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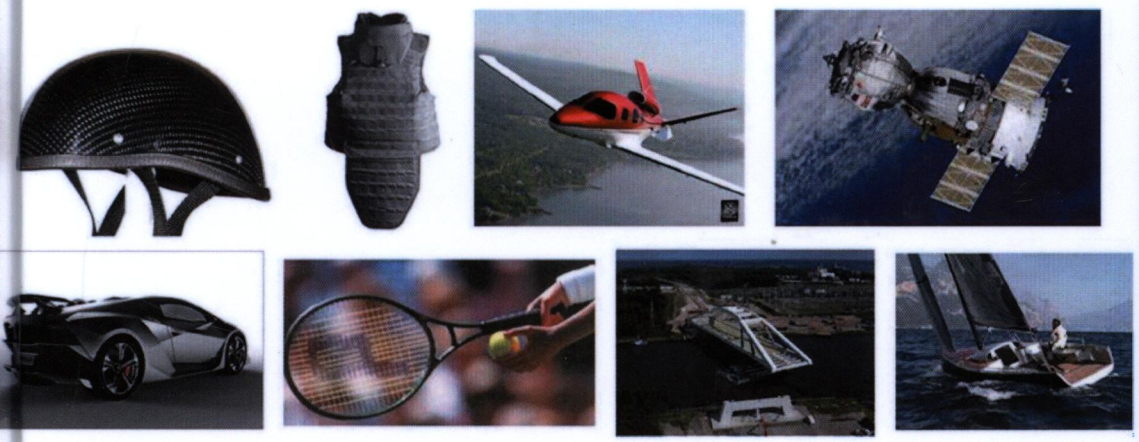
Ehsan Bafekrpour (Ed.)

ADVANCED COMPOSITE MATERIALS: PROPERTIES AND APPLICATIONS



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This book aims to develop a genuine understanding of advanced composite materials, their fabrication methods, properties and applications. This book presents composite materials with a wide range of natural and synthetic reinforcing constituents at nano and macro scales, and variety of matrix materials. Moreover, it comprehensively discusses composite manufacturing methods, their mechanical, electrical, and thermal properties as well as their cutting edge applications. The book is designed to provide both basic and advanced information about the composite materials and their related topics so that suits audiences interested in the composite materials with any background and level of knowledge. It is also perfect for university lecturers, undergraduate and postgraduate students in the field of engineering, researchers and scientists of industry and academia. The chapters are written by worldwide-recognized scientists and leaders in the field of composite materials with a proven record of high quality publications in highly respected scientific journals.

Dr. Ehsan Bafekrpour,
the editor of the book, has a B.Sc. and à M.Sc. in Mechanical Engineering-Solid Mechanics and a Ph.D. in Composite Materials from Deakin University. He is a high-profile scientist in the field of composite materials, an international prize winner, and author of numerous journal papers published by Nature, Scopus and Elsevier.

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Advanced Composite Materials: Properties and Applications

Preface

Composite materials are a major growth area within advanced materials and the range of applications for such products continues to grow and increase in diversity with every new development. Composite products are highly in demand and reached sales of $21.2 billion globally in 2014. The top three market segments in 2014 were transportation, construction, pipes, and tanks. Other segments include energy, automotive, and aerospace.

This has, therefore, appeared to me as a favourable opportunity to gather together a comprehensive edited collection to explain the recent advances in composite materials. This state-of-the-art book has been written by high-profile authors who have extensive experience and knowledge in the field of composite materials. The chapters in this collection would be useful for a wide range of audience: undergraduate and post-graduate students students, industrial professionals, materials scientists and researchers, and composite manufacturers. This book provides the reader with a wide range of information in the interdisciplinary subject area of composite materials.

The book consists of thirteen chapters. It deals with two types of nanocomposites: graphene and carbon nanotube reinforced nanocomposites, their manufacturing, properties and applications. It also presents fibre reinforced composites and a comprehensive review of bio-composites. Furthurmore, it has a focus on thermal, mechanical and electrical properties of advanced composite materials.

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