

# Investigation of Exchange Bias Effect for $\text{Pt}_x\text{Co}_{1-x}/\text{CoO}$ Bilayer Thin Films by Pt Concentration

M.E. Aköz,<sup>1</sup> E. Demirci,<sup>1</sup> U. Parlak,<sup>1</sup> M. Öztürk,<sup>1</sup> N. Akdoğan,<sup>1</sup> O. Öztürk,<sup>1</sup>  
and M. Erkovan<sup>2</sup>

<sup>1</sup>*Gebze Institute of Technology, Dept of Physics*

<sup>2</sup>*Sakarya University, Dept of Metallurgical and Materials Engineering*

Exchange Bias (EB) effect is interactions between ferromagnetic and antiferromagnetic layers. Although its origin is not clear, it has wide usage area in technological applications; read heads, MRAMs and spin valves. In this study, our goal was that EB effect between having different chemical ratio of  $\text{Pt}_x\text{Co}_{1-x}$  which have large magnetocrystalline anisotropy constant ( $x$  changes from 50 to 90 by 10% steps). Bilayer samples were grown at UHV conditions by magnetron sputtering deposition technique. We used XPS for the chemical composition for PtCo and CoO. Before investigating the EB of samples, we used MOKE technique to determine easy-axis of samples and values of anisotropy. The EB effect of all samples were investigated by using VSM. We observed two different results; the blocking temperatures, and effect of decreasing Pt concentration at PtCo. According to results, the manipulation of common interface between PtCo and CoO layers gives us the possibility of tune exchange bias with Pt concentration and temperature.