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Stripes or Bubbles in the N=2 Landau Level: A DMRG Study
CANDICE WITHROW, BARRY FRIEDMAN, LAUREN ROD, Department of Physics, Sam Houston State University — Using the density matrix renormalization group (dmrg), we have reexamined the phase diagram of the N=2 Landau level. In previous dmrg calculations we attained results highly agreeable to those of Shibata and Yoshioka at filling factor 18/42, by using 200 states in the blocks. The goal of our study is to determine whether the ground state is an anisotropic crystal near half filling, as suggested by some mean field approaches, or a stripe state, as suggested by other mean field approaches and prior dmrg results. Such dmrg calculations, i.e. Shibata and Yoshioka, have placed the phase diagram between stripes and bubbles at a filling factor slightly less then .4 by looking at the projected pair correlation function at the special lines x=0 and y=0. We reexamine this boundary by studying the Fourier transform of the projected pair correlation.

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