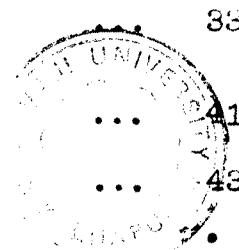


C O N T E N T S

Chapter	Title	Page
I	1.1.a INTRODUCTION	... 1
	1.1.b Historical	... 1
1.2	Crystal Structure	... 4
	1.2.a Spinel Structure	... 4
	1.2.b Garnet Structure	... 6
	1.2.c Hexagonal Structure	... 8
	1.2.d Perovskite Structure	... 10
1.3	Electrical behaviour of Ferrites	... 10
	1.3.1 The D.C. Conductivity	... 10
	1.3.2 Dielectric dispersion	... 13
	1.3.3 Electrical switching and memory phenomenon	... 14
1.4	Role of other factors	... 14
1.5	Applications of ferrites	... 16
1.6	Orientation of the work	... 18
	References	... 20
II	HEXAGONAL FERRITES	
2.1	Introduction	... 23
2.2	Magnetic considerations of a permanent magnet material	... 24
	2.2.a Magnetic hysteresis	... 24
	2.2.b Crystal anisotropy	... 27
2.3	Hexagonal ferrites	... 29
	2.3.1 Crustal structure of hexagonal ferrite	... 33
	2.3.2 Magnetization	... 41
	2.3.3 Magnetocrystalline Anisotropy	... 43



Contents - (contd.)

Chapter	Title	Page
2.4	A brief review of recent research work on hexagonal ferrites	... 45
	References	... 50
III	PREPARATION OF FERRITES AND EXPERIMENTAL TECHNIQUES	
3.1	Introduction	... 55
3.2	Section A : Preparation of ferrites	... 56
3.3	Preparation of ferrite composition	... 57
3.3.a	Oxide method	... 57
3.3.b	Decomposition method	... 58
3.3.c	Hydroxide precipitation	... 58
3.3.d	Oxalate precipitation	... 59
3.4.a	Presintering	... 59
3.4.b	Sintering	... 60
3.4.c	Sintering atmosphere	... 60
3.4.d	Hot pressing	... 61
3.5	Preparation of ferrite samples	... 62
3.5.a	Preparation	... 62
3.5.b	Pellet formation	... 64
3.5.c	Final sintering	... 64
3.6	Section B : Experimental technique for conductivity measurement	... 65
	References	... 67
		...
		•

Contents - (contd.)

Chapter	Title	Page
IV	ELECTRICAL CONDUCTIVITY	
4.1	Introduction	... 68
4.2	Conduction mechanism	... 69
4.2.a	Conduction in oxides	... 71
4.2.b	Mixed valancies and controlled valancy semiconductor	... 72
4.2.c	Conduction in ferrites	... 73
4.3	Electron hopping and polarons	... 75
4.4	Conductivity and thermoelectric power	... 78
4.4.a	Conductivity	... 78
4.4.b	Thermoelectric power	... 79
4.5	Results and discussion	... 79
	References	... 97
	Synopsis	... 100
	...	