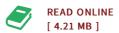




Design of Nanostructures

By Bohidar, Himadri B. / Rawat, Kamla

Condition: New. Publisher/Verlag: Wiley-VCH | Self-Assembly of Nanomaterials | Adopting a unique approach, this book provides a thorough, one-stop introduction to nanoscience and self-assembly of nanomaterials composed of such materials as metals, metal oxides, metal sulphides, polymers, and biopolymers. Clearly divided into three sections covering the main aspects of nanoscience, the first part deals with the basic principles of nanoscale science. Alongside essential approaches and forces, this section also covers thermodynamics, phase transitions, and applications to biological systems. The second and third parts then go on to provide a detailed description of the synthesis of inorganic and organic nanoparticles, respectively. With its interdisciplinary content of importance to many different branches of nanoscience, this is essential reading for material scientists, physicists, biophysical chemists, chemical engineers, and biotechnologists alike. | PART I: NANOSCALE SCIENCEINTRODUCTIONESSENTIAL APPROACHES AND FORCESTop-down ApproachBottom-up ApproachAggregation of NanoparticlesSmoluchowski Aggregation KineticsDLVO TheoryLennard-Jones Potential Hydrogen Bonding Hydrophobic Interactions Steric Forces THERMODYNAMICS OF NANO SYSTEMSThermodynamics at NanoscaleLaws of ThermodynamicsConcept of EntropyGibbs EquationThermodynamic PropertiesPHASE TRANSITIONS AND STABILITY AT NANOSCALEGeneralized ObservationsFormation of Metastable PhasesStability of Small ObjectsChemical Reactions in NanosystemsINTERACTIONS WITH BIOMOLECULES AND APPLICATIONS TO BIOLOGYQuantum Dot-Protein InteractionNanoclay-Protein InteractionDNAnanoclay InteractionSize dependent effect on enzymatic activityApplications to BiologyPART II: BOTTOM-UP ASSEMBLY OF INORGANIC NANOPARTICLESMETAL NANOPARTICLESGOID NanoparticlesSilver NanoparticlesPalladium NanoparticlesPlatinum NanoparticlesSamarium NanoparticlesCopper NanoparticlesCobalt...



Reviews

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