

## Graphene–Metal Oxide Composites

### Synthesis, Properties, and Applications

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### Synopsis

Combining graphene with metal oxides offers new opportunities in areas such as biomedicine, renewable energy, and optoelectronics. This book discusses various approaches to the synthesis, processing, and characterisation of graphene–metal composites. Several chapters address the individual properties of composites while others focus on specific applications. Written with engineers and industrial researchers in mind, academic researchers will also benefit from this concise and contemporary resource.

### Brief Contents

- Concepts and Recent Advancements of Graphene-based Metal Oxide Composites
- Graphene–Metal Oxide Composites: Structure, Properties and Applications
- Conventional Approaches to Synthesis and Deposition
- Graphene and Its Derivatives: Synthesis, Properties, and Applications
- Physical and Chemical Properties of Polymer Composites
- Magnetic Properties of Graphene-based Composites
- Effect of Rare-earth Impurities on the Structural, Dielectric and Electrical Properties
- Synthesis and Application of Graphene-based Composites
- Electrical and Chemical Properties of Polymer Percolative Composites
- Poly(Vinylidene Fluoride) Composites for Dielectric Applications
- Potential Candidates for Electronic and Optoelectronics
- Fabrication for Electromagnetic Shielding and Supercapacitor Applications
- Graphene/Transition Metal Oxide Nanocomposites for Oxygen Reduction Reaction
- Graphene–Metal Oxide Composite Electrode Materials for LIBs and SIBs
- Energy Storage Applications of Graphene–Metal Oxide Composites
- Graphene–Metal Oxide Composite Materials for Biomedical Applications
- Graphene–Metal Oxide-based Hybrid Materials for Fuel Cell Applications
- Application of Graphene–Metal Oxide Composites in Solar Cells
- Graphene–Metal Oxide Composite-based LEDs and Lasers
- Composites as Novel Adsorbents for Removal of Heavy Metals
- Composites for Electrochemical Energy Storage and CO<sub>2</sub> Siting

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Lights. Camera. How do real world discoveries affect what we see on screen? What impact does the world of film have on how we view chemistry? Are chemists the villains or the heroes? From Transylvania and Chernobyl to generic geniuses and meth makers, explore the fascinating world of the big and small screen through a chemist's eye as cinema and television are passed under the microscope. From the earliest silent films through to modern, multi-episode television, discover the real-life chemistry that inspired your favourite shows. Learn how depictions of chemists have changed through the years. Are chemists always pictured as relentless in their quest, are the dangers and risks accurately represented and did the image of chemistry teachers change after the portrayal of a teacher turned illicit drug supplier? Uncover the facts and fiction around these questions and many more with

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Chemical modelling covers a wide range of disciplines, and this book is the first stop for any chemist, materials scientist, biochemist, or molecular physicist wishing to acquaint themselves with major developments in the applications and theory of chemical modelling. Containing both comprehensive and critical reviews, it is a convenient reference to the current literature. Coverage includes, but is not limited to, adiabatic connection formalism in DFT, excited states in porous framework materials, proton-coupled electron transfer as a challenge for quantum chemical methods, modelling



