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Magneto and Hall drag in graphene double-layer XIAOMENG LIU, YUANDA GAO, LEI WANG, PATRICK MAHER, KIN CHUNG FONG, Columbia University, KENJI WATANABE, TAKASHI TANIGUCHI, National Institute for Materials Science, JAMES HONE, PHILIP KIM, Columbia University, CORY DEAN, The City College of New York — Recent advancements in the assembly of 2D layered materials have enabled fabrication of large-area BN-encapsulated graphene that exhibits ballistic transport over length scales in excess of tens of micrometers. Exploiting these techniques to fabricate graphene double layers, consisting of two parallel graphene layers separated by few-layer BN dielectrics, we investigate Coulomb drag in the strongly interacting and ultra-clean limit. Magneto drag and Hall drag, under perpendicular magnetic fields up to 13T and temperature down to 5K, is reported. Using a dual gated structure to independently tune the charge carrier density and type in each layer, we correlate the finite-field drag response with Landau level filling, and compare with existing theories.

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