Abstract Submitted
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**Bi-domain state in the exchange bias system FeF2/Ni**[1] OLEG PETRACIC[2], ZHI-PAN LI, IGOR V. ROSHCHIN, M. VIRET[3], R. MORALES[4], X. BATLLE[5], IVAN K. SCHULLER, Physics Department, UCSD, La Jolla, CA, USA — Independently exchange biased subsystems are observed in $FeF_2$/Ni bilayers after various field cooling protocols. For intermediate cooling fields a double hysteresis loop is found, while negatively or positively shifted single loops for small or large cooling fields respectively are encountered. Both the subloops and the single loops have the same absolute value of the exchange bias field. This suggests that the antiferromagnet breaks into two subsystems in such a way that the ferromagnet does not experience an average bias but is exchange biased in opposite directions with equal magnitude ('bi-domain'). This idea is confirmed by micromagnetic studies including the effect of the antiferromagnet. We also present experiments where thermally activated motion of these antiferromagnetic 'domain' boundaries can be achieved.

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