THOMAS MAIER, Computer Science and Mathematics Division and Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6494, USA, CARSTEN HONERKAMP, Institute for Theoretical Solid State Physics, RWTH Aachen University, D-52074 Aachen, Germany, DANIEL ROHE, Jülich Supercomputing Centre, Institute for Advanced Simulation, Forschungszentrum Jülich GmbH, D-52425 Jülich, Germany, DOUGLAS SCALAPINO, Department of Physics, University of California, Santa Barbara, CA 93106-9530, USA — The Functional Renormalization Group (FRG) provides a method for determining the evolution of the 4-point scattering vertex of the Hubbard model as the temperature is lowered. Although it is usually implemented using perturbation theory, the general belief is that if the starting values of the coupling constants are chosen judiciously and the renormalization flow stopped at an appropriate point, the resulting vertex can provide unbiased information about the scattering processes that determine the low temperature properties of the system. Here, for a half-filled 2D Hubbard model, we compare a 1-loop FRG calculation with a Dynamic Cluster quantum Monte Carlo Approximation (DCA) calculation with the goal of examining this belief.

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