Giant parallel and perpendicular exchange biases in MnPd/Co bilayers

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Abstract: A systematic study of exchange bias in MnPd/Co bilayers has been carried out in both parallel and perpendicular directions, where the dependences of blocking temperature, exchange bias and unidirectional anisotropy constant on the thicknesses of MnPd and Co layers were investigated. One of the particular interests is that the blocking temperature of parallel exchange bias is higher than that of perpendicular exchange bias which can be interpreted as the difference of the ordering in parallel and perpendicular direction. The other is that a huge unidirectional anisotropy constant, J_K = 5.5 erg/cm ^{2} was observed, which is in reasonable agreement with the theoretical prediction based on the model by Meiklejohn and Bean. ?? 2007 WILEY-VCH Verlag GmbH & Co. KGaA,.

Index Keywords: Anisotropy constant; Blocking temperature; Perpendicular exchange biases; Giant magnetoresistance; Magnetic anisotropy; Mathematical models; Problem solving; Thickness measurement; Exchange coupling

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