

HALL EFFECT IN BISMUTH THIN FILM



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ABSTRACT

Hall coefficient and Hall mobility in bismuth thin films are measured for various values of film thickness. The Hall mobility is found to be smaller than the values reported for bulk material. This is consistent with theoretical expectation that the resistivity of thin film specimen is larger than that of bulk material. The Hall coefficient changes sign from positive at smaller thickness to negative at larger thickness (about 1960 \AA). The magnitude of the coefficients for films of all thickness lies between the two values for bulk material with the magnetic field pointing parallel or perpendicular to the principal axis of bismuth lattice as reported in the literatures. This and the changing of sign of the Hall coefficients are interpreted as due to the undetermined orientation of the crystallites in the film resulting from the manner of preparation of the films.



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TABLE OF CONTENTS

	Page
ABSTRACT	iii
ACKNOWLEDGEMENT	iv
LIST OF TABLES	vii
LIST OF ILLUSTRATIONS	viii
CHAPTER	
I INTRODUCTION	1
II THEORY	3
2.1 The Hall Effect	3
2.2 Theory of Hall Effect in Electron Gas Model	4
2.3 Hall Effect in Bismuth in Band Theory	7
2.4 Measurement of the Hall Effect	8
2.4a Galvanomagnetic and Thermomagnetic Effects	8
2.4b Methods of Measurement of Electrical Conductivity and Hall Coefficient	10
III EXPERIMENTAL PROCEDURE	13
3.1 Preparation of Bismuth Thin Films and Electrical Contacts	13
3.2 Measurement of Film Thickness	14
3.3 Measurement of Hall Coefficient and Conductivity	17



	Page
IV. RESULTS AND DISCUSSIONS	21
4.1 Determination of Hall Coefficients	21
4.2 Determination of Electrical Conductivity and Hall Mobility	26
4.3 Discussions	27
4.3a Measurement of Hall Mobility	27
4.3b Measurement of Hall Coefficients	28
BIBLIOGRAPHY	33
VITA	34

LIST OF TABLES

TABLE		Page
4-1	Hall Voltage and Hall Coefficient of Bi Thin Films	21
4-2	Conductivity and Hall Mobility of Bi Thin Films...	26

LIST OF ILLUSTRATIONS.

FIGURE		Page
1	Conditions for Hall Effect for Electron Conduction...	3
2	E vs k Diagram for Bi.....	8
3	Three-probe Circuit for Measuring the Hall Effect....	12
4	Positions of Silver Paste Contacts.....	13
5	Coating Chamber.....	14
6	Finished Bi Film with Electrical Leads	14
7	Setup for Measurement of Film Thickness.....	15
8	Multiple Beam Interferometry Technique	15
9	Interference Fringes	16
10	Film on the Microscope Slide Attached to the Plastic Plate for Mounting in the Magnetic Field.....	17
11	General Setup of the Experiment.....	18
12	Photograph of the Apparatus.....	20
13	Dependence of Hall Voltage on Magnetic Field for Films of Different Thickness.....	31
14	Dependence of Hall Voltage on Film Current for Films of Different Thickness.....	32