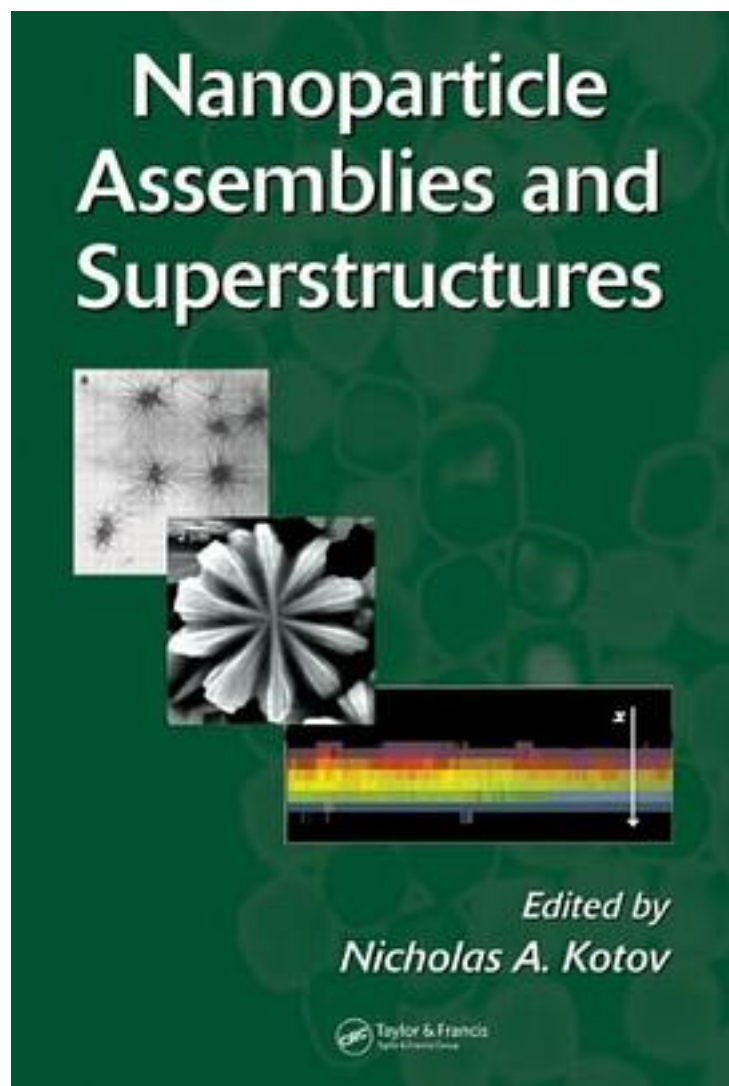


Nanoparticle Assemblies and Superstructures



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Cubes, triangular prisms, nano-acorn, nano-centipedes, nanoshells, nano-whiskers...Now that we can create nanoparticles in a wide variety of shapes and morphologies, comes the next challenge: finding ways to organize this collection of particles into larger and more complex systems. Nanoparticle Assemblies and Superstructures, edited by pioneer of nanoparticle self-organization Nicholas A. Kotov, employs three critical questions to provide a framework of open-ended inquiry: What are the methods of organization of nanocolloids in more complex structures? What kind of structures do we need? What are the new properties appearing in nanocolloid superstructures? Pulling together a collection of contributors unmatched in both their expertise and enthusiasm, Kotov presents what he refers to as a snapshot of nanoassembly work in progress. The first section of this comprehensive volume provides background through an assessment of the current status of nanoparticle assembly development and the requirements for different applications of organized nanomaterials. The middle chapters explore the changes that occur in various properties of individual particles when they are brought together to form agglomerates and simple assemblies. In the final section, a number of top scientists describe various methods for organizing particles in complex nanostructured superstructures. These include techniques involving biological ligands and force fields, as well as methods based on self-organization. This remarkably prescient text upholds Kotov's belief that the research on organization of nanoparticles and other nanostructures, will most certainly uncover a wealth of "interesting discoveries and surprising phenomena." Nicholas A. Kotov has received several state, national, and international awards for his research on nanomaterials, including the Mendelev Stipend, the Humboldt Fellowship, and the CAREER award.

作者介绍:

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