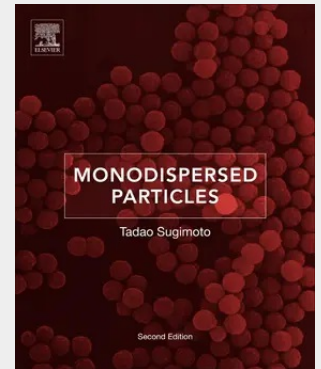


Monodispersed Particles

Monodispersed Particles, Second Edition, covers all aspects of monodispersed particles, including inorganic and polymer particles and their composites. The book consists of four parts: fundamentals, preparation, analyses, and applications. Specifically, the fundamental part covers the theoretical insight into the surface energy of particles and its application to the formulation of the new theories of nucleation, growth and habit formation of monodispersed particles. In addition, the theories of recrystallization and solid-solution formation are introduced. These fundamental theories are applied to the precise control of their size, size distribution, shape, internal structure, and composition, leading to the design of diverse monodispersed functional particles widely used in basic science and modern industry. This second edition is fully updated and revised, detailing new theories and recent progress in the field of nanoparticles, including advanced nucleation theory, arrested growth mechanism for monodispersed nanoparticles, and energetics of habit formation. Additionally, the text covers in-depth insights into the anisotropic growth of Au and Ag nanoparticles, the formation mechanisms of polycrystalline Au spheres, iron oxide nanoparticles in heat-up and hot-injection processes, amorphous TiO₂ spheres in a sol-gel system, anatase TiO₂ in a gel-sol system and their shape control, AgCl nanoparticles in a reverse micelle system, organic-inorganic hybrid liquid crystals, and extensive biomedical applications.



283,50 €

264,95 € (zzgl. MwSt.)

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Artikelnummer: 9780444627490

Medium: Buch

ISBN: 978-0-444-62749-0

Verlag: Elsevier Science & Technology

Erscheinungstermin: 01.05.2015

Sprache(n): Englisch

Auflage: 2 ed

Produktform: Gebunden

Gewicht: 1890 g

Seiten: 850

Format (B x H): 150 x 210 mm

