

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Measurement of spin-diffusion length in sputtered Ni films¹

CHARLES MOREAU, Albion College, WILLIAM PRATT, Michigan State University, NORMAN BIRGE, Michigan State University — The spin-diffusion length of the electron represents a fundamental transport parameter and plays a central role in the development of spintronic devices. While several measurements of the spin-diffusion length in normal metals and in ferromagnetic alloys exist, measurements in elemental ferromagnets (Ni, Fe, Co) have been scarce. We present a novel sample geometry using giant magnetoresistance (GMR) for the measurement of the spin-diffusion length in elemental ferromagnets with weak scattering asymmetry. We report the first measurement of the spin-diffusion length of Ni using an exchanged-biased Permalloy-based spin-valve, Py/Ni/Cu/Py, where the Ni layer acts as a GMR spoiler layer when its thickness becomes greater than the spin-diffusion length in Ni.

¹Work supported by NSF DMR-0405238

Charles Moreau
Albion College

Date submitted: 30 Nov 2005

Electronic form version 1.4