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Transport in dually-gated suspended bilayer graphene devices in electric and magnetic fields R. THOMAS WEITZ, MONICA T. ALLEN, BEN E. FELDMAN, JENS MARTIN, AMIR YACOBY — The layer pseudospin of bilayer graphene can be controlled by applying an electric field E across the flake. We demonstrate control over this pseudospin in suspended bilayer graphene devices with suspended top gates. At zero magnetic field B, we observe a significantly larger increase in resistance at the charge neutrality point with growing E than had been reported before, indicative of the high sample quality. At finite B, the 8-fold degeneracy of the lowest Landau level is lifted due to electron-electron interactions [1]. The strength and nature of these symmetry broken filling factors are found to be depended on E. The nu=1 and 2 states can be enhanced with E. In the nu=0 state phase transitions between two insulating phases are observed. The position of this transition in the E-B plane is marked by an increased conductance and depends on the relative strengths of B and E. [1] B. E. Feldman et al. Nature Physics

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