

Abstract Submitted  
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**Fabrication of Co/Cu Multilayers with Antiferromagnetic Coupling** NATHANIEL VARGAS, JESSICA GIFFORD, JI ZHANG, GEJIAN ZHAO, DONGRIN KIM, SALAR SIMAIE, DAVID SMITH, TINGYONG CHEN, Arizona State University — Co/Cu magnetic multilayers exhibit giant magnetoresistance (GMR) and are a prototype spintronic device. With proper thickness of Cu, the Co layers can be antiparallel to each other because of the antiferromagnetic (AF) coupling. The GMR value is maximized when the multilayer structure is aligned by an external magnetic field. Thus this point can be utilized to study many spin-dependent phenomena since spin-dependent scattering is optimized at the AF point. In this work, we fabricate the Co/Cu multilayers with AF coupling by varying the Cu and Co thickness using a wedge method by sputtering. Using Fe as a seed layer, the grown Co/Cu multilayers are textured, which is confirmed by transmission electron microscopy (TEM) results. GMR value as large as 63% has been achieved at room temperature.

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