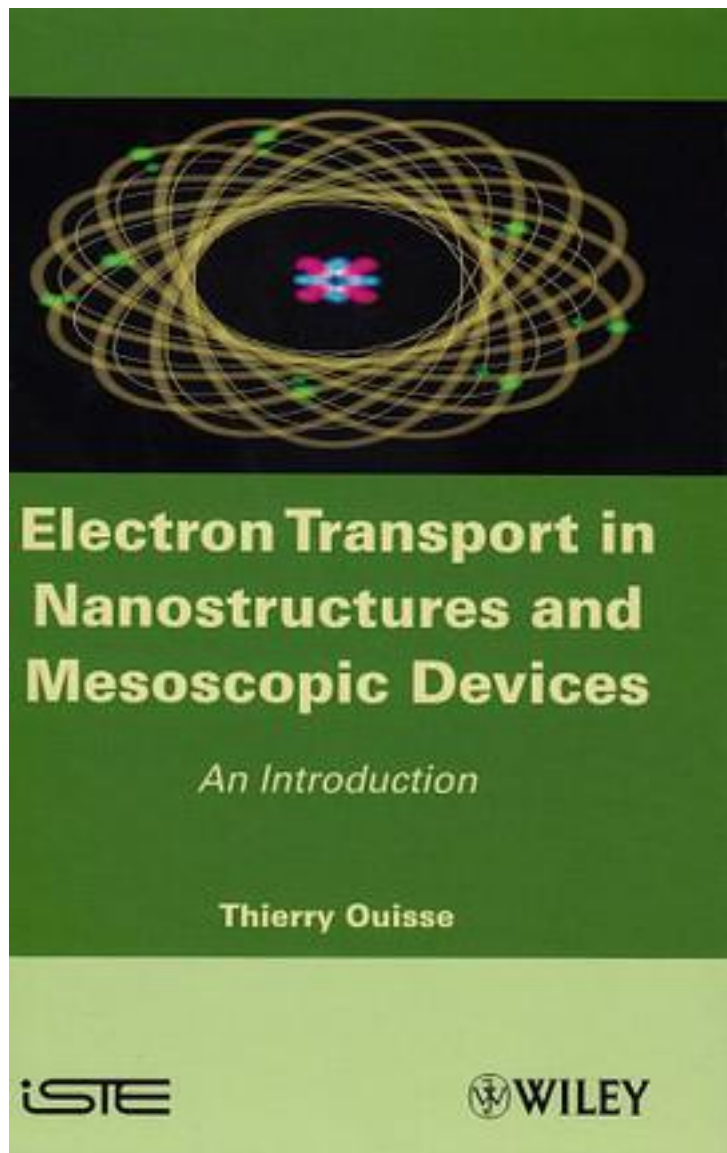


# Electron Transport in Nanostructures and Mesoscopic Devices



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This book introduces researchers and students to the physical principles which govern the operation of solid-state devices whose overall length is smaller than the electron mean free path. In quantum systems such as these, electron wave behavior prevails, and transport properties must be assessed by calculating transmission amplitudes rather than microscopic conductivity. Emphasis is placed on detailing the physical laws that apply under these circumstances, and on giving a clear account of the most important phenomena. The coverage is comprehensive, with mathematics and theoretical material systematically kept at the most accessible level. The various physical effects are clearly differentiated, ranging from transmission formalism to the Coulomb blockade effect and current noise fluctuations. Practical exercises and solutions have also been included to facilitate the reader's understanding.

作者介绍:

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标签

物理

评论

(不能算作评论) Coulomb Blockade心中永远的痛啊。。。其实一直到上完课，考完试我也还是不知道Quantum coherence到底是什么意思，Resonant tunneling device可以用来干什么，上课复习很纠结，但依然有美好的回忆。一般来说我豆瓣上标的书都是完全读完过的，这是第一个例外。Ouisse书比他的Lecture要清晰细致得多，毕竟篇幅在那。另一本被推荐的关于Nanotransport的教材来自Purdue的Datta，这两本书内容大体上相似，但后者我没读过，所以不做评价。除去S矩阵和关于噪声的内容，书里探讨的几大现象都可以看作quantum well的延伸，所以量子力学里对于这个问题的描述是基础中的基础，另外，coupling well在集成光学中也有运用

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书评

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