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**Cluster dynamical mean-field study of charge ordering in the Kondo lattice model at quarter filling** JUNKI YOSHITAKE, TAKAHIRO MISAWA, YUKITOSHI MOTOME, Dept. of Appl. Phys., Univ. of Tokyo — The Kondo lattice model is one of fundamental models for heavy-fermion systems, where exchange interactions between itinerant electrons and localized spins play an important role. Among many different phases described by this model, an interesting possibility is a charge-ordered state, in particular when considering the fact that the model does not include any bare repulsive interaction between electrons. The possibility was first pointed out by a perturbation expansion in the strong Kondo coupling limit at quarter filling [1], and recently examined by the dynamical mean-field theory in infinite dimensions [2]. However, it remains unclear whether the charge-ordered state still survives in two or three dimensions and what type of magnetic order is accommodated in the charge-ordered state. To clarify these issues, we investigate the quarter-filled Kondo lattice model on a square lattice by using cluster dynamical mean-field theory, which can include both spatial and dynamical correlations. We found that charge-ordered state appears in the intermediate coupling region. We will discuss electronic and magnetic properties in the charge-ordered state in detail.

[1] H. E. Hirsch, Phys. Rev. B **30**, 5383 (1984).

[2] J. Otsuki *et al.*, J. Phys. Soc. Jpn. **78**, 034719 (2009).

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