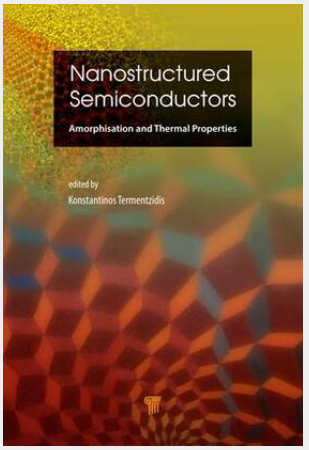
Termentzidis

Nanostructured Semiconductors

The book is devoted to nanostructures and nanostructured materials containing both amorphous and crystalline phases with a particular focus on their thermal properties. It is the first time that theoreticians and experimentalists from different domains gathered to treat this subject. It contains two distinct parts; the first combines theory and simulations methods with specific examples, while the second part discusses methods to fabricate nanomaterials with crystalline and amorphous phases and experimental techniques to measure the thermal conductivity of such materials. Physical insights are given in the first part of the book, related with the existing theoretical models and the state of art simulations methods (molecular dynamics, ab-initio simulations, kinetic theory of gases). In the second part, engineering advances in the nanofabrication of crystalline/amorphous heterostructures (heavy ion irradiation, electrochemical etching, aging/recrystallization, ball milling, PVD, laser crystallization and magnetron sputtering) and adequate experimental measurement methods are analyzed (Scanning Thermal Microscopy, Raman, thermal wave methods and x-rays neutrons spectroscopy).



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