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The Orbital-Selected Mott Phase of the Nondegenerate Two-Orbital Hubbard Model[1] YUN SONG, Department of Physics, Beijing Normal University — We use the dynamical mean-field theory to study the optical conductivity and orbital susceptibility of the nondegenerate two-orbital Hubbard model in the orbital-selective Mott phase. The optical conductivity of the wide band presents expectedly a nonzero Drude peak, while the localization character is observed for the optical conductivity of the narrow band. Particularly, a rapidly reverse shape in the orbital susceptibility emerges right at Fermi surface, implying the coexistence of the orbital ordering with the orbital-selected Mott phase. We also find that the orbital-selected Mott transition can be suppressed by the negative crystal field splitting. Applying the present findings to compound $Ca_{2-x}Sr_xRuO_4$, we demonstrate that the orbital-selected Mott phase can not survive in wide doping region from x=0.2 to 2.0.

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