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Current-induced spin polarization in InGaAs epilayers with varying doping densities MARTA LUENGO-KOVAC, SIMON HUANG, DAVIDE DEL GAUDIO, JORDAN OCCENA, RACHEL GOLDMAN, VANESSA SIH, Univ of Michigan - Ann Arbor — Current-induced spin polarization (CISP) is a phenomena in which an applied electric field produces a bulk spin polarization in the plane of the sample. As this is thought to arise from the spin-orbit coupling, it was originally predicted that the magnitude of CISP should be proportional to the spin-orbit (SO) splitting [1]. However, crystal axis-dependent measurements of the CISP and SO fields showed a negative differential relationship between these two quantities [2]. To develop a phenomenological understanding of the factors affecting the magnitude of CISP, we performed measurements on three $In_{0.025}Ga_{0.975}As$ epilayers, Si-doped at 0.67, 9.6, and 14.1 x 10^{17} cm^{-3}. We will discuss the effects of the doping density and electron mobility on the magnitudes of the SO fields and CISP. [1] V. Edelstein, Solid State Commun. **73**, 233 (1990). [2] Norman, B. M., et al., Phys. Rev. Lett. **112**, 056601 (2014).

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