

Abstract Submitted
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**Competing Mechanisms in Asymmetric Magnetization Reversal
in Exchange Biased Bilayers**¹ OLEG PETRACIC², ZHI-PAN LI, IVAN K.

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A systematic micromagnetic simulation is performed to investigate the asymmetric magnetization reversal in exchange bias bilayers. When the unidirectional anisotropy is comparable with the uniaxial anisotropy of the ferromagnet, we found that the descending branch is dominated by rotation while the ascending one is dominated by domain wall motion. When the unidirectional anisotropy is large enough, the magnetization reversal occurs through FM incomplete domain walls parallel to the interface. This results in a larger transverse component in the ascending branch, opposite to the previous mechanism. These two mechanisms coexist and compete for intermediate unidirectional anisotropies and lead to very delicate situations in particular when a magnetic field misalignment and interfacial inhomogeneity are involved. The results are able to explain some of the confusion in the present study of the asymmetric reversal mechanisms.

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