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Magnetoplasmon excitations in graphene. GERARD MARTINEZ, GHMFL-CNRS, Grenoble, France, YURI BYCHKOV, L.D.Landau Institute for Theoretical Physics, Moscow, Russia — Graphene is a monolayer of graphite with a band structure composed of two cones located at two inequivalent corners of the Brillouin zone at which conduction and valence bands merge. In contrast with conventional two dimensional electron gas, the dispersion relation obeys a Dirac law with an energy linear as a function of momentum which leads to a specific square root dependence of the Landau levels under an applied magnetic field. The magneto-optical transitions are either of cyclotron type or valence to conduction type. We derive in this frame the magnetoplasmon picture, for filling factor lower than 2, which should be used to interpret the magneto-optical experiments in this compound.

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