Quantum Physics

Dwell-time distributions in quantum mechanics

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Some fundamental and formal aspects of the quantum dwell time are reviewed, examples for free motion and scattering off a potential barrier are provided, as well as extensions of the concept. We also examine the connection between the dwell time of a quantum particle in a region of space and flux-flux correlations at the boundaries, as well as operational approaches and approximations to measure the flux-flux correlation function and thus the second moment of the dwell time, which is shown to be characteristically quantum, and larger than the corresponding classical moment even for freely moving particles.

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