

Wednesday, February 22, 2017

4:10 – 5:00 PM

Barnard/EPS 103

**Building a quantum internet using
rare-earth-doped crystals**

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Abstract:

Rare-earth-ions in solids exhibit unusual coherence properties including <100 Hz optical homogeneous linewidths and hours-long spin coherence times. These spectroscopic features make rare-earth-doped crystals the leading candidate for macroscopic solid-state quantum memories for light, with a potential for long-term spin storage. Leveraging the state-of-the-art nanophotonic technologies, we develop an integrated platform based on rare-earth quantum emitters coupled to nanocavities. Such a platform offers a unified chip-scale architecture for realizing key quantum network components such as spin qubits, photonic quantum memories and broadband optical-microwave quantum transducers, therefore opening a viable path for developing integrated quantum repeater nodes and scalable quantum networks.

Host: Rufus Cone

****** Refreshments served in the EPS second floor atrium at 3:45 ******

Dr. Zhong is a candidate for a Physics Faculty Position