

Abstract Submitted
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Emergence of frustrated antiferromagnet in the lowest Landau level JUN WON RHIM, School of Physics, Korea Institute for Advanced Study, Seoul 130-722, Korea, ALEXANDER C. ARCHER, JAINENDRA K. JAIN, Department of Physics, 104 Davey Lab, Pennsylvania State University, University Park PA, 16802, KWON PARK, School of Physics, Korea Institute for Advanced Study, Seoul 130-722, Korea, CONDENSED MATTER THEORY COLLABORATION — We investigate the spin structure of the triangular composite fermion crystals (CFCs) in the lowest Landau level (LLL). In contrast to the usual Hund's rule, our Monte-Carlo (MC) calculation finds the spin exchange energy to be antiferromagnetic in certain parameter regimes in the vicinity of $\nu = 1/5$. For further physical intuition, we develop an effective two-body potential between composite fermions in the crystal phase, which provides a reasonable account of the MC results. We discuss the experimental feasibility of this physics.

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