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Spin polarized current in an InSb film[1] MATTHEW FRAZIER, J.J. HEREMANS, GITI A. KHODAPARAST, Department of Physics, Virginia Tech — 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 radiations in an InSb film grown by the MOCVD technique. The film is n-type Te-doped with electron density of $\sim$ 6.0 x10^{15} cm^{-3} and mobility of 58,500 cm^2/Vs at 100 K. We observe a CPG current whose direction and magnitude depend on the helicity of the incident light, the angle of the 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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