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Absence of Hole Confinement in Transition Metal Oxides with Orbital Degeneracy[1] MARIA DAGHOFER, University of Tennessee, KRZYSZTOF WOHLFELD, ANDRZEJ M. OLES, Jagellonian University, ENRICO ARRIGONI, Graz University of Technology, PETER HORSCH, Max-Planck-Institut FKF — The compounds with orbital degrees of freedom exhibit many possible scenarios for hole propagation which in most cases lead to hole localization [1]. Here we investigate the spectral properties of a hole moving in a two-dimensional Hubbard model for strongly correlated t_{2g} electrons. Although superexchange interactions are Ising-like, a quasi-one-dimensional coherent hole motion arises due to effective three-site terms. This mechanism is fundamentally different either from the hole motion via quantum fluctuations in the conventional spin model with SU(2) symmetry or from the e_g orbital model [2]. The present orbital model describes also propagation of a hole in some e_g compounds [3], and we argue that orbital degeneracy alone does not lead to hole self-localization. [1] J. Zaanen and A.M. Oleś, Phys. Rev. B **48**, 7197 (1993). [2] J. van den Brink, P. Horsch, and A.M. Oleś, Phys. Rev. Lett. **85**, 5174 (2000). [3] M. Daghofer, A.M. Oleś, and W. von der Linden, Phys. Rev. B **70**, 184430 (2004).

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