



Physics Seminar

Dr. Jordan Kyriakidis
Physics Department, Dalhousie University

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PSC 3046
4:00 pm

Manipulating and controlling individual quantum states in quantum dots

Physicists can now probe the time evolution of individual quantum states. We can see in real-time how individual superpositions of states evolve. We also have the rudimentary ability to dynamically control and tailor quantum environments to suit our needs. The single biggest stumbling block in making things like truly quantum devices and large-scale quantum computers possible, is that all things eventually decay and all systems except the smallest and most isolated tend to become classical in time. Our work aims to understand precisely how individual quantum states interact with their environment, how interactions cause decoherence and dissipation, and how these can be mitigated to keep the quantum dynamics alive in an environment which seeks to make everything classical. This talk will give an introduction to the above efforts by presenting a slice of the work we do in the Quantum Theory Group.

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