

Abstract Submitted
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Theory of the magnetic ground states of TMTTF_2X ¹ ANDREW WARD, R. TORSTEN CLAY, Mississippi State University, SUMIT MAZUMDAR, University of Arizona — As a function of pressure the ground state of the TMTTF_2X salts is either one of two different antiferromagnetic (AFM) phases, spin-Peierls (SP), or superconducting. Pressure is usually thought to increase the dimensionality of the TMTTF stacks. The occurrence of the SP phase is then counterintuitive, as it enters at higher pressure than the first AFM state. Here we examine a model for the pressure dependent phase of TMTTF_2X salts, the extended Hubbard model on a two dimensional lattice with inter- and intra-site electron-phonon coupling. Previous calculations have suggested that two distinct SP phases with different charge and bond distortions occur in this model. We argue that two distinct SP phases are not supported by experiment, and are a result of unsuitable parameter choices and finite-size effects within calculations. We present the results of further numerical calculations and investigate the effect of magnetic frustration on the AFM and SP phases.

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