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Magnetic anisotropies in epitaxial Py/FeMn/Ni/Cu[001] films
ALI TAN, JIA LI, Univ of California - Berkeley, ELKE ARENHOLZ, Advanced Light Source, Lawrence Berkeley National Laboratory, ZI QIANG QIU, Univ of California - Berkeley — The interaction between ferromagnetic and antiferromagnetic layer in a FM/AFM bilayer depends on the details of the spin configurations at the interface. By inserting a Ni layer of different thicknesses below FeMn in Py/FeMn/Cu(001) FM/AFM bilayer, we compared the effect of in-plane and out-of-plane magnetization on the FeMn spin structure which will subsequently influence Py/FeMn interfacial interaction. The Py/FeMn interface interaction is characterized by measuring four-fold and two-fold anisotropies of Py using rotating magneto-optic Kerr effect as a function of Ni and FeMn thicknesses. We found that out-of-plane Ni magnetization has little effect on the Py magnetic anisotropy, but in-plane Ni magnetization enhances the Py magnetic anisotropy in the region just above antiferromagnetic transition thickness. The underlying mechanism could be attributed to the FeMn 3Q spin structure

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