

CONTENTS

Acknowledgments	ii
Abstract	iii
Abstrak	iv
Table of Contents	1
CHAPTER 1 Introduction	3
CHAPTER 2 Theory and Review	5
2.1 Molecular Electronics	5
2.1.1 Donor-Acceptor Complexes	5
2.1.2 Conjugated Polymers	8
2.1.3 Coordination Compounds	11
2.2 Theory of Electronic Conduction in Molecular Electronics	12
2.2.1 Tunneling Model	13
2.2.2 Hopping Model	14
2.2.3 Effect of Doping on the Conductivity	15
2.3 Fourier Transform Infrared Spectroscopy	16
CHAPTER 3 Experimental Technique	23
3.1 Preparation of Sample	23
3.1.1 Copper(II) 4-Aminobenzoate	23
3.1.2 Copper(II) 4-Aminobenzoate Doped with Iodine	23

3.2	Fourier Transform Infrared Spectroscopy	24
3.3	Conductivity Measurements	25
3.3.1	Room Temperature Conductivity	28
3.3.2	Low Temperature Conductivity	28
3.3.3	Annealing Process	29
CHAPTER 4	Results and Discussion	30
4.1	Fourier Transform Infrared Spectroscopy	30
4.1.1	Copper(II) 4-Aminobenzoate	30
4.1.2	Copper(II) 4-Aminobenzoate Doped with Iodine	35
4.1.3	The Effect of Annealing on the Structure of Copper(II) 4-Aminobenzoate	40
4.1.4	The Effect of Annealing on the Structure of Copper(II) 4-Aminobenzoate Doped with 20% Iodine	44
4.1.5	Conclusion	48
4.2	Conductivity	49
4.2.1	Conductivity of Copper(II) 4-Aminobenzoate	51
4.2.2	Conductivity of Copper(II) 4-Aminobenzoate Doped with Iodine	59
4.3	Effect of Annealing on Conductivity	66
CHAPTER 5	Conclusion and Suggestions for Further Work	70
Appendix		71