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Far-infrared photo-response of 2D electrons in a single InAs/AlGaSb quantum well in the region of EDSR C.J. MEINING, V.R. WHITESIDE, B.D. MCCOMBE, University at Buffalo, SUNY, Buffalo, NY 14260, USA, P. GRABS, I. CHADO, G. SCHMIDT, L.W. MOLENKAMP, Universität Würzburg, 97074 Würzburg, Germany — Motivated by predictions of strong electric dipole spin resonance (EDSR) and possible spin manipulation by electric fields[1] we have studied the far-infrared (FIR) photo-response of a two-dimensional electron gas (2DEG) in an asymmetric 15 nm InAs quantum well ($Al_{0.35}Ga_{0.65}Sb$ barriers). Changes in R_{xx} induced by a FIR laser beam ($E_{FIR} = 3.15$ meV) in Hall-bar geometry were measured vs. magnetic field magnitude (<10 T) and tilt angle θ of the sample normal with a double lock-in technique. We have observed a sharp minimum (20 mT wide) in a non-resonant background photo-response for $\theta \approx 38°$. This line splits into two sharp minima with increasing angle θ and vanishes for $\theta < 38°$. The dip occurs close to the field (odd filling factor $\nu = 7$) at which we expect EDSR in this highly non-parabolic system. Possible explanations for the splittings will be discussed.

[1]E. I. Rashba, Al. L Efros, Appl. Phys. Lett. **83**, 5295 (2003).

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