

ANTIFERROMAGNETIC COUPLING IN CoFeB/Ru/CoFeB PREPARED BY SPUTTERING AND ION BEAM DEPOSITION

A. Zaleski¹, M. Czapkiewicz¹, J. Kanak¹, P. Wiśniowski^{1,2}, W. Powroźnik¹,
T. Stobiecki¹, S. Cardoso², P. P. Freitas²

¹ *Department of Electronics, AGH University of Science and Technology,
Al. Mickiewicza 30, 30-059 Kraków, Poland*

² *INESC Microsystems and Nanotechnologies, Rua Alves Redol, 9-1, 1000-029 Lisbon,
Portugal*

Synthetic antiferromagnets (SyAFs) CoFeB/Ru/CoFeB with varied Ru thickness (t_{Ru}) were prepared by magnetron sputtering with t_{Ru} in the range of 0.5 to 0.8 nm and ion-beam deposition (IBD) with t_{Ru} in the range of 0.5 to 0.9 nm. Both series of samples were annealed in vacuum at 280 °C .

For the as-deposited samples prepared by sputtering was observed decrease of antiferromagnetic (AF) coupling with increase of t_{Ru} . Annealed samples appeared to be ferromagnetic. Weak AF coupling was found only for the sample with highest Ru thickness.

For the annealed samples prepared by IBD were observed oscillations of the saturation field with maximum at $t_{\text{Ru}}= 0.6$ nm. The magnetization loops show also existence of biquadartc coupling component.

SyAFs with thicknesses $t_{\text{Ru}}= 0.7$ and 0.9 nm will be used as a synthetic free layer of the magnetic tunnel junctions for further experiments on current-induced magnetization switching.

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