

1. Record Nr.	UNISA996466381403316
Autore	Allaire Grégoire
Titolo	Quantum Transport [[electronic resource]] : Modelling, Analysis and Asymptotics - Lectures given at the C.I.M.E. Summer School held in Cetraro, Italy, September 11–16, 2006 // by Grégoire Allaire, Anton Arnold, Pierre Degond, Thomas Y. Hou ; edited by Ben Abdallah Naoufel, Giovanni Frosali
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2008
ISBN	3-540-79574-X
Edizione	[1st ed. 2008.]
Descrizione fisica	1 online resource (XIV, 260 p. 57 illus.)
Collana	C.I.M.E. Foundation Subseries ; ; 1946
Disciplina	530.1433
Soggetti	Partial differential equations Quantum physics Mechanics Fluids Partial Differential Equations Quantum Physics Classical Mechanics Fluid- and Aerodynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Periodic Homogenization and Effective Mass Theorems for the Schrödinger Equation -- Mathematical Properties of Quantum Evolution Equations -- Quantum Hydrodynamic and Diffusion Models Derived from the Entropy Principle -- Multiscale Computations for Flow and Transport in Heterogeneous Media.
Sommario/riassunto	The CIME Summer School held in Cetraro, Italy, in 2006 addressed researchers interested in the mathematical study of quantum transport models. In this volume, a result of the above mentioned Summer School, four leading specialists present different aspects of quantum transport modelling. Allaire introduces the periodic homogenization theory, with a particular emphasis on applications to the Schrödinger equation. Arnold focuses on several quantum evolution equations that

are used for quantum semiconductor device simulations. Degond presents quantum hydrodynamic and diffusion models starting from the entropy minimization principle. Hou provides the state-of-the-art survey of the multiscale analysis, modelling and simulation of transport phenomena. The volume contains accurate expositions of the main aspects of quantum transport modelling and provides an excellent basis for researchers in this field.
