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**Ferromagnetic resonance investigation of relaxation in IrMn/CoFe bilayers<sup>1</sup>** JAMILEH BEIK MOHAMMADI, JOSHUA JONES, SOUMALYA PAUL, BEHROUZ KHODADADI, CLAUDIA MEWES, TIM MEWES, The University of Alabama, CHRISTIAN KAISER, Western Digital — Although the exchange bias effect has been known for 60 years, it still remains a very active field of research. Studying magnetization dynamics and relaxation mechanisms in exchange bias systems is particularly important due to technological applications such as in read-heads. Here we report on our studies of the magnetic anisotropies and magnetization relaxation in IrMn(6nm)/CoFe(t) systems. We have observed a very strong interface energy of the exchange bias effect in these samples. Furthermore, a strong perpendicular anisotropy and a small in-plane uniaxial anisotropy are observed in these systems. Moreover, in-plane angle dependent ferromagnetic resonance data suggests that the common analytical model cannot fully describe the anisotropies in these systems. Instead, a numerical approach needs to be used to minimize the energy and investigate the anisotropies in these systems. We observe a strong unidirectional relaxation in these samples, which for thin films is dominated by two magnon scattering. However, our data also indicates the presence of an additional unidirectional contribution to the relaxation not caused by two magnon scattering.

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