

講演会の御案内

第265回応用セラミックス研究所講演会

- 日時：平成26年2月3日（月） 13:30～15:00
- 場所：J2棟19階1904号室 総理工会議室 1
- 講師：Kévin Franke (Department of Applied Physics, Aalto University, Finland)
- 演題：” Domain Wall Interactions in Ferroelectric-Ferromagnetic Heterostructures”

Magnetoelectric coupling in multiferroic heterostructures can produce large modulations of magnetic anisotropy enabling the imprinting of ferroelectric domains into ferromagnetic films. We report on the properties of ferromagnetic domain walls elastically coupled to ferroelectric domain boundaries in a CoFe/BaTiO₃ heterostructure. We demonstrate that competing energies lead to the breakdown of domain pattern transfer below a critical domain size. Moreover, rotation of an external magnetic field results in abrupt transitions between two scaling regimes.

Secondly, due to strong coupling between ferromagnetic domain walls and ferroelectric domain boundaries we can demonstrate reversible electric field driven magnetic domain wall motion in Fe/BaTiO₃. Micromagnetic simulations reveal several dynamic regimes in this novel driving mechanism.

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