

Abstract Submitted  
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**Electronic Excitations in Vanadates**<sup>1</sup> WILLIAM THORNTON, University of Tennessee, ANTON KOZHEVNIKOV, ETH Institute for Theoretical Physics, ADOLFO EGUILUZ, University of Tennessee — Vanadates represent an electronic analogue to the cuprates, which have one hole in the 3d shell. There are many realizations of the vanadates, as the solid-state chemistry of the V-O system allows various coordination numbers. Here we probe the electronic structure of vanadates by studying neutral electronic excitations computed within a time-dependent density functional theory framework. We evaluate the dynamical electronic response in both a Bloch basis and a Wannier basis, for both large momentum transfers, and in the optical limit. We compare our results with available experimental data, and assess the importance of many-body (excitonic) interactions.

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