

Abstract Submitted
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Luminescence properties of GaAs / AlGaAs quantum wells doped with Mn in the extreme dilution limit MARK WHITE, PIERRE PETROFF, Materials Engineering Department, University of California, Santa Barbara — Isolated Mn atoms in bulk GaAs have six degenerate spin states. This degeneracy will be lifted when a Mn impurity is located in a quantum well or quantum dot. AlGaAs / GaAs quantum wells have been grown via molecular beam epitaxy to investigate the optical properties of the included Mn impurities. Normal GaAs growth temperatures (590 C) are used except during low-temperature depositions (258 C) of sub-monolayer quantities of Mn. Drift and diffusion of Mn atoms through an AlGaAs barrier are exploited to dope the quantum well with Mn during the growth. Micro-photoluminescence imaging and spectroscopy indicates spatially localized emission centers consisting of multiple lines. The origin of these spectrally sharp lines will be discussed.

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