

Abstract Submitted  
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**Realistic effects on the electron Wigner crystal energy in the quantum Hall regime** RYAN HASHI, MICHAEL PETERSON, California State University, Long Beach — Systems in the quantum Hall regime undergo a quantum phase transition from a quantum liquid to presumably an electron Wigner crystal as the filling factor is lowered below approximately  $1/5$ . Theoretically, one studies this transition by comparing the ground state energies of the quantum liquid and the quantum Wigner crystal. Previous calculations do not include realistic effects such as the finite thickness of the experimental quantum well, and it is unknown how these effects affect the crystal energy. We expand on the classic work by Maki and Zotos [Phys. Rev. B 28, 4349 (1983)] to include various realistic effects in the calculation of the Wigner crystal energies.

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