

Abstract Submitted
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Polarized luminescence characterization of charged quantum dot molecules¹ RAMANA THOTA, SWATI RAMANATHAN, KUSHAL C. WIJESUNDARA, ERIC STINAFF, Department of Physics and Astronomy, and Nanoscale and Quantum Phenomena Institute, Ohio University, Athens, Ohio - 45701 - 2979, USA, ALLAN BRACKER, DAN GAMMON, Naval Research Laboratory, Washington, DC 20375, USA — Polarization sensitive spectroscopy of self assembled quantum dots (QDs) has been shown to yield important information about spins associated with the charge carriers in various excitonic states. As pairs of quantum dots are brought together, and the formation of molecular states via tunneling becomes relevant, the interactions that determine the polarization state can be modified. In this talk we will present polarization dependent photoluminescence and photoluminescence excitation studies on vertically stacked InAs QDs grown by molecular beam epitaxy. We will discuss the characterization of the Stokes parameters of singly and doubly charged exciton states in these coupled QDs and compare with the results reported for single QDs. This study will help in identifying appropriate charge states for potential spin manipulation and entanglement measurements.

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