# Preface

Nanotechnology is now ubiquitous and deeply embedded in our day-to-day lives. Unknowingly, it has weaved seamlessly into various applications, making it impossible to look passed its importance. This volume is a compendium of review as well as research articles, providing a wide spectrum of bottom-up fabrication approaches and their utilization on multiple fronts. This volume will be valuable to scientists, academicians, engineers and students who are keen to discover the advances in nanotechnology for favorable materials construction techniques and applications in relation to human health, environment and engineering.

The first three papers of this volume comprise review articles. Two of them discuss comprehensively on using nanomaterials as drug carriers and drug sensors. The magnetism of nanomaterials enhances the drug delivery efficacy by improving the target of drug to specific areas. Meanwhile, carbonaceous materials such as graphene and carbon nanotubes have been widely used to modify electrodes due to their excellent electron mobility. Energy storage is another noteworthy area of research in the face of depleting oil and gas. The review paper on the behavior of nanocomposite polymer electrolytes upon complexation with lithium ions provides an insight of their significant contribution in lithium ion batteries.

The subsequent four papers relate to photocatalytic degradation of sacrificial reagents. Metals oxides have been employed to oxidize and mineralize these harmful molecules to harmless components. A combination of metal oxides has shown to increase the efficiency of photodegradation, leading to improved kinetic rates of disintegration of pollutants. Doping of semiconductors with foreign elements shifts the photocatalytic activity from the ultraviolet to visible range and reduces the electron-hole recombination, as manifested in the paper that reports on hybridizing zinc with cadmium selenide using a facile method, which results in a narrow distribution of nanomaterials.

This volume also unveils some up-and-coming research on dielectric relaxation, nanofluids, non-volatile memory, polymer electrolyte membrane fuel cells, and solvatochromism and electroabsorption studies of drug carriers. These papers are evidence of the importance of interdisciplinary among the branches of science.

Last but not least, we would like to express our thanks and gratitude to the authors for their generous contributions of knowledge in nanoscience, consequently materializing this volume for the benefits of interested parties in nanomaterials synthesis, processing and applications. The editors are grateful to contributors for manuscripts and regret if any copyright is being infringed unknowingly. We acknowledge the sincere efforts of Mr. Thomas Wohlbier, TTP publishing authority, for bringing the Special Topic Volume in its final shape.

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