

LIST OF TABLES

Table No.	Title	Page No
2.3.1	Data of the air at 25 ⁰ C in a typical vacuum used for film deposition.	21
3.4.1.1	Fundamental and excitonic energy gaps for TiPcCl ₂ thin films annealed in air at various temperatures.	69
3.4.1.2	Fundamental and excitonic energy gaps for TiPcCl ₂ thin films annealed in vacuum at different temperatures.	71
3.4.1.3	Fundamental and excitonic energy gaps for TiPcCl ₂ thin films deposited at various substrate temperatures.	74
3.4.2.1	Fundamental and excitonic energy gaps for SiPcCl ₂ thin films annealed in air at different temperatures.	82
3.4.2.2	Fundamental and excitonic energy gaps for SiPcCl ₂ thin films annealed in vacuum at different temperatures.	82
3.4.2.3	Fundamental and excitonic energy gaps for SiPcCl ₂ thin films deposited at different substrate temperatures.	85
3.4.3.1	Fundamental and excitonic energy gaps for SnPcCl ₂ thin films annealed in air at different temperatures.	93
3.4.3.2	Fundamental and excitonic energy gaps for SnPcCl ₂ thin films annealed in vacuum at different temperatures.	93
3.4.3.3	Fundamental and excitonic energy gaps for SnPcCl ₂ thin films deposited at different substrate temperatures.	96
3.4.4.1	Fundamental and excitonic energy gaps for SnPc thin films annealed in air at different temperatures.	104
3.4.4.2	Fundamental and excitonic energy gaps for SnPc thin films annealed in vacuum at different temperatures.	104
3.4.4.3	Fundamental and excitonic energy gaps of SnPc thin films deposited at different substrate temperatures.	107
4.4.1.1	Variation of activation energy for TiPcCl ₂ thin films for different thicknesses.	122
4.4.1.2	Variation of activation energy for SiPcCl ₂ thin films for different thicknesses.	123
4.4.1.3	Variation of activation energy for SnPcCl ₂ thin films for different thicknesses.	124

4.4.1.4	Variation of activation energy for SnPc thin films for different thick nesses.	125
4.4.2.1.	Variation of activation energy for TiPcCl ₂ thin films annealed in air at different temperatures.	127
4.4.2.2.	Variation of activation energy for SiPcCl ₂ thin films annealed in air at different temperatures.	128
4.4.2.3.	Variation of activation energy for SnPcCl ₂ thin films annealed in air at different temperatures.	129
4.4.2.4.	Variation of activation energy for SnPc thin films annealed in air at different temperatures.	130
4.4.3.1.	Variation of activation energy for TiPcCl ₂ thin films of thickness 250nm annealed in vacuum at different temperatures.	133
4.4.3.2.	Variation of activation energy for SiPcCl ₂ thin films of thickness 400nm annealed in vacuum at different temperatures.	134
4.4.3.3.	Variation of activation energy for SnPcCl ₂ thin films of thickness 365nm annealed in vacuum at different temperatures.	135
4.4.3.4.	Variation of activation energy for SnPc thin films of thickness 400nm annealed in vacuum at different temperatures.	136
4.4.4.1.	Variation of activation energy for TiPcCl ₂ thin films of thickness 550nm deposited at different substrate temperatures.	139
4.4.4.2.	Variation of activation energy for SiPcCl ₂ thin films of thickness 180nm deposited at different substrate temperatures.	140
4.4.4.3.	Variation of activation energy for SnPcCl ₂ thin films of thickness 270nm deposited at different substrate temperatures.	141
4.4.4.4.	Variation of activation energy for SnPc thin films of thickness 250nm deposited at different substrate temperatures.	142
5.4.1.1	Observed and calculated interplanar distances (d_{hkl}) with the corresponding Miller indices and 2θ values for TiPcCl ₂ powder.	154
5.4.1.2	Variation of structural parameters with annealing temperature in air for TiPcCl ₂ thin film of thickness 430 nm.	157
5.4.1.3	Variation of structural parameters with annealing temperature in vacuum for TiPcCl ₂ thin film of thickness 430 nm.	157
5.4.1.4	Variation of average grain size with substrate temperature for TiPcCl ₂ thin films of thickness 330 nm.	160
5.4.2.1	Observed and calculated interplanar distances (d_{hkl}) with the corresponding Miller indices and 2θ values for SiPcCl ₂ powder.	164

5.4.2.2	Variation of structural parameters with annealing temperature in air for SiPcCl ₂ thin film of thickness 450 nm.	167
5.4.2.3	Variation of structural parameters with annealing temperature in vacuum for SiPcCl ₂ thin film of thickness 450 nm.	167
5.4.3.1	Observed and calculated interplanar distances (d_{hkl}) with the corresponding Miller indices and 2θ values for SnPcCl ₂ powder.	172
5.4.3.2	Variation of structural parameters with annealing temperature in air for SnPcCl ₂ thin film of thickness 500 nm.	175
5.4.3.3	Variation of structural parameters with annealing temperature in vacuum for SnPcCl ₂ thin film of thickness 500 nm.	175
5.4.3.4	Variation of average grain size with substrate temperature for SnPcCl ₂ thin films of thickness 500 nm.	177
5.4.4.1	Observed and calculated interplanar distances (d_{hkl}) with the corresponding Miller indices and 2θ values for SnPc powder.	179
5.4.4.2	Variation of structural parameters with annealing temperature in air for SnPc thin film of thickness 470 nm.	182
5.4.4.3	Variation of structural parameters with annealing temperature in vacuum for SnPc thin film of thickness 470 nm.	182
5.4.4.4	Variation of average grain size with substrate temperature for SnPc thin films of thickness 550 nm.	184
6.4.1.1	Variation of optical band gap with gamma ray dosage and exposure time for SiPcCl ₂ , TiPcCl ₂ , SnPcCl ₂ and SnPc thin films.	202
6.4.2.1	Variation of thermal activation energy for different gamma ray dosages and exposure times for γ -irradiated TiPcCl ₂ , SiPcCl ₂ , SnPcCl ₂ and SnPc thin films.	209
