

## EXCHANGE COUPLING ACROSS QUASI-AMORPHOUS Zr-Fe SPACER

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Fe/Zr/Fe trilayers with wedge-shaped Zr interlayer were prepared using UHV ( $5 \times 10^{-10}$  mbar) DC/RF magnetron sputtering. The planar growth and interface alloying of the Fe and Zr layers was confirmed in-situ by X-ray photoelectron spectroscopy. Furthermore, structural and magnetisation studies revealed spontaneous formation of a quasi-amorphous Fe-Zr alloy layer at the interfaces during the deposition process. Results on magnetic domains studies showed that the Fe sublayers are very weakly exchange coupled or decoupled for nominal Zr sublayer thickness greater than 3 nm. For Zr layer thickness 0.5 – 3 nm we have observed patch domains characteristic for AFM interlayer exchange coupling. The rapid decrease of the interlayer exchange coupling could be explained by its strong damping due to formation of a non-magnetic quasi-amorphous Zr-Fe alloy layer at the interfaces.

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