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Magnetoelectric effect in non-centrosymmetric Kondo lattices ILYA VEKHTER, Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA, USA, LEONID ISAEV, JILA and Department of Physics, University of Colorado, Boulder, CO, USA — We study magnetoelectric (ME) response in Kondo lattices without the center of inversion. In such materials the conduction electrons move under the influence of an odd in momentum spin-orbit interaction (SOI). The interplay between this SOI and Kondo screening enables manipulation of the net magnetization of the system by an applied electric field. As a simple model for this phenomenon, we consider a Kondo bilayer (a pair of two-dimensional Kondo lattices) with the Rashba-type SOI, and treat it within a generalized hybridization mean field theory. We demonstrate that the ME response, strongest inside the heavy-fermion phase, has a very pronounced dependence on the magnitude of the spin-orbit coupling. These results provide a new pathway to the ME effect in strongly correlated materials.

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