

Perpendicular exchange anisotropy in Co/Pd multilayers

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Exchange bias occurs at the interface between ferromagnet (FM) and antiferromagnet (AFM) layers, shifting the hysteresis loop of the FM layer from its origin. It has been extensively studied for its application in the read head of computer hard discs and magnetic random access memory (MRAM), which use an in-plane anisotropy. Exchange bias with a perpendicular anisotropy is beginning to be studied for practical applications as well as scientific interest [1], [2]. The origin of the exchange bias with the perpendicular anisotropy is still elusive, requiring additional experiments. We systematically investigated the effects of the AFM layer on the exchange bias of Co/Pd multilayers, for example, the FeMn thickness dependence of the exchange bias (H_{ex}). Like the in-plane anisotropy, a certain thickness was required to induce an exchange coupling between Co/Pd multilayers and FeMn (fig. 1). We also observed the effects of the IrMn layer on the exchange bias and compared the results with those of FeMn.

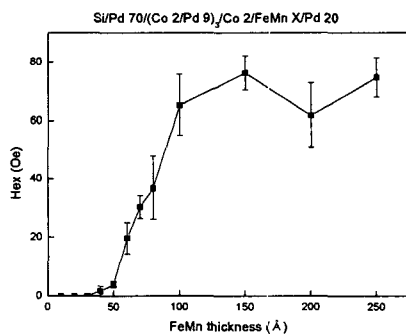


Fig. 1. The exchange bias as a function of the FeMn thickness

References

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