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Positive exchange bias in thin film multilayers produced with nano-oxide layer BYONG SUN CHUN, Korea Research Institute of Standards and Science, MOHAMED ABID, Ecole Polytechnique Federale de Lausanne/IPMC, HAN-CHUN WU, CRANN, Trinity College, IN CHANG CHU, Global EMI/EMC team, 3M Korea Innovation Center, CHANYONG HWANG, Korea Research Institute of Standards and Science — We report a positive exchange bias in thin film multilayers produced with nano-oxide layer.The positive exchange bias, obtained for our system results from an antiferromagnetic coupling between the ferromagnetic CoFe and the antiferromagnetic CoO layers, which spontaneously from on top of the nano-oxide layer. The shift in the hysteresis loop along the direction of the cooling field and the change in the sign of exchange bias are evidence of antiferromagnetic interfacial exchange coupling between the CoO and CoFe layers. Our calculation indicates that uncompensated oxygen moments in the nano-oxide layer results in antiferromagnetic interfacial exchange coupling between the CoO and CoFe layers. One of the interesting features observed with our system in that it displays the positive exchange bias even above the bulk Neel temperature of CoO

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