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ROTMOKE study of step-induced magnetic anisotropy in vicinal Cu/Py/Ni/Cu(001) J.X. DENG[1], College of Electronics and Informations,Hangzhou Dianzi University, SONG MA, Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, A. TAN, J. LI, Department of Physics, University of California at Berkeley, Z.D. ZHANG, Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, C. HWANG, Korea Research Institute of Standards and Science, Z.Q. QIU, Department of Physics, University of California at Berkeley — Py/Ni films were epitaxially grown on a 6_o vicinal Cu(001) substrate with steps parallel to the [110] axis. The addition of Py film increases the Ni film spin reorientation transition (SRT) thickness to permit a study of the step-induced in-plane magnetic anisotropy in a wider Ni thickness range. Rotation MOKE (ROTMOKE) was applied to determine the step-induced magnetic anisotropy in the vicinal Cu/Py/Ni/Cu(001) as a function of both the Py and Ni film thicknesses. We found that the atomic steps from the vicinal Cu(001) induce an in-plane uniaxial magnetic anisotropy that favors both Py and Ni magnetizations perpendicular to the steps. In addition, thickness-dependent ROTMOKE measurement allows a separation of the Py and Ni volume-type step-induced magnetic anisotropies. We show that Ni films exhibit different step-induced magnetic anisotropies below and above $\sim$ 5-6ML Ni thickness.

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