

## **Peculiarities of magnetic and magneto-optical properties of multilayered Co/Cu films**

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The results of magneto-optical Kerr effect measurements for the series of the multilayered [Co/Cu]<sub>20</sub> ultra-thin films are presented. The Cu-layer thicknesses ( $d_{\text{Cu}}$ ) (from 6 to 20 Å) were different in various films, but they were identical within one film. The Co-layer thickness in all films was 8 Å. The multilayers were deposited by the magnetron sputtering.

The decreasing Cu-thickness dependence of the spontaneous Kerr rotation  $\theta_s(d)$  had the peculiarities at  $d_{\text{Cu}} = 9, 13.5$  and  $18$  Å – two significant peaks and the minimum of  $\theta_s$ , respectively. In these three films the strong linear enhancement of the Kerr rotation at magnetic field strengths  $H > 6$  kOe was revealed. Such magneto-optical properties point out periodicity in changing of electronic energy spectrum and magnetic properties of the Cu/Co interfaces as a function of  $d_{\text{Cu}}$ . The most probable reason of these changes can be a quantum size effect for spin-polarized electrons, having Fermi energy, in the Cu-layers and its influence on hybridization of d(Co)- and sp(Cu)-electrons at the Cu/Co interfaces. The quantum size effect also is supposed to influence the formation of Co-layer and Co/Cu interface structures (ferromagnetic jumper between Co-layers). It is confirmed by the periodical with the Cu-layer thickness changes of the magnetic characteristics of these films – the normalized remanent Kerr rotation and the coercive field.

### **5. Nano-structure, Surfaces, and Interfaces**

Surfaces and interfaces; Films, multilayers and superlattices; Exchange interaction and anisotropy

Poster presentation

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