Ni spin switching induced by interfacial spin frustration in FeMn/Ni/Cu(001) Z. Q. QIU, J. WU, J. CHOI, UC-Berkeley, A. SCHOLL, A. DORAN, E. ARENHOLZ, Lawrence Berkeley Nat. Lab., CHANYONG HWANG, KRISS — FeMn/Ni/Cu(001) bilayer films are grown epitaxially and investigated by photoemission electron microscopy and magneto-optic Kerr effect. We find that as the FeMn overlayer changes from paramagnetic to antiferromagnetic states, it switches the ferromagnetic Ni spin direction from out-of-plane to in-plane directions of the film. This phenomenon reveals the mechanism of creating a magnetic anisotropy in the Ni film by the antiferromagnetic order of the FeMn film. We argue that this antiferromagnetic order induced anisotropy comes from the out-of-plane spin frustration at the FeMn-Ni interface.

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