SUITABLE ME MATERIALS/DESIGNS

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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 $BaTiO_3$ substrates. The imprinting of a $BaTiO_3$ domain pattern into a 50 nm thick CoFeB film is demonstrated by magneto-optical Kerr effect microscopy in **Figure 3a**. 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 3b**.

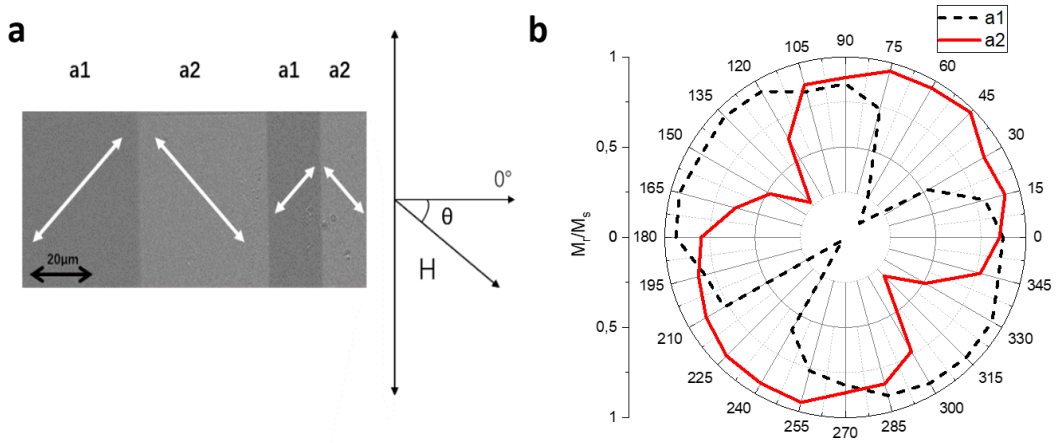

Figure 3. a *Magneto-optical Kerr effect microscopy image of a 50 nm thick CoFeB film on a $BaTiO_3$ substrate with regular a1 and a2 domains. The schematic on the right defines the direction of the applied magnetic field.* ***b*** *Polar plot of the normalized remnant magnetization (M_r/M_s) for the a1 and a2 magnetic domains.*

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