

Abstract Submitted
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Dynamical mean field studies on mid-gap states of SrTiO₃¹
CHUNGWEI LIN, ALEXANDER A. DEMKOV, Department of Physics, University of Texas at Austin — We study the mid-gap states obtained by photon luminescence of SrTiO₃ using dynamical mean field theory. The 2.4 eV peak observed in the SrTiO₃ luminescence experiment is attributed to the strong electron-optical phonon coupling when an electron is excited from oxygen 2p bands to titanium 3d bands, and is conventionally modeled by Franck-Condon model which contains only one fermion and one phonon field. Here we extend this model to a realistic lattice described by the tight-binding approximation, using dynamical mean field theory with exact diagonalization solver. We found the main features of Franck-Condon model preserve. The effects of correlation on oxygens will be discussed.

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