



## INVESTIGATION OF THE MAGNETIC PROPERTIES OF ELECTRODEPOSITED NiFe THIN FILMS

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Most magnetic devices used today are based on the magnetic thin film. Rapid and extensive developments in magnetic sensor / actuator and magnetic recording technology place a growing demand on the use of different thin film fabrication techniques for magnetic materials. The electroplating technique is especially interesting due to its low cost, high throughput and high quality of the deposits which are extensively used in the magnetic recording industry to deposit relatively thick permalloy layers. Much recent attention has focused on the electrodeposited NiFe thin films, which exhibit giant magnetoresistive behaviour as well as anisotropic magnetoresistance properties.

In this study, NiFe thin films were developed by using electrodeposition technique and their crystallinity structures were investigated by using x-ray diffractometer measurements. The magnetoresistive properties of the samples were investigated by Van der Pauw method with a home made electromagnet under the different magnetic fields. The magnetoresistance measurements of the samples were carried out in two configurations; current parallel ( longitudinal ) and perpendicular ( transverse ) to the magnetic field. In the longitudinal configuration giant magnetoresistance was observed while anisotropic magnetoresistance was detected in the other configuration.