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Spin-Flipping at Sputtered Co(90)Fe(10)/Cu Interfaces[1] HOANG YEN THI NGUYEN, RAKHI ACHARYYA, WILLIAM P. PRATT JR., JACK BASS, Michigan State University — Knowledge of the spin-flipping probability, $P_{F/N} = 1 - \exp[-\delta(F/N)]$, at ferromagnetic/non-magnetic (F/N) interfaces in the Current-Perpendicular-to-Plane (CPP) geometry is minimal [1,2]. We use a new technique [2] to find δ(CoFe/Cu) at 4.2K, where CoFe = Co(90)Fe(10). With thin (3 nm) CoFe layers, the spin-diffusion length of CoFe $\sim$ 12 nm doesn't mask spin-flipping due to δ. Our most important samples, sensitive to δ(CoFe/Cu), have the form FeMn/Py/Cu/X/Cu/Py/FeMn. Here Py = Ni(80)Fe(20), the antiferromagnet FeMn pins the two Py layers to flip at a much higher field than X = [CoFe(3)/Cu(1.4)]$_n$CoFe(3), and 1.4 nm of Cu couples the CoFe layers ferromagnetically so X reverses as a unit. We measure, versus the number of repeats n, the change in specific resistance, AΔR = AR(AP) – AR(P), between states where the X moment is anti-parallel (AP) or parallel (P) to the pinned Py moments. CPP current flows through area A. Our resulting best estimate is δ(CoFe/Cu) $\approx$ 0.2. [1] J. Bass and W.P.Pratt Jr., J. Phys. Cond. Matt. **19**, 183201 (2007). [2] B. Dassonneville et al., Appl. Phys. Lett. **96**, 022509 (2010).

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