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Spin polarized current in InSb based structures¹ M. FRAZIER, M. BHOWMICK, J.J. HEREMANS, G.A. KHODAPARAST, Virginia Tech., S.J. CHUNG, M.B. SANTOS, University of Oklahoma, X. LIU, J. FURDYNA, University of NotreDame — Recently, there has been much interest in developing and exploring spin based semiconductor devices and phenomena. One of the key challenges in developing spin based devices is to generate, control, and measure spin currents directly. In this talk, we report interband circular photogalvanic (CPG) effects using pulsed near-infrared radiation in InSb quantum wells and two InSb films grown on GaAs and InP substrates. We observe a CPG current whose direction and magnitude depend on the helicity of the incident light, the angle of incidence, and temperature. Our observation is important to understand zero- field spin splitting mechanisms in a system with strong spin- orbit interaction.

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