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**Tailoring size effects on the exchange bias of ferromagnetic-antiferromagnetic nanodots** VINCENT BALTZ, JORDI SORT, SPINTEC (CNRS/CEA), 17 Av. Martyrs, 38054 Grenoble, STEFAN LANDIS, LETI/D2NT, 17 Av. Martyrs, 38054 Grenoble, BERNARD RODMACQ, BERNARD DIENY, SPINTEC (CNRS/CEA), 17 Av. Martyrs, 38054 Grenoble, SPINTEC (CNRS/CEA), 17 AV. MARTYRS, 38054 GRENOBLE TEAM, LETI/D2NT, 17 AV. MARTYRS, 38054 GRENOBLE TEAM — The dependences of the exchange bias effects on the antiferromagnetic (AFM) and ferromagnetic (FM) layers thicknesses have been investigated in continuous films and sub-100 nm dots composed of NiFe-IrMn bilayers. The nanostructures were prepared by sputtering the materials on prepatterned Si square dots. At room temperature, HE in continuous films decreases as the AFM layer thickness (tIrMn) increases, whereas HE in the nanodots remains rather constant. As a result, it is possible to either enhance or reduce HE in the nanostructures, with respect to continuous films, by varying tIrMn. Such a behavior is not observed when varying the FM layer thickness. An enhancement of the coercivity and a reduction of the blocking temperature in the dots are also observed. These effects are ascribed to the 3D confinement of the AFM spin structure and the concomitant enhanced thermal activation effects in the nanostructures. The influence of the dot size and temperature, together with atomistic simulation results, will also be presented.

Vincent Baltz
SPINTEC (CNRS/CEA), 17 Av. Martyrs, 38054 Grenoble

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