

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

d-wave superconducting phase diagram of the two dimensional Hubbard model¹ ANDRE MARIE TREMBLAY, Universite de Sherbrooke, GIOVANNI SORDI, Royal Holloway, London, PATRICK SEMON, Universite de Sherbrooke — Superconductivity and Mott insulating state intertwine in materials such as cuprates and organic conductors. We study the d-wave superconducting phase at finite temperature in the two-dimensional Hubbard model on the square lattice within cellular dynamical mean-field theory and continuous-time quantum Monte Carlo. The whole phase diagram as a function of temperature, doping and interaction strength shows that a transition directly to the superconducting state from a Mott insulator is possible at the cellular dynamical mean-field level, whether the transition is bandwidth or doping driven. The dynamical mean-field superconducting transition temperature T_c^d does not scale with the superconducting order parameter when there is a normal-state pseudogap. T_c^d corresponds to the local pair formation temperature observed in tunneling experiments and is distinct from the pseudogap temperature, suggesting that pseudogap and superconductivity are distinct phenomena. Refs: G. Sordi et al., PRB 041101 (2013), G. Sordi et al. PRL 108 2164101 (2012)

¹This work was supported by NSERC (Canada), CFI (Canada), CIFAR, and the Tier I Canada Research chair Program (A.-M.S.T.). Computational facilities were provided by Compute Canada and Calcul Quebec.

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Date submitted: 15 Nov 2013

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