Abstract Submitted
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**Surface and Size Manipulation of the Magnetic Properties of CdSe Quantum Dots.**[1] ROBERT MEULENBERG, Laboratory for Surface Science and Technology and Department of Physics and Astronomy, University of Maine, JONATHAN LEE, SCOTT MCCALL, LOUIS TERMINELLO, TONY VAN BUUREN, Lawrence Livermore National Laboratory — The appearance of magnetism in otherwise non-magnetic materials has recently been reported for a number of nanoscale materials. Coupled with the size-dependent optical and electronic properties of the nanocrystalline materials, this magnetic behavior opens the possibility for an extended range of technological applications. As such, identifying the origin of the magnetism is an extremely important goal, yet this remains the subject of some controversy in the literature. We report evidence that paramagnetism in CdSe QDs can be induced via manipulation of the particle size and surface ligands. Using SQUID magnetometry and x-ray absorption spectroscopy, we demonstrate that the paramagnetic behavior of the CdSe QDs can be varied by changing the ligand endgroup functionality of the passivating layer. Contrary to previous reports, no evidence for ferromagnetism was observed.

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