

Thesis Proposal for the Master's Degree in Physics

Title:

Hall Effect Apparatus and Magnetoresistance Measurements^{***}

Abstract:

The objective of the internship is to build an apparatus for studying the Hall effect. The Hall effect occurs when a conductor carrying an electric current is subjected to a magnetic field perpendicular to the current's flow. This field causes a deflection of electric charges within the material, creating a potential difference (Hall voltage) that is perpendicular to both the current and the magnetic field. This effect is used to measure the charge density and mobility in the material, among other properties.

The Hall effect apparatus will be designed to operate with both variable current (0.0A - 0.8A) and variable magnetic field (0.0T - 1.0T). The entire setup will be managed by a computerized system for control and data acquisition, and measurements will be conducted on silicon wafers to verify the apparatus's functionality.

Supervisors:

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Laboratory where the thesis is carried out:

DLS Laboratory, Bldg 33B, Applied Physics Laboratory for Technologies, Cultural Heritage and Science Communication, Bldg 33C.

Any participating external structures:

Type of thesis:

compilation

research:

specify if experimental theoretical or data analysis