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Evidence of room temperature *sp-d* exchange in InMnAs epitaxial films PHILIP CHIU, BRUCE WESSELS, Northwestern University — InMnAs grown by metal organic vapor phase epitaxy (MOVPE) is a promising ferromagnetic semiconductor due to its high Curie temperature (T_c) of 330 K. However, the nature of *sp-d* exchange in this material is not well understood. Since enhancement of magnetic circular dichroism (MCD) at band structure critical points is indicative of *sp-d* exchange, the reflection MCD of MOVPE InMnAs was measured. At room temperature and an applied field 0.5 T, the MCD spectrum is composed of two types of transitions: a negative peak centered between 2.60-2.68 eV and a broad featureless negative response from 1.6-3.0 eV. At both transitions, ferromagnetic hysteresis and saturation are observed in the MCD field dependence. The negative peak occurs between the *L*-point critical transitions of InMnAs, at 2.53 and 2.79 eV respectively. The single negative peak is also similar to that observed in MBE InMnAs in both the peak energy and width. The MCD enhancement at the *L*-point is consistent with room temperature *sp-d* exchange splitting in MOVPE grown InMnAs. The *sp-d* exchange is tentatively attributed to the presence of Mn dimers and trimers in the InMnAs that result in a T_c of 326-327 K. The assignment of the broad spectral response is currently under way.

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