Superconducting transition temperature in two-dimensional doped repulsive Hubbard model: DCA+ simulations with continuous momentum dependence[1] MI JIANG, Institute for Theoretical Physics, ETH Zurich, PETER STAAR, IBM Research - Zurich, THOMAS MAIER, Computer Science and Mathematics Division, Oak Ridge National Laboratory, THOMAS SCHULTHESS, Computer Science and Mathematics Division, Oak Ridge National Laboratory;Swiss National Supercomputing Center, ETH Zurich — DCA+ algorithm extends the dynamical cluster approximation (DCA) with continuous lattice self-energy to ensure better convergence with cluster size and delay the occurrence of the severe sign problem. This new algorithm enables a systematic investigation of the phase diagram of 2D Hubbard model relevant to the high temperature superconductors. We calculate the superconducting transition temperature T_c in the 2D repulsive Hubbard model on square lattice with nearest-neighbor hoppings for different doping levels, focussing on the intermediate correlation ($U/t = 7$) regime.

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