Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Spin-orbit assisted transmission at 3d/5d metallic interfaces HENRI JAFFRES, Unite Mixte de Physique CNRS-Thales, Palaiseau France, QUENTIN BARBEDIENNE, None, AUGUSTIN JOUY, Laboratoire de Physique et des plasma, Ecole Polytechnique, Palaiseau, France, NICOLAS REYREN, JEAN-MARIE GEORGE, Unite Mixte de Physique CNRS-Thales, Palaiseau France, LABORATOIRE DE PHYSIQUE ET DES PLASMAS, ECOLE POLYTECHNIQUE, PALAISEAU, FRANCE TEAM, UNITE MIXTE DE PHYSIQUE CNRS-THALES, PALAISEAU, FRANCE TEAM — We will describe the anatomy of spin-transport and spin-orbit torques (SOT) at spin-orbit active interfaces involving 5d transition metals (TM) as heavy metals spin-Hall effect (SHE) materials and 3d TM in [Co,Ni]/Pt, NiFe. NiFe/Au:W and Co/Pt/Au;W systems. In the case of Pt, recent studies have put forward the major role played by the spin-memory loss (SML), the electronic transparency at 3d/5d interfaces and the inhomogeneity of the conductivity in the CIP-geometry. Ingredients to consider for spin-transport and spin-Hall Magnetoresistance (SMR) are the conductivity, the spin-current profiles across the multilayers and the spin-transmission. We will present SMR measurements observed on these systems possibly involving interfacial Anisotropy of Magnetoresistance (AIMR) contributions. We analyze in large details our SMR signals in the series of samples owing: i) the exact conductivity profile across the multilayers via the Camley-Barnas approach and the spin current profile generated by SHE. We will discuss the role of the generalized spin-mixing conductance on the spin-transport properties and spin-orbit torques.

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Date submitted: 12 Nov 2016 Electronic form version 1.4