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Quantum Hall Ferrimagnetism in lateral quantum dot molecules

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— We demonstrate the existence of ferrimagnetic and ferromagnetic phases in a spin phase diagram of coupled lateral quantum dot molecules in the quantum Hall regime. The spin phase diagram is determined from Hartree-Fock Configuration Interaction method as a function of electron numbers N , and magnetic field B . The quantum Hall ferrimagnetic phase corresponds to spatially imbalanced spin droplets resulting from strong inter-dot coupling of identical dots. The quantum Hall ferromagnetic phases correspond to ferromagnetic coupling of spin polarization at filling factors between $\nu=2$ and $\nu=1$ [1]. [1] Ramin M. Abolfath, and Pawel Hawrylak, Phys. Rev. Lett 97, 186802 (2006).

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