Determining the Mobility of Charge Carriers in Organic Semiconductors

Masters' Thesis

Submitted in partial fulfillment of the requirements of
BITS F421T Thesis

By

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Declaration of Authorship

I, Pranay Venkatesh, declare that this Masters' Thesis titled, 'Determining the Mobility of Charge Carriers in Organic Semiconductors' and the work presented in it are my own. I confirm that:

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- Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.
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- I have acknowledged all main sources of help.
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This is to certify that the thesis entitled, "*Determining the Mobility of Charge Carriers in Organic Semiconductors*" and submitted by Pranay Venkatesh ID No. 2019B2A11004P in partial fulfillment of the requirements of BITS F421T Thesis embodies the work done by him under my supervision.

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Abstract

Master of Science

Determining the Mobility of Charge Carriers in Organic Semiconductors

by Pranay Venkatesh

The Thesis Abstract is written here (and usually kept to just this page). The page is kept centered vertically so can expand into the blank space above the title too...

Acknowledgements

The acknowledgements and the people to thank go here, don't forget to include your project advisor...

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Abbreviations

LAH **L**ist **A**bbreviations **H**ere

Physical Constants

Speed of Light $c = 2.997\ 924\ 58 \times 10^8\ \mathrm{ms}^{-\mathrm{S}}$ (exact)

Dedicate this to someone, anyone.

Chapter 1

Introduction

1.1 Semiconductor Materials

1.2 Electronic Structure

The electronic structure is the solution of the quantum states of electrons in a given chemical system. Typically, this involves determining the energies and wavefunctions of the various states. This can be done by solving the Schrödinger equation for molecules.

1.3 Phonons

Chapter 2

Organic Semiconductor Materials

2.1 Introduction

2.2 Rubrene

2.3 Y6

Chapter 3

Polarons

3.1 Introduction

3.2 Pekar's Polaron

3.3 Fröhlich Polaron

3.4 Holstein Polaron

3.5 Feynman Variational Approach to the polaron problem

Chapter 4

Path Integrals and Quantum Dynamics

Appendix A

Appendix Title Here

Write your Appendix content here.