“Spins and excitons in quantum dot lattices”

Time: Tuesday, Feb. 10, 4PM
Location: 335 West Hall

Abstract. I will discuss methods to localize and control electrons and excitons on arrays of quantum dots. Using optical cavities, a robust control of the electron spins and excitons can be realized. In particular, I will discuss how optically-induced spin coupling can entangle spins and realize quantum gates in arrays of dots. Strong dissipation can also be harnessed to generate spin entanglement. This is realized using the quantum Zeno effect, in which a rapid sequence of measurements freezes a system of dots in its initial state.