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**Studies of electron spin lifetimes in InGaAs:Al quantum wells** T. ALI, I. KHAN, M. YASAR, A. PETROU, SUNY at Buffalo, Buffalo NY, C. LI, A. HANBICKI, G. KIOSEOGLOU, B. JONKER, Naval Research Laboratory, Washington D.C. — We have carried out optical pumping, Hanle and longitudinal Hanle studies of InGaAs:Al/GaAs single quantum wells. The circular polarization at zero magnetic field has a maximum around 50 K indicating that at low temperatures the recombination is associated with a bound electron. The measured spin lifetimes at low temperatures are an order of magnitude longer than those measured in reference GaAs/AlGaAs quantum wells. This is attributed to the suppression of the Dyakonov-Perel spin relaxation mechanism in this bound system. As the temperature is increased from 5 to 50 K the spin lifetimes decrease and become comparable to the lifetimes of the reference sample. In the longitudinal Hanle geometry the circular polarization increases with magnetic field and reaches a maximum at B $\approx$ 1.5 tesla. Beyond 1.5 tesla the circular polarization decreases. A series of polarization oscillations superimposed on the decreasing background with a periodicity of approximately 1 tesla is observed. These oscillations are tentatively attributed to the variations in the magnetic flux through the bound electron orbit. Work at SUNY was supported by ONR and NSF

T. Ali
SUNY at Buffalo, Buffalo NY

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