1. Record Nr. UNINA9910739462703321

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Titolo	Phonon Thermal Transport in Silicon-Based Nanomaterials / / by Hai-Peng Li, Rui-Qin Zhang
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018
ISBN	9789811326370 981-13-2637-1
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (X, 86 p. 39 illus., 35 illus. in color.)
Collana	SpringerBriefs in Physics, , 2191-5423
Disciplina	530.41
Soggetti	Solid state physics Nanoscale science Nanoscience Nanostructures Nanotechnology Physics Materials science Force and energy Solid State Physics Nanoscale Science and Technology Numerical and Computational Physics, Simulation Energy Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Theoretical and Experimental Methods for Determining the Thermal Conductivity of Nanostructures -- Thermal Stability and Phonon Thermal Transport in Spherical Silicon Nanoclusters -- Phonon Thermal Transport in Silicon Nanowires and Its Surface Effect -- Phonon Thermal Transport in Silicene and Its Defect Effects -- Summary and Concluding Remarks.
Sommario/riassunto	In this Brief, authors introduce the advance in theoretical and experimental techniques for determining the thermal conductivity in nanomaterials, and focus on review of their recent theoretical studies on the thermal properties of silicon–based nanomaterials, such as

zero–dimensional silicon nanoclusters, one–dimensional silicon nanowires, and graphenelike two–dimensional silicene. The specific subject matters covered include: size effect of thermal stability and phonon thermal transport in spherical silicon nanoclusters, surface effects of phonon thermal transport in silicon nanowires, and defects effects of phonon thermal transport in silicene. The results obtained are supplemented by numerical calculations, presented as tables and figures. The potential applications of these findings in nanoelectrics and thermoelectric energy conversion are also discussed. In this regard, this Brief represents an authoritative, systematic, and detailed description of the current status of phonon thermal transport in silicon–based nanomaterials. This Brief should be a highly valuable reference for young scientists and postgraduate students active in the fields of nanoscale thermal transport and silicon-based nanomaterials.