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Configurational Dependence of the Magnetization Dynamics in Spin Valve Systems[1] RUSLAN SALIKHOV, RADU ABRUDAN, FRANK BRUESSING, KURT WESTERHOLT, HARTMUT ZABEL, Ruhr-Universitaet Bochum, FLORIN RADU, Helmholtz-Zentrum Berlin, ILGIZ A. GARIFULLIN, Zavoisky Physical-Technical Institute Kazan — Spin current related phenomena in F1/N/F2 spin valve heterostructures, where F is a ferromagnetic layer and N is a nonmagnetic metal layer, are important in modern magnetism. Spin valve theory predicts a spin pumping effect with a precessional relaxation rate that depends on the configuration of F1 and F2 [1]. Using time-resolved x-ray resonant magnetic scattering we report on the precessional dynamics of spin valve systems with parallel (P) and antiparallel (AP) orientation. We observe in Co/Cu/Py spin valve systems an increase of the magnetic damping parameter in Py with changing magnetization direction of Py and Co layers from P to AP orientation [2]. Furthermore we studied the temperature dependence of the spin pumping effect and possible other causes for the configurational dependence of the damping parameter, such as domain wall induced coupling or magnetic dipole coupling [3]. The main focus is on Co/Cu/Py and on Co_2MnGe/V/Py trilayers with spin valve properties.

[1] J.-V. Kim, C. Chappert, JMMM **286**, 56 (2005)
[2] R. Salikhov *et al.*, APL **99**, 092509 (2011)
[3] R. Salikhov *et al.*, PRB **86**, 144422 (2012)

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