1. Record Nr. UNINA9910823862103321 Autore Tu K. N (King-Ning), <1937-> Titolo Kinetics in nanoscale materials / / King-Ning Tu, Andriy Gusak Hoboken, New Jersey:,: Wiley,, 2014 Pubbl/distr/stampa ©2014 **ISBN** 1-118-74283-4 1-118-74314-8 1-118-74287-7 Edizione [2nd ed.] Descrizione fisica 1 online resource (308 p.) TEC021000 Classificazione Disciplina 620.1/1599 Soggetti Nanostructured materials Chemical kinetics Nanostructured materials - Analysis Nanostructured materials - Computer simulation Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali "Published simultaneously in Canada"--Title page verso. Nota di bibliografia Includes bibliographical references at the end of each chapters and index. Nota di contenuto Chapter 1. Introduction to kinetics in nanoscale materials -- 1.1 Introduction -- 1.2 Nanosphere: Surface energy equivalent to the Gibbs-Thomson potential -- 1.3 Nanosphere: Lower melting point --1.4 Nanosphere: Effect on homogeneous nucleation and phase diagram -- 1.5 Nanosphere: The Kirkendall effect and instability of hollow nanospheres -- 1.6 Nanosphere: The inverse Kirkendall effect in hollow alloy nanospheres -- 1.7 Nanosphere: Combining the Kirkendall effect and inverse Kirkendall effect on concentric bi-layer hollow nanospheres -- 1.8 Nanopore: Instability of a nanodonut hole in a membrane -- 1.9 Nanowire: Point contact reactions between metal and silicon nanowires -- 1.10 Nanowire: Nano gap in silicon nanowires -- 1.11 Nanowire: Lithiation in silicon nanowires -- 1.12 Nanowire: Point contact reactions between metallic nanowires -- 1.13 Nano-thin film: Explosive reaction in periodic multi-layered nano-thin films -- 1.14 Nanomicrostructure in bulk sample: Nanotwins in Cu -- 1.15 Nanomicrostructure on the surface of a bulk sample : surface mechanical

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Sommario/riassunto

"As the ability to produce nanomaterials advances, it becomes more important to understand how the energy of the atoms in these materials is affected by their reduced dimensions. Written by an acclaimed author team, Kinetics in Nanoscale Materials is the first book to discuss simple but effective models of the systems and processes that have recently been discovered. The text, for researchers and graduate students, combines the novelty of nanoscale processes and systems with the transparency of mathematical models and generality of basic ideas relating to nanoscience and nanotechnology"--