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Mott gap collapse in the cuprates – apparent or real? R. S. MARKIEWICZ, TANMOY DAS, A. BANSIL, Northeastern University — We have recently introduced a model self-energy for the cuprates, which includes an antiferromagnetic (AFM) transition dressed by spin and charge fluctuations.[1] This model correctly reproduces many 'strong coupling' features in the angle-resolved photoemission (ARPES) and optical spectra, including the waterfall effect and the doping dependence of the optical Mott gap. Here we discuss a dichotomy between Slater and Mott physics in the cuprates, with a Slater-like AFM gap collapse with doping in the coherent bands while the Mott-like gap persists in the incoherent bands. By analyzing the spectral weights, we show that there is an anomalous spectral weight transfer which is rather large to be consistent with strong coupling physics, but which is reasonably described by our intermediate coupling model. Work supported in part by the USDOE. [1] Tanmoy Das, R. S. Markiewicz, and A. Bansil, arXiv:0807.4257.

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