

ELECTRONIC STATE OF COBALT  
IN ZnO:Co FILMS

*G. Lashkarev, V. Karpyna, V. Dobrowolski,  
V. Lazorenko, V. Baturin<sup>1</sup>, A. Karpenko<sup>1</sup>,  
R. Szymczak<sup>2</sup>, M. Baran<sup>2</sup>, W. Pacusk<sup>3</sup>*

Institute for Problems of Material Science,  
Nat. Acad. Sci. of Ukraine  
(3, Krzhyzhanovskiyi Str., Kyiv 03142, Ukraine;  
e-mail: gvl35@ipms.kiev.ua),

<sup>1</sup>Institute of Applied Physics, Nat. Acad. Sci. of Ukraine  
(58, Petropavlivska Str., Sumy 40034, Ukraine),

<sup>2</sup>Institute of Physics, Polish Academy of Sciences  
(32/46, al. Lotników, Warsaw, Poland),

<sup>3</sup>Institute of Experimental Physics, Warsaw University  
(69, ul. Hoża, Warsaw, Poland)

S u m m a r y

The results of researches of the electron state of cobalt in thin zinc oxide films deposited by the method of radio-frequency magnetron sputtering have been reported. X-ray absorption spectroscopy was used to study the *K*-absorption spectra of cobalt in ZnO:Co. The temperature dependence of the magnetic moment of the films within the temperature interval 4.2–300 K has been measured.