

GROWTH OF ORGANIC/INORGANIC HETEROSTRUCTURED MULTIFERROIC FILMS

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Strong and highly localized pinning of magnetic domain walls onto ferroelectric domain boundaries has been realized in strain-coupled ferromagnetic CoFeB films on ferroelectric BaTiO₃ substrates. The imprinting of a BaTiO₃ domain pattern into a 50 nm thick CoFeB film is demonstrated by magneto-optical Kerr effect microscopy in Figure 1a. Strain coupling between the FE and FM layers induces a strong uniaxial magnetoelastic anisotropy in the CoFeB film. The orientation of this uniaxial anisotropy alternates by 90° between stripe domains, as illustrated by the polar plot of the normalized remnant magnetization (M_r/M_s) in Figure 1b.

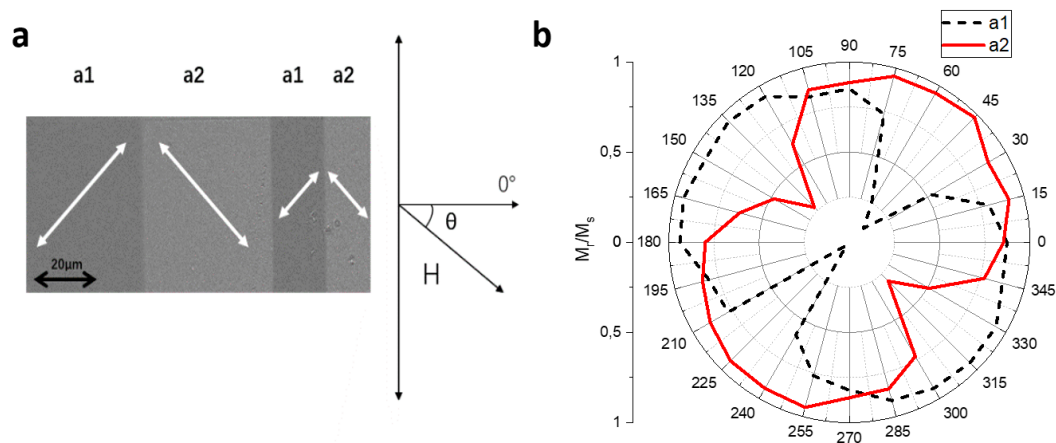


Figure 1. a Magneto-optical Kerr effect microscopy image of a 50 nm thick CoFeB film on a BaTiO₃ substrate with regular a1 and a2 domains. The schematic on the right defines the direction of the applied magnetic field. **b** Polar plot of the normalized remnant magnetization (M_r/M_s) for the a1 and a2 magnetic domains.

