

Preface

Molecular biomimetics is an emerging active field and important frontier with interdisciplinary subjects of chemistry, physics, molecular biology, and nanotechnology. Taking lessons from biology, molecular biomimetic is the attempt to construct new highly ordered supramolecular structures through artificial molecule design and assembly at molecular level, which mimic the structures and functions of a unit or organ in biological systems. It is based on the fact that many biomolecules or bioactive molecules like polysaccharides, lipid, peptide, proteins, and dendrimers can self-assemble into well-defined structures and further to a supramolecular architecture while combining with other organic, inorganic, or metal oxide compounds. The molecular biomimetic approach opens up new avenues for the design and utilization of multifunctional molecular systems with a wide range of applications in nanotechnology and biotechnology.

In this book, we present recent achievements in biomimetic systems based on supramolecular chemistry and their potential applications in the biomedical field. These include biomimetic membranes, biomacromolecules supramolecular chemistry, hierarchical organic/inorganic hybrid systems, and molecular assembly of motor proteins. We will show our readers the exciting challenges in this unique research area and we hope to convince them of many new research opportunities.

I fell honored to edit this book. I would like to sincerely acknowledge every contributors who have accepted my invitation and taken much time to write the chapters. Dr. Yi Jia has spent a lot of time to organize every chapters and revise the entire book Figures and Tables. She shall be also deeply acknowledged. I am also grateful to all help from the surrounding students.

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