Semiclassical approach to mesoscopic systems : classical trajectory correlations and wave interference

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Abstrak

This volume describes mesoscopic systems with classically chaotic dynamics using semiclassical methods which combine elements of classical dynamics and quantum interference effects. Experiments and numerical studies show that Random Matrix Theory (RMT) explains physical properties of these systems well. This was conjectured more than 25 years ago by Bohigas, Giannoni and Schmit for the spectral properties. Since then, it has been a challenge to understand this connection analytically. Furthermore, semiclassics is capable of describing effects beyond RMT. In this context he studies the effect of a non-zero Ehrenfest time.