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Orbital-selective Mott transitions in the anisotropic two-band Hubbard model at finite temperatures

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Using high-precision quantum Monte Carlo simulations within the framework of dynamical mean field theory, we show that the anisotropic degenerate two-orbital Hubbard model contains two consecutive orbital-selective Mott transitions even in the absence of spin-flip terms and pair-hopping processes. In order to reveal the second transition we carefully analyze the low-frequency part of the self-energy and the local spectral functions at sufficiently low temperatures. We discuss the nature - in particular the order - of both Mott transitions and various recent developments.

Keywords : dynamical mean-field theory, quantum Monte-Carlo, metal-insulator transitions