background -- 5.2 Biotinylated Biomolecules Detection -- 5.2.1 Device Fabrication -- 5.2.2 Graphene Modification -- 5.2.3 Quantitative Detection -- 5.2.4 Specificity of the Sensor -- 5.2.5 Exogenous Biotin Interferences -- 5.2.6 Comparative Sensitivity and Practical Applicability -- References -- 6 Graphene FET Biosensor Based on the Antigen-Antibody Interaction -- 6.1 Tumor Marker.  
6.2 Other Biomarkers -- References -- 7 Graphene FET Biosensor Based on the Base Pair -- 7.1 COVID-19 Detection -- References -- 8 Graphene FET Biosensor Based on the Aptamer Technology -- References -- 9 Graphene FET Biosensor Based on the Concanavalin A -- 9.1 Adsorption -- 9.2 Dissociation -- References -- 10 Challenges and Outlook -- 10.1 Standardization of Transfer and Modification -- 10.2 Signal Interference -- 10.3 Outlook -- References -- 11 Conclusions and Future Works -- 11.1 Conclusions -- 11.2 Future Works -- Index.

---