

C O N T E N T S

<u>CHAPTER</u>		<u>PAGE</u>
	SUMMARY	i
I	<u>INTRODUCTION</u>	1
II	<u>LUMINESCENCE</u>	8
	(A) General Aspect of Luminescence	8
	(B) Theories of Luminescence (Absorption and Emission)	14
	(i) Band Theory Model	14
	(ii) Configurational Co-ordinate Model	18
	(C) Concentration Quenching	24
	(D) Imperfections in Crystalline Solids	25
	(E) Thermoluminescence	26
	(F) Electroluminescence	28
	(G) Radiophotoluminescence	30
	(H) Cathodoluminescence	30
III	<u>LUMINESCENCE OF THALLIUM-DOPED ALKALI HALIDES</u>	32
	(A) Luminescence of Undoped Alkali Halides	32
	(B) Luminescence of Thallium-Doped Alkali Halides	35
	(C) Thallium Absorption	42
	(D) Thallium Emission	45
	(E) Thallium-Dimer Centre	52
	(F) Other s^2 Ions	53
	(G) Phosphorescence and Thermoluminescence	54

<u>CHAPTER</u>		<u>PAGE</u>
IV	<u>EXPERIMENTAL DETAILS</u>	60
	(A) Sample Preparation	60
	(B) Instrumentation	64
	(a) Principles of Operation and Description	64
	(b) Optical Unit	66
	(c) Photomultiplier and Microphotometer	69
	(d) Procedure for Obtaining Excitation and Emission Spectra	70
V	<u>RESULTS AND DISCUSSION</u>	73
	(A) Results	73
	(B) Discussion	95
	(i) Excitation Bands Favouring Ultraviolet Emission	96
	(ii) Excitation Bands Favouring Near-Ultraviolet Emission	99
	(iii) Excitation Bands Favouring Visible Emission	108
	<u>CONCLUSIONS</u>	117
	<u>REFERENCES</u>	121

---ooo000ooo---