

**INTERPLAY BETWEEN CHARGE AND MAGNETIC
ORDERINGS IN THE ZERO-BANDWIDTH LIMIT
OF THE EXTENDED HUBBARD MODEL**

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A simple effective model of charge ordered and (or) magnetically ordered insulators is studied. The tight binding Hamiltonian analyzed consists of (i) the effective on-site interaction U , (ii) the intersite density-density interaction W and (iii) intersite magnetic exchange interaction J^z (or J^{xy}) between nearest-neighbors. One shows that the systems considered can exhibit very interesting multicritical behaviors, including among others bicritical, tricritical, tetracritical and critical end points. The analysis of the model has been performed for an arbitrary electron concentration as well as an arbitrary chemical potential. The phase diagrams are shown to consist of at least 9 different states, including four homogenous phases: nonordered (NO), ferromagnetic (F), charge ordered (CO), ferrimagnetic (intermediate, I) and five types of phase separation: NO – NO, F – NO, F – F, CO – F, CO - I. The results obtained within the variational approach (which treats the on-site interaction term exactly and the intersite interactions within the mean-field approximation) are compared with rigorous results, which can be obtained in some particular cases.

9.7 cm

13.4 cm

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