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Optical Spectral Weight of the Hubbard Model – Single-site DMFT Calculation and Comparison to Experimental Data ARMIN COMANAC, Columbia University, LUCA DE' MEDICI, Rutgers University, MASSIMO CAPONE, Università di Roma La Sapienza, ANDREW J. MILLIS, Columbia University — The single-site dynamical mean field method is used to calculate the variation of optical spectral weight with doping, interaction strength and frequency for the one band Hubbard model. Upper Hubbard band, mid-infrared and coherent quasiparticle contributions are distinguished. It is argued that mid-infrared and coherent contributions can meaningfully be compared to experimental data on transition metal oxide materials such as high-temperature superconductors. The comparison is used to estimate the strength of correlation effects in electron- and hole-doped superconductors.

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