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Magneto-reflectance studies of graphite in intense magnetic field LI-CHUN TUNG, National High Magnetic Field Laboratory, PAUL CADDEN-ZIMANSKY, Columbia University, JINBO QI, Los Alamos National Laboratory, ZHIGANG JIANG, Georgia Innstitute of Technology, DMITRY SMIRNOV, National High Magnetic Field Laboratory — Magnetic subbands of Kish graphite have been investigated by the magneto-infrared reflectance spectroscopy at 4K up to 31T. Both of the Schrödinger- (K-point) and Dirac-like (H-point) Landau level transitions have been observed. The intense magnetic field resolves the transitions caused by the symmetry breaking of the doubly degenerate E3 band near the charge-neutrality point and the splitting of interband transitions due to electron-hole asymmetry. These transitions were not evident in the recent magneto-transmittance studies at high magnetic fields and are important in understanding electron-hole asymmetry and the opening of the energy gap between electron and hole bands. From the SWMC model, we derived a new formula to describe the magnetic field dispersion of the K-point transitions and a good agreement is achieved with a set of band parameters consistent with the ones reported in the literature.

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