

A simple automated system for hall effect measurements.

ABSTRACT

This project deals with the development of a computer interfacing technique for the study of Hall effect. A stepper motor with resolution of 0.1 mm was used to move a pair of permanent magnet backward and forward against the sample. The General Purpose Interface Bus (GPIB) card together with a digital nanovoltmeter and teslameter using serial port siri RS232, interface were used to measure the potential difference and magnetic field strength, respectively. Hall effect for $\text{YBa}_2\text{Cu}_3\text{-xTi}_x\text{O}_{7-\delta}$ system ($x=0.00, 0.01, 0.03$ and 0.05) showed positive sign Hall coefficient showing that the material is a hole type carrier at room temperature. Parameters such as Hall coefficient and charge carrier concentration were also display on the front panel of Lab View programming.

Keyword: Hall effect; Hall coefficient; Charge carrier concentration.