Long-lived magnetoexcitons and two-dimensional magnetofermionic condensate in GaAs/AlGaAs heterostructure

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Excitation of long-lived triplet magnetoexcitons in a Hall insulator (filling factor $\nu = 2$) with a high mobility of electrons, at low temperatures, $T < 1\,\mathrm{K}$, enabled to discover a new collective state — magnetofermionic condensate, that interacts coherently with an external electromagnetic field, exhibits superradiant properties and, owing to its low viscosity, spreads over the surface of the two-dimensional structure for macroscopically large distances.

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