Effect of magnetic field on thermopower in strongly correlated electron systems MARI MATSUO, IMR, Tohoku Univ., WATARU KOSHIBAE, CMRG, RIKEN, MICHIYASU MORI, IMR, Tohoku Univ., SADAMICHI MAEKAWA, IMR, Tohoku Univ., JST-CREST — We theoretically study the magnetic field and temperature dependences of the thermopower in the Hubbard model by using the dynamical mean field theory. The asymptotic behavior of the Seebeck coefficient in high temperature region is well described by the extended Heikes formula [PRB 62, 6869 ('00).]. With decreasing temperature, the Seebeck coefficient changes its sign non-monotonically. The strong Coulomb interaction suppresses the bandwidth of quasi-particles, and enhances the response of the electron system to the external field. This response can be associated with the large magnetic-field dependence of the Seebeck coefficient. The relation between the Seebeck coefficient and the density of states of the electron system is discussed. The large response of the thermopower to the magnetic field observed in the cobalt oxides [Wang et al., Nature 423, 425 ('03).], is examined in the light of our theory.

Mari Matsuo
IMR, Tohoku Univ.

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