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Suppression of d -wave superconductivity in the weakly inhomogeneous checkerboard Hubbard Model D.G.S.P. DOLUWEERA, M. JARRELL, University of Cincinnati, TH. MAIER, Oak Ridge National Laboratory, A. MACRIDIN, University of Cincinnati, TH. PRUSCHKE, University of Goettingen, Germany — Using a dynamical cluster quantum Monte Carlo approximation we investigate the d -wave superconducting transition temperature T_c of the doped 2D Hubbard model with a weak inhomogeneity in the form of checkerboard pattern in the hoppings. The hopping within a 2×2 cluster (plaquette) is t and the hopping between the plaquettes is t' ($0.8t \leq t' \leq t$). We find T_c decreases monotonically with decreasing t' for both fixed U/t or U/W (U the on site Hubbard interaction and W the bandwidth). The characteristic spin excitation energy scale and the strength of d -wave pairing interaction decrease with decreasing T_c suggesting a strong correlation between these two quantities.

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