# Strongly correlated superconductivity, pseudogap and Mott transition

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**Abstract**

An intricate interplay between superconductivity, pseudogap and Mott transition, either bandwidth-driven or doping-driven, occurs in materials. Layered organic conductors and cuprates offer two prime examples. In this talk I will provide a unified perspective of this interplay in the two dimensional Hubbard model within cellular dynamical mean-field theory. Both at half-filling and at finite doping, the metallic normal state close to the Mott insulator is unstable to d-wave superconductivity. Superconductivity can hide the first-order transition that separates the pseudogap phase from the overdoped metal. Yet that normal state transition leaves its marks on dynamic properties of the superconducting phase. In the doped Mott insulator, the dynamical mean-field superconducting transition temperature $T_cˆd$ (i) does not scale with the superconducting order parameter when there is a normal-state pseudogap, and (ii) $T_cˆd$ is distinct from the pseudogap temperature T*, showing that pseudo gap and superconductivity are distinct phenomena. Refs: G. Sordi et al., Phys. Rev. B 87, 041101(R) (2013); H. Alloul, arXiv:1302.3473 (2013); G. Sordi et al., PRL 108, 216401 (2012); G. Sordi et al., Sci. Rep. 2, 547 (2012).

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