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Composite Domain Walls in Multiferroic Orthoferrites RFeO3
NOBUO FURUKAWA, Dept. of Physics, Aoyama Gakuin Univ. and ERATO-Multiferroics, JST, HOSHO KATSURA, CMRG, RIKEN — In order to analyze novel magneto-electric effects such as electric-field controlled magnetization-flips in multiferroic orthoferrites $R\mathrm{FeO}_3$, we study an effective model which includes d-spins on Fe sites and f-spins on R sites. Order parameters for d and f spins are coupled through Peierls distoritons. Ginzburg-Landau theory is applied to investigate domain wall structures of the model. As a result, we find various types of solitons corresponding to ferromagnetic, ferroelectric and composite ferromagnetic-ferroelectric domail walls. Dynamics of the domail walls under external fields will also be presented.

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