

Abstract Submitted
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Measuring the spin relaxation time of donor-bound electrons in InP PASQUAL RIVERA¹, University of Washington, EMMA LORENZEN², Knox College, TODD KARIN³, RUSSELL BARBOUR⁴, KAI-MEI FU⁵, University of Washington — Neutral donor-bound electrons and excitons in bulk semiconductors provide a system that may have interesting prospects for quantum information processing (QIP). In GaAs, the donor-bound exciton system exhibits extremely high optical homogeneity with spin relaxation times similar to that of negatively charged quantum dots. The complex excited state structure, however, makes full coherent optical control of the spin state challenging. In this work we investigate the spin relaxation properties of donor-bound electrons in InP, a material which exhibits a simpler excited-state structure and a higher exciton binding energy than GaAs. Current progress towards measuring the T1 via polarization-induced optical pumping will be presented.

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