

# Transfer of magnetic anisotropy through an antiferromagnet in Co/NiO/Fe multilayer structure

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Recently we showed that ferromagnetic layer with strong uniaxial magnetic anisotropy determines the spin orientation of neighbouring antiferromagnetic layer in NiO/Fe [1, 2]. In this contribution we further extend the research to trilayer structure. With a use of the X-ray linear and circular dichroism (XMLD and XMCD) we investigated the magnetic properties of Fe/NiO(4nm)/Co(1nm) trilayer epitaxially grown on W(110) substrate. Fe/W(110) is a prototypical system for which together with a decrease of Fe thickness spontaneous magnetization switches from [001] to [1-10] direction [3]. We showed that Fe thickness-driven spin reorientation transition in Co/NiO/Fe/W(110) is transferred not only to NiO layer but to ferromagnetic Co layer as well. Thus, a considerable exchange coupling occurs at both NiO/Fe and Co/NiO interfaces. Our studies reveal that modulation of the magnetic state and anisotropy of Co layer can be triggered not only by changing Fe thickness but also by applying a small magnetic field or changing the temperature.

## References:

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- [3] Gradmann U., Korecki J., Waller G., *Appl. Phys. A* **39**, 1986