

# Perpendicular Exchange Bias Properties of Ni/Pt/CoO Films

U. Parlak,<sup>1</sup> E. Demirci,<sup>1</sup> M. E. Aköz,<sup>1</sup> M. Öztürk,<sup>1</sup> N. Akdoğan,<sup>1</sup>  
O. Öztürk,<sup>1</sup> S. 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 effect plays a critical role in spin-dependent scattering mechanisms, such as spin valve structures, due to its unidirectional character. It manifests itself as a certain shift in magnetic hysteresis loop because of exchange interactions at the FM/AFM interface. Exchange biased systems with perpendicular magnetization have been reported starting from nearly a decade ago. Perpendicular exchange bias (PEB) systems also gained importance both scientifically and technologically, and commonly considered as a breakthrough for high density storage media. In this study, we have investigated the thickness dependency of magnetron sputtered thin films which were prepared as a series of (tÅ)Ni/Pt(5Å)/(20Å)CoO while t ranges from 12 to 30Å. Platinum was deposited between Ni and CoO layers to prevent ultra-thin nickel films from oxidization Exchange bias measurements have been measured by using vibrating sample magnetometer (VSM). Exchange bias field and blocking temperatures with respect to FM layer thicknesses will be presented as a result.

*This study is supported by TUBITAK through the project number 114F004.*