

NiFe/FeMn/NiFe 스핀밸브 구조의 다층박막에서 상 하부 NiFe  
두께에 따른 교환바이어스 조사  
Anomalous Exchange Bias of the Top and Bottom NiFe Layers in  
NiFe/FeMn/NiFe Based Spin Valve Multilayers

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Many of the spin valve multilayer structures with FeMn as antiferromagnetic layer consist of a NiFe/FeMn/NiFe trilayer where the bottom NiFe layer is the seed layer to facilitate the growth of (111) gamma-FeMn antiferromagnetic phase and the top NiFe layer forms the pinned layer [1]. In this study, exchange bias of bottom NiFe layer has been investigated as functions of thicknesses of top and bottom NiFe in NiFe/FeMn/NiFe, prepared by rf magnetron sputtering, MH-loop was measured by vibration sample magnetometer (VSM). Two hysteresis loops are corresponded to bottom and top layers, similar to reported loops in spin valve structure. Exchange bias of bottom NiFe could be induced by the interfacial coupling between bottom NiFe and FeMn. But those coupling are strongly dependent on the top and bottom NiFe thicknesses, revealing anomalous character in exchange bias of bottom NiFe layer.

References

[1] L. Ritchie, X. Liu, S. Ingvarsson, G. Xiao, Jun Du, and J. Q. Xiao, J. Magn. Magn. Mater., 247, 187 (2002)