

Lawrence Berkeley National Laboratory

LBL Publications

Title

Magnetic anisotropy of CoO/Fe films grown on vicinal Ag(001)

Permalink

<https://escholarship.org/uc/item/0ns7h8nx>

Authors

Park, J.

Wu, J.

Scholl, A.

et al.

Publication Date

2010-03-29

Magnetic anisotropy of CoO/Fe films grown on vicinal Ag(001)

J. Park (UC-Berkeley), J. Wu (UC-Berkeley), A. Scholl (Lawrence Berkeley Nat. Lab.), A. Doran (Lawrence Berkeley Nat. Lab.), E. Arenholz (Lawrence Berkeley Nat. Lab.), W. Kim (KRISS), Chanyong Hwang (KRISS), Z. Q. Qiu (UC-Berkeley)

CoO/Fe films were grown epitaxially on Ag(001) vicinal surfaces with the steps parallel to Ag [110] axis. Magnetic hysteresis loop measurement at room temperature shows that as the CoO thickness increases to establish the antiferromagnetic order, it introduces a magnetic anisotropy to the Fe ferromagnetic layer to enhance the Co coercivity. However, we find that the step-induced uniaxial magnetic anisotropy in the Fe film is not affected by the CoO antiferromagnetic order. This result shows that the CoO only imprints a 4-fold magnetic anisotropy to the Fe film

Supported by the U.S. Department of Energy under Contract No. DE-AC02-05CH11231.