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Finite-temperature Properties of the Fermi-Hubbard Model on the Honeycomb Lattice BAOMING TANG, EHSAN KHATAMI, Georgetown University, THEREZA PAIVA, Universidade Federal do Rio de Janeiro, MARCOS RIGOL, Georgetown University — We study thermodynamic properties of the Fermi-Hubbard model on the honeycomb lattice utilizing the numerical linked-cluster expansion, which is exact in the thermodynamic limit, and quantum Monte Carlo simulations. We obtain the equation of state, double occupancy, entropy and spin correlations for a wide range of temperatures, chemical potentials, and interaction strengths. Employing a local density approximation, we study properties of the system in the presence of a harmonic trapping potential and compare the efficiency of various adiabatic cooling schemes to those obtained for such model on the square lattice.

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