

Abstract

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This report presents the instrument for measuring GMR films using computer control. It shows design and construction of GMR measurement with variation of external magnetic field. It comprises of the design and construction of a constant current source for an electromagnet , method of measurement with low error and ,in order to ensure the accuracy of this instrument. Some GMR film of Fe/Cr multilayer were studied.

It is found from results that magnetoresistance and coercivity of GMR films are dependent on the bias current and the angle of measurement, and the magnetoresistance with a zero external magnetic field is changed as the bias current changes. Also, this instrument is able to use for studying other characteristics of thin films.