1. Record Nr. UNINA9910300548403321

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Titolo	Thermal Transport in Semiconductors : First Principles and Phonon Hydrodynamics / / by Pol Torres Alvarez
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-94983-7
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XV, 163 p. 88 illus., 58 illus. in color.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	537.622
Soggetti	Semiconductors Thermodynamics Statistical physics Nanotechnology Statistical Physics and Dynamical Systems Nanotechnology and Microengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Thermal Transport -- First Principles Calculations -- Thermal Transport of Bulk Semiconductors in the KCM -- Low Dimension Thermal Conductivity in the KCM -- Phonon Spectrum and Transient Regimes in the KCM -- Geometric Effects in Complex Experiments -- Conclusions.
Sommario/riassunto	Starting from a broad overview of heat transport based on the Boltzmann Transport Equation, this book presents a comprehensive analysis of heat transport in bulk and nanomaterials based on a kinetic-collective model (KCM). This has become key to understanding the field of thermal transport in semiconductors, and represents an important stride. The book describes how heat transport becomes hydrodynamic at the nanoscale, propagating very much like a viscous fluid and manifesting vorticity and friction-like behavior. It introduces a generalization of Fourier’s law including a hydrodynamic term based on collective behavior in the phonon ensemble. This approach makes it possible to describe in a unifying way recent experiments that had to

resort to unphysical assumptions in order to uphold the validity of Fourier’s law, demonstrating that hydrodynamic heat transport is a pervasive type of behavior in semiconductors at reduced scales. .