ELECTRON PHASE SEPARATIONS INVOLVING CHARGE ORDERINGS IN ITINERANT FERMION SYSTEMS

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We study two effective models for description of charge orderings (CO) in narrow band materials: the spinless fermion model with repulsive intersite interaction and the Holstein model in the static limit. The cases of d-dimensional hypercubic lattices are investigated for arbitrary particle concentration n. The analysis is concentrated on the problem of electron phase separations and the effects of next-nearest neighbor hopping t_2 on the charge ordered states in these systems. The ground state phase diagrams and the phase diagrams at finite temperatures are evaluated for several representative cases as a function of both the electron concentration n and the chemical potential μ. The evolution of basic characteristics of the systems in the CO states with the increasing interaction and a change of n are discussed.
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9.7 cm

13.4 cm

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