## X-ray Resonant Magnetic Scattering Study of Magnetic Proximity Effect in Pd/Co/Pd and Pt/Co/Pt Trilayers

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We present an element and depth resolved x-ray resonant magnetic scattering(XRMS) study of the magnetic proximity effect in nonmagnetic/ferromagnetic/nonmagnetic (NM/FM/NM) trilayers. In specific, the top and bottom Pd(Pt) moments in Pd/Co/Pd and Pt/Co/Pt thin films, which is the archetypical film structure in spin-orbitronic devices, have been measured with x-ray magnetic circular dichroism (XMCD) and x-ray resonant magnetic reflectivity (XRMR) at the Pd L3 (3.174 keV) and Pt L3 (11.56 keV) edges. We found form a quantitative analysis of XRMS curves that the induced Pd(Pt) magnetic moments at the top Co/Pd(Pt) interface are significantly larger than the Pd(Pt) moments at the bottom Pd(Pt)/Co interface.[1] Since interfacial spin transport properties in the NM/FM/NM structure are known to be largely affected by the magnetic proximity effect, such asymmetry in magnetic proximity effects could be important for understanding spin transport characteristics in FM/NM systems and its potential application to spin devices.

## Reference

[1] Dong-Ok Kim et. al., Scientific Report 6, 25391 (2016).