

Physics
AT QUEENS COLLEGE

Colloquium Notice

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The Quantum Photonics lab, University of Maryland

Spin control of quantum dots toward quantum photonic applications

The remarkable photonic properties of self-assembled quantum dots position them as promising platforms for quantum computation, communication, and the realization of quantum networks. In particular, the strong coupling between quantum dot spins to photonic structures enables the generation of spin-photon and photon-photon entanglement. In this talk, I will present recent developments in the implementation of arbitrary sequenced control of the quantum dot spin, which incorporate optimized microwave waveform generation and electro-optical modulation. Such a versatile control leads to prolonged quantum dot coherence times essential for quantum information storage, and enhances spin and photon entanglement manipulation capabilities utilizing photonic crystal cavities. Finally, by introducing the system of quantum dot "molecules" that feature a decoherence-free subspace, I will emphasize the potential of such spin control techniques toward the realization of hybrid photonic interfaces.

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Attending this Meeting:

Topic: Queens College Physics Colloquium
Time: Oct 19, 2020 12:15 PM Eastern Time (US and Canada)

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Monday
October 19, 2020
Starts at **12:15 pm**
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