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Strong Magnetic Circular Dichroism in Mn Delta-doped GaAs NAZMUL AHSAN, SANJUKTA GHOSH, MASAAKI TANAKA, University of Tokyo — Delta-doping of magnetic impurities (*i.e.* Mn) in III-V semiconductors allows locally high concentration of magnetic moments. This can lead to systematic observation of fundamental properties of the system including the enhancement of the Curie temperature and magnetic anisotropy as a function of a wider range of Mn concentration[1]. The delta-doped Mn atoms in the MBE-grown GaAs-based heterostructures are abruptly confined as confirmed by high resolution transmission electron microscopy studies[1]. Here we study the magnetic circular dichroism (MCD) of 1 monolayer (ML) Mn delta-doped GaAs layer. The structure from the growth sequence is: GaAs substrate/GaAs-buffer/Al_{0.9}Ga_{0.1}As/Be-doped Al_{0.3}Ga_{0.7}As/1nm GaAs/1ML Mn/10nm GaAs cap. The sample was chemically etched to single out the 1nm GaAs/1ML Mn layer/10nm GaAs cap to measure MCD spectra in the transmission geometry. We observed strong MCD features even at 300K, indicating ferromagnetism with zinc-blende band structure. Ref.: [1] Nazmul et al. Phys. Rev. B 67, 241308 (2003); J. Crystal Growth, 251, 303 (2003); Phys. Rev. Lett. 95, 017201 (2005); Phys. Rev. B 77, 155203 (2008).

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