

Abstract Submitted
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Cyclotron Resonance at the Dirac Point PAUL CADDEN-ZIMANSKY, Columbia University/NHMFL, ERIK HENRIKSEN, Columbia University, ZHIGANG JIANG, Georgia Tech University, LI-CHUN TUNG, NHMFL, MOLLIE SCHWARTZ, Columbia University, YONG-JIE WANG, NHMFL, PHILIP KIM, Columbia University, HORST STORMER, Columbia University/Bell Labs — We present high field infrared spectroscopy data on the $n = -1 \rightarrow 0$ and $n = 0 \rightarrow 1$ Landau Level (LL) transitions in graphene. At high magnetic fields, up to 31 T, measurements of single layer graphene show large shifts in the transition energies, which are suggestive of a gap in the $n = 0$ LL. The magnitude of these shifts are strongly enhanced over the bare Zeeman splitting naively expected for a spin-split state. We compare the field dependence of the shifts with proposed degeneracy-breaking mechanisms at the Dirac point.

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