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Coulomb excitations for Gapped Graphene in a perpendicular magnetic field ANDRII IUROV, University of New Mexico and Hunter College, CUNY, GODFREY GUMBS, Hunter College, CUNY and Donostia International Physics Center (DIPC), DANHONG HUANG, Air Force Research Laboratory, Space Vehicles Directorate — We investigate numerically the Coulomb excitations for gapped graphene and other buckled honeycomb lattices (such as silicene and germanene) in the presence of a perpendicular magnetic field. The plasmons are calculated within the random phase approximation. The collective excitations in the presence of a perpendicular magnetic field for such gapped systems are shown to be different from those for both intrinsic gapless graphene as well as a standard two-dimensional electron gas. We present a theoretical description of Bernstein modes that appear due to the coupling between inter-Landau-level excitations and plasmons.

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