

Abstract Submitted
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Nature of Defects and Their Energies in the Lowest Landau Crystal States ALEX ARCHER, JAINENDRA JAIN, The Pennsylvania State University — The observed activation energies in the insulating phase in the lowest Landau level, believed to be a crystal, are as much as one order of magnitude smaller than interstitial defect energies in a Hartree-Fock crystal. Additionally, the melting temperature is significantly lower than expected. We have modeled the lowest Landau level insulating phase as a series of composite fermion crystals and evaluated their phase diagram [1]. We now investigate several different types of defects of the composite fermion crystals, including interstitials, vacancies, dislocations, grain boundaries, and also inherently quantum defects with no classical analog. We show that significantly lower energy defects appear in the composite fermion crystals, thus bringing theory into closer agreement with experiments. [1] A. C. Archer, K. Park and J. K. Jain, PRL **111**, 146804 (2013).

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