

Molecular Engineering Approaches to Highly Structured Materials

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Abstract— Design and synthesis of novel supramolecular architectures is an interesting area of research in the last two decades. Intermolecular interactions assisted self-assembly of molecular and macromolecular building blocks play an important role in obtaining the desired shape and function of the supramolecular architectures. A combination of the classical covalent synthesis with the self-assembly assisted formation of well-defined architectures (noncovalent synthesis) allows us to develop novel multifunctional materials. Our approach in this area is focused on the design of novel molecular and biomolecular building blocks and the optimization of structure-property relationship of the materials using self-assembly approach. This presentation will focus on our recent efforts on the design and synthesis of polymers and oligopeptides for investigation of the self-assembly and fine-tuning the structure-property relationship. Also, some highlights will be given on our initial investigation on how hard minerals are synthesized by natural molecules through the self-assembly processes.

[Full Text Not Available]