DESCRIPTION

Due to its unique properties, graphene oxide has become one of the most studied materials of the last decade and a great variety of applications have been reported in areas such as sensors, catalysis and biomedical applications.

This comprehensive volume systematically describes the fundamental aspects and applications of graphene oxide. The book is designed as an introduction to the topic, so each chapter begins with a discussion on fundamental concepts, then proceeds to review and summarize recent advances in the field. Divided into two parts, the first part covers fundamental aspects of graphene oxide and includes chapters on formation and chemical structure, characterization methods, reduction methods, rheology and optical properties of graphene oxide solutions. Part Two covers numerous graphene oxide applications including field effect transistors, transparent conductive films, sensors, energy harvesting and storage, membranes, composite materials, catalysis and biomedical applications. In each case the differences and advantages of graphene oxide over its non-oxidised counterpart are discussed. The book concludes with a chapter on the challenges of industrial-scale graphene oxide production.

*Graphene Oxide: Fundamentals and Applications* is a valuable reference for academic researchers, and industry scientists interested in graphene oxide, graphene and other carbon materials.
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Since 2009, Dr Dimiev has been working very closely with graphene oxide and other graphitic carbon nanomaterials. He spent five years at Rice University studying fundamental aspects of graphene oxide, resulting in several ground-breaking papers in highly ranked journals including Nature and Science, followed by a period at AZ Electronic Materials where he worked on optimizing mass production of graphene oxide, and on developing novel graphene oxide applications. Dr Dimiev currently works at EMD Performance Materials, a business of Merck KGaA, in Darmstadt, Germany.

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Dr Eigler received his PhD in organic chemistry from the Friedrich-Alexander-Universität Erlangen-Nürnberg in 2006 under the guidance of apl. Prof. Dr. Norbert Jux. Subsequently he conducted basic research on electrically conductive polymers and graphene oxide as an industry chemist. In 2011 he became a lecturer and research associate at the Friedrich-Alexander-Universität Erlangen-Nürnberg, where he did habilitation and in 2016 he became Associate Professor at the Chalmers University of Technology. His research focuses on the controlled chemistry of graphene.

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