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Spin-Polarization of a 2DEG in $Cd_{1-x}Mn_xTe$ Quantum Wells C. AKU-LEH[1], F. PEREZ, B. JUSSERAND, INSP, UMR 7588, CNRS/Paris VI et VII, France, D. RICHARDS, Dept. of Physics, King's College London, UK, G. KARCZEWSKI, Polish Academy of Sciences, Warsaw, Poland — Low energy excitations of a spin-polarized electron gas embedded in $Cd_{1-x}Mn_xTe$ quantum wells are studied by magneto-resonant Raman scattering and magneto-photoluminescence at superfluid helium temperature in the Voigt geometry. From Raman, we measured the one electron spin flip energy as a function of the bare Zeeman splitting originating from exchange interaction between s electrons and localized Mn d electrons. The ratio between the spin flip energy and the bare Zeeman splitting shows a strong dependence on the electron density. From photoluminescence measurements, we extract the spin flip energy and the spin-polarization rate. Comparison of the measured spin flip energy with our theoretical model [1] shows that the Raman values are in better agreement with the theory. The photoluminescence lineshape, however, gives estimation of the spin-polarization rate that is in good agreement with our model. [1] F. Perez *et al.* ACTA Physics Polonica A, **106**, 311 (2004).

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