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Titolo	Mesoscopic Theories of Heat Transport in Nanosystems / / by Antonio Sellitto, Vito Antonio Cimmelli, David Jou
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Descrizione fisica	1 online resource (188 p.)
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Soggetti	Mathematical physics Field theory (Physics) Condensed matter Mathematical Physics Classical and Continuum Physics Condensed Matter Physics
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	1 Nonequilibrium thermodynamics and heat transport at nanoscale -- 2 Linear and nonlinear heat-transport equations -- 3 Mesoscopic description of boundary effects and effective thermal conductivity in nanosystems: phonon hydrodynamics -- 4 Mesoscopic description of effective thermal conductivity in porous systems, nanocomposites and nanofluids -- 5 Weakly nonlocal and nonlinear heat transport -- 6 Heat transport with phonons and electrons and efficiency of thermoelectric generators -- 7 Perspectives.
Sommario/riassunto	This book presents generalized heat-conduction laws which, from a mesoscopic perspective, are relevant to new applications (especially in nanoscale heat transfer, nanoscale thermoelectric phenomena, and in diffusive-to-ballistic regime) and at the same time keep up with the pace of current microscopic research. The equations presented in the book are compatible with generalized formulations of nonequilibrium thermodynamics, going beyond the local-equilibrium. The book includes six main chapters, together with a preface and a final section

devoted to the future perspectives, as well as an extensive bibliography.