Sensitivity of the Mott transition to noncubic splitting of the orbital degeneracy: Application to NH3 K3C60

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Within dynamical mean-field theory, we study the metal-insulator transition of a twofold orbitally degenerate Hubbard model as a function of a splitting Δ of the degeneracy. The phase diagram in the $U-\Delta$ plane exhibits two-band and one-band metals, as well as the Mott insulator. The correlated two-band metal is easily driven to the insulator state by a strikingly weak splitting $\Delta \ll W$ of the order of the Kondo-peak width zW, where $z \ll 1$ is the metal quasiparticle weight. The possible relevance of this result to the insulator-metal transition in the orthorhombic expanded fulleride $NH_3K_3C_{60}$ is discussed.