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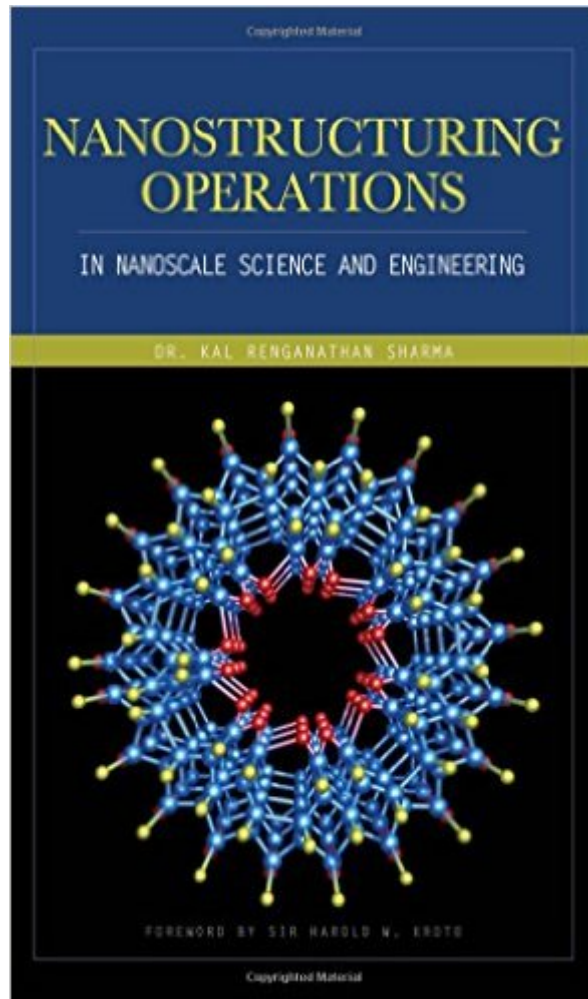
Nanostructuring Operations In Nanoscale Science And Engineering

Synopsis

State-of-the-art nanostructuring principles, methods, and aplicationsSynthesize, characterize, and deploy highly miniaturized components using the theories and techniques contained in this comprehensive resource. Written by a nanotechnology expert, this authoritative volume covers the latest advances along with detailed schematics and real-world applications in engineering and the life sciences. Inside, 37 different nanostructuring methods and 16 different kinds of nanostructures are discussed.Nanostructuring Operations in Nanoscale Science and Engineering explains how to manufacture high-purity fullerenes, assemble carbon nanotubes, and use nanofluids and nanowires. You will also learn how to develop high-performance biochips, work with biomimetics, and design molecular machines. The book includes 540 end-of-chapter review questions to reinforce the material covered.Learn how to:Produce fullerenes using metallurgic, solar, and electric arc methodsUse arc discharge, laser ablation, CVD, and HIPCO to create CNTsBuild nanostructures with vacuum synthesis, gas evaporation, and lithographyWork with quantum dots, polymer thin films, nanofluids, and nanoceramicsDevelop biochips, biological nanovalves, and molecular machinesMimic biological characteristics and organic self-repair using biomimeticsModel nanoscale effects with relativistic and Laplace transformsCharacterize nanoscale material using x-ray and helium ion microscope

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