D-WAVE SUPERCONDUCTIVITY AND MAGNETIC ORDER IN THE 2D HUBBARD MODEL WITHIN DYNAMICAL MEAN-FIELD THEORY

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The two-dimensional Hubbard model has been proposed as the simplest model exhibiting many of the properties of high-T_c cuprate superconductors. This has lead to intense efforts to study the ground-state and finite-temperature phase diagram of the model. A growing body of numerical evidence suggests that the model indeed exhibits a d-wave superconducting phase [1, 2], along with uniform antiferromagnetism and striped antiferromagnetic order [3, 4]. We present results from our ongoing study of the competition between the magnetic phases and superconductivity within this model. This study has been performed using our dynamical mean-field theory code [5, 6], which we are planning to publish as open-source in the future.

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