

Abstract Submitted
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Current-Perpendicular-to-Plane (CPP) Resistance of Cu/Al Interfaces¹ AMIT SHARMA, NIKOLETA THEODOROPOULOU, REZA LOLOEE, WILLIAM PRATT JR., JACK BASS, Department of Physics, Michigan State University, East Lansing, MI 48824 — . The recent discovery [1] that the current-perpendicular-to-plane (CPP) interface specific resistance (area A times resistance R) of Py/Al (Py = Permalloy = Ni(84)Fe(16)) is almost 10 times larger than that of Py/Cu, led us to examine also the resistances and magnetoresistances of Py/Cu/Al/Cu/Py exchange-biased spin-valves (EBSV) and [Cu/Al] $\times N$ multilayers with N repeats. Using two different techniques, we estimate the interface specific resistance of sputtered Al/Cu interfaces as $2AR(\text{Al/Cu}) \sim 2 \text{ f-ohm-m}^2$ at 4.2K. However, some of the data from these two techniques, as well as from the Cu/Al/Cu EBSV studies, show unusual behaviors that suggest that the Cu and Al atoms might not always stay where they are deposited. We will describe our CPP-resistance results, and plan to supplement them with x-ray and cross-sectional TEM studies. [1] N. Theodoropoulou et al., J. Appl. Phys. (In Press, 2006).

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