

C O N T E N T S

Page No.

CHAPTER I

INTRODUCTION

1.1	General	..	1
1.2	X-ray Diffraction	..	4
1.3	Afterglow (AG) and Thermally Stimulated Luminescence	..	6
1.4	Thermally Stimulated Conductivity	..	9
1.5	Electrical Conductivity	..	11
1.6	Optical Absorption	..	14

CHAPTER II

REVIEW OF THE PREVIOUS WORK

2.1	Introduction	..	17
2.2	Review of the previous work	..	18

CHAPTER III

MATERIAL PREPARATION AND EXPERIMENTAL METHODS

3.1	Introduction	..	40
3.2	Material Preparation	..	41
3.2.1	Preparation of $\text{Cd}_3(\text{PO}_4)_2$	..	41
3.2.2	Preparation of Cd_3P_2	..	42
3.2.3	Preparation of Thin Films	..	44

3.3	TSL Set Up	..	46
3.3.1	Vacuum Chamber	..	46
3.3.2	Sample Holder	..	46
3.3.3	Detection System	..	47
3.4	Excitation Methods	..	48
3.5	Optical Absorption	..	48
3.6	Electrical Conductivity Measure- ments	..	49

CHAPTER IV

STUDIES ON CADMIUM PHOSPHATE

4.1	Introduction	..	52
4.2	Results	..	53
4.2.1	X-ray Diffraction	..	53
4.2.2	Thermally Stimulated Lumines- cence (TSL)	..	55
4.2.3	Thermally Stimulated Conducti- vity (TSC)	..	58
4.3	Discussion	..	60

CHAPTER V

STUDIES ON CADMIUM PHOSPHIDE

5.1	Introduction	..	68
5.2	Results	..	70
5.2.1	X-ray Diffraction	..	70
5.2.2	Electrical Conductivity	..	73
5.2.3	Optical Absorption	..	77
5.3	Discussion	..	78

CHAPTER VI

SUMMARY AND CONCLUSIONS

..

6.1 Introduction

..

86

6.2 Summary and Conclusions

..

87

REFERENCES