Coherence and Correlations in Transport through Quantum Dots

(Rolf J. Haug)

Abstract :

Quantum dots are quasi zero-dimensional systems in semiconductors and they represent promising candidates for future applications in quantum information processing. Their electronic properties are influenced by interaction and correlation effects. In the talk some recent experiments studying spin effects in transport through quantum dots [1,2] will be reviewed in the beginning. But coherence and correlations are often not clearly revealed in simple transport experiments, whereas shot noise measurements allow to investigate interactions and correlation effects in detail. Some astonishing results for suppressed and enhanced shot noise in transport through single and coupled quantum dots will be discussed [3,4,5].

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