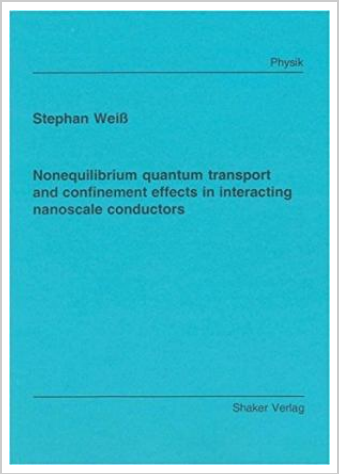

Nonequilibrium quantum transport and confinement effects in interacting nanoscale conductors

By Stephan Weiss

Shaker Verlag Aug 2008, 2008. Taschenbuch. Condition: Neu. Neuware - The present thesis deals with the properties of nanoscale conductors which are currently under intense research. These systems are challenging objects of basic research due to the appearance of many-body quantum effects and their nonequilibrium properties. Besides the academic interest, the possibility of technical applications motivates to study these systems as well. Different physical scenarios are presented in this work. This includes a nonequilibrium quantum transport investigation as well as the study of strongly correlated electrons in single and double quantum dots. Furthermore, the influence of a dissipative environment on quantum coherence is examined. For nonequilibrium quantum transport we have developed a numerical method which allows to calculate path integrals of interacting fermionic systems. The scheme is based on a deterministic iterative summation of the path integral for the generating function of the nonequilibrium current. Self-energies due to the leads, being non-local in time, are fully taken into account within a finite memory time, thereby including non-Markovian effects. Our numerical results are extrapolated both to vanishing time discretization and to infinite memory time. This extrapolation scheme converges except at very low temperatures, and the results are then numerically exact. The...

Reviews

This publication is fantastic. It really is full of knowledge and wisdom You are going to like just how the author write this publication.
-- ***Harmon Watsica II***

Excellent electronic book and valuable one. We have read and so i am sure that i am going to likely to study again once more in the foreseeable future. I am just happy to inform you that here is the very best book i have read during my personal lifestyle and might be he greatest book for possibly.
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