Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Doping induced Mott transition in the two dimensional Hubbard model[1] GIOVANNI SORDI, A.-M.S. TREMBLAY, Universite de Sherbrooke — The description of the Mott transition by single-site dynamical mean-field theory is exact in infinite dimensions but, in two dimensions, substantial deviations from those results have been found for the interaction driven transition [1]. In addition, the experimentally relevant transition for layered systems such as the high-T_c cuprates is doping driven. We thus study this transition in the two dimensional Hubbard model on the square lattice using cluster dynamical mean-field theory with continuous-time quantum Monte Carlo in the hybridization expansion [2]. We find that the Mott transition is strongly influenced by the inclusion of short-range antiferromagnetic correlations. Doping of the Mott insulating state occurs gradually in the different momentum sectors, as found in previous studies [3], but in addition we find a first order transition between an incoherent metal and an insulator or between two incoherent metals, depending on interaction strength. Short range spin correlations create a pseudogap in a doping range that increases with interaction. [1] H. Park et al., PRL 101, 186403 (2008) [2] K. Haule, PRB 75, 155113 (2007) [3] E. Gull et al., arXiv:0909.1795 (2009)

[1]Supported by FQRNT, NSERC, CRC and CIFAR

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Date submitted: 20 Nov 2009 Electronic form version 1.4