

Abstract Submitted
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Orbitons versus Vibronic Excitations KAI P. SCHMIDT, Institute for Theoretical Physics, Ecole Polytechnique Federale de Lausanne, Switzerland, MARKUS GRUENINGER, Physikalisches Institut A, RWTH Aachen University, Germany, GOETZ S. UHRIG, Lehrstuhl fuer theoretische Physik I, University of Dortmund, Germany — A large number of transition-metal compounds show orbital ordering at low temperatures. But the experimental observation of the corresponding elementary excitations of an orbitally ordered state, the so-called orbital waves (orbitons), turned out to be rather difficult, and a watertight experimental proof for the existence of orbitons is still lacking. It is therefore natural to ask whether other degrees of freedom are involved in transition-metal compounds which complicates the search for orbital waves. Here the coupling of orbital and lattice degrees of freedom is investigated. We calculated the kinetic and the spectral properties of the orbital waves for a one-dimensional toy-model.

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