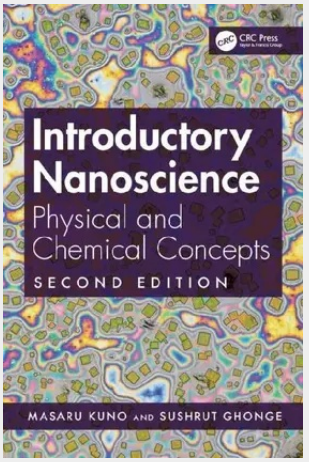
Kuno / Ghonge

Introductory Nanoscience

Physical and Chemical Concepts



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This comprehensive new edition provides a pedagogical introduction to what makes nanoscience unique, featuring quantitative descriptions of key concepts and solved examples throughout. The textbook demonstrates how understanding scale-dependent property changes allows us to predict the behavior and functionality of nanomaterials. Introductory Nanoscience, Physical and Chemical Concepts, Second Edition asks key questions about the quantitative concepts that make up this new field. How are the optical and electrical properties of nanomaterials dependent upon size, shape, and morphology? How do we construct nanometer-sized objects? The authors rationalize simplifications often made by researchers analyzing their data. Updated throughout with new examples and current applications, fundamental concepts are reinforced through end-of-chapter problems and further readings. A new chapter on electricity and magnetism has also been included, and it covers the fundamentals of how nanomaterials respond to electric and magnetic fields, and provides the basis of shape-dependent optical properties of nanomaterials. Designed for upper-level undergraduate and graduate students, users will appreciate complete derivations of relevant equations, simplified assumptions for practical calculations, listed references, and a historical overview about the development of colloidal quantum dots. A solutions manual is available for adopting professors.

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