Preface

Tailored functional materials have grown enormously in recent years due to their wide-ranging applications in both science and engineering. This new volume presents tailoring and characterization of modern materials with functional applications and clean technologies in different sectors.

It covers new topics in nanotechnology, nanoscience, biopolymers, energy, carbon nanotubes, solid materials, biomaterials, biomedical, and healthcare for green environment.

This unique research-oriented volume can be used as a reference book in science and applications of tailored functional materials in an inclusive manner for postgraduate students in materials science and chemical engineering.

The book is divided into four main parts:

In the first part, we explain why the unique features of tailored nanomaterials make them an ideal candidate for applications in biosensors technology, pathogenic microbe detection, and modification of polyester-based polymers.

In the second part of this book, the chapters summarize polymer functionalities and their applications in medical science and engineering.

The third part is devoted to understanding tailored custom-designed solids along with computational chemistry within the scope of the book showing how fast growth in solid materials can influence different engineering sectors.

By covering case studies in materials science, the fourth part of this volume explains how tailored materials can be prepared and utilized as application-oriented composites.

The last part of this new title provides comprehensive studies on major innovations in tailored energy materials, which focuses on their technocommercial applications.