

# CURRENT-INDUCED MANIPULATION OF DOMAIN-WALLS IN $\text{SrRuO}_3$

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$\text{SrRuO}_3$  is a 4d itinerant ferromagnet with Curie temperature (for films) of  $\sim 150$  K and large uniaxial magnetocrystalline anisotropy (anisotropy field of  $\sim 10$  T). In epitaxially grown thin films, the easy axis is tilted out of the film plane inducing the formation of stripe domain structure with ultrathin domain walls ( $\sim 3$  nm). These features make domain walls in  $\text{SrRuO}_3$  an excellent tool for studying spintronics phenomena, as we have shown by determining the domain wall interface resistance and its microscopic origins [1]. In my talk, I will present recent results demonstrating our ability to trap, manipulate and monitor a single domain wall. Based on this ability, we were able to determine the efficiency of current induced domain wall motion in  $\text{SrRuO}_3$ , defined by us as the ratio between depinning field and depinning current. I will show that the efficiency of current-induced domain wall motion in  $\text{SrRuO}_3$  is orders of magnitude higher than in 3d ferromagnetic alloys and discuss possible theoretical explanations for this phenomenon.

[1] L. Klein *et al.*, Phys. Rev. Lett. **84**, 6090 (2000); M. Feigenson *et al.*, Phys. Rev. B **67**, 134436 (2003).

[2] M. Feigenson, J. W. Reiner and L. Klein, Phys. Rev. Lett. **98**, 247204 (2007).