Nanocrystalline materials : their synthesis-structure-property relationships and applications / edited by Sie-Chin Tjong

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Abstrak

This second edition of Nanocrystalline materials provides updated information on the development and experimental work on the synthesis, properties, and applications of nanocrystalline materials. Nanocrystalline materials with new functionalities show great promise for use in industrial applications, such as reinforcing fillers in novel polymer composites and substantial progress has been made in the past decade in their synthesis and processing.

This book focuses primarily on 1D semiconducting oxides and carbon nanotubes, 2D graphene sheets and 0D nanoparticles (metals and inorganic semiconductors). These materials are synthesized under different compositions, shapes and structures, exhibiting different chemical, physical and mechanical properties from their bulk counterparts.

This second edition presents new topics relevant to the fast-paced development of nanoscience and nanotechnology, including the synthesis and application of nanomaterials for drug delivery, energy, printed flash memory, and luminescent materials. With contributions from leading experts, this book describes the fundamental theories and concepts that illustrate the complexity of developing novel nanocrystalline materials, and reviews current knowledge in the synthesis, microstructural characterization, physical and mechanical behavior, and application of nanomaterials.