

Non-equilibrium dissipation-induced band deformation in strongly excited correlated electron materials

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The study of open quantum systems leads to dissipation dynamics which exist on timescales much longer than those associated with transient excitations in strongly excited systems. In this work, we investigate the dissipation-induced dynamics of spectral features which arise from strong excitation fields. Specifically, we investigate the renormalization of band gaps, strength of band inversion, and the appearance of excitonic bands. We use the Real-Time Dyson Expansion to obtain photoabsorption spectra, and include electron correlations and Lindbladian dissipation through many-body perturbation theory.