

Abstract Submitted  
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**Magneto-optical Studies of  $\text{Bi}_2\text{Te}_3$  Flakes** LI-CHUN TUNG, University of North Dakota, WENLONG YU, ZHIGANG JIANG, Georgia Institute of Technology, DMITRY SMIRNOV, 1National High Magnetic Field Laboratory-Tallahassee — Magneto-transmittance spectroscopy is used to probe the magnetic-field induced excitations in topological insulator- $\text{Bi}_2\text{Te}_3$ .  $\text{Bi}_2\text{Te}_3$  single crystals are repeatedly exfoliated on scotch tape until the sample flakes are sufficiently thin and become permeable in the infrared frequency range. The sample with the underlying tape is placed in a 4K cryostat and the magneto-optical properties of  $\text{Bi}_2\text{Te}_3$  are investigated by a broadband Fourier-Transform infrared spectrometer (Bruker 66) using light-pipe optics. The magneto-transmittance data of the sample on the tape and the bare tape up to 35T are collected and analyzed as a stacked multilayer. The average conductivity of the sample flakes at different magnetic fields is evaluated and several magnetic-field dependent features are revealed. These features coincide with the cyclotron resonance energy of the bulk band electrons and potentially linked to the surface state electrons. Implications of these results will be discussed in the presentation.

Li-Chun Tung  
University of North Dakota

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