Preface

The growing demand for nanoscale structures and devices in the biomedical field presents significant career opportunities for future generations. Various novel materials and technologies have been developed in recent years. There, however, lacks a comprehensive book to systematically address this broad spectrum of new science and technologies. This volume is intended to provide an introduction to nanoscale devices for biological and biomedical applications. Sixteen chapters are included in this volume experts in the field of the nanobiotechnology have contributed to this work.

The volume is divided into three parts. The first part, *Synthetic Nanodevices for Biotechnology and Biomedicine*; covers the fabrication and characterization techniques of representative nanoscale structures such as carbon nanotubes, micro/nanospheres and particles, nanopores and nanochannels, and macro or microscale structures containing two-dimensional and three-dimensional nanoscale features made of polymers, silicon and other materials. The applications of these nanostructures and devices for biosensing, drug delivery and bioseparation are also introduced. The second part, *Hybrid Synthetic and Biomolecular Nanodevices*; focuses on the synthesis, interface structures, and medical applications of nanodevices made of biomolecule-polymer and biomolecule-inorganics hybrids. Finally, the third part, *Computation, Simulation, and Informatics for Bionanodevices*, provides nanoscale fluid and solid phase computation methodologies for selected biomedical applications.

We would like to thank all authors who devoted a great deal of time to make this volume possible. We hope the collected efforts from these distinguished professionals will present you a cohesive and balanced path into the intellectually exciting and fast evolving nanobiotechnology field.

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