**TITLE**

by

**Kraig Andrews**

Ph.D. Disseration Prospectus

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Advisor

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**ABSTRACT**

**TITLE HERE**

by

**Kraig J. Andrews**

August 2008

Advisor: Dr. Zhixain Zhou
Major: Physics
Degree: Doctor of Philosophy

Abstract here

# Table of Contents

# List of Figures

# List of Tables

# Chapter 1

# Introduction

## 1.1 The Conception of Semiconductors

Here we present work by [2, 1].

| Semiconductor | Band Gap (eV) | Electron Mobility[1] ($cm^2/V \cdot s$) | Hole Mobility[1] ($cm^2/V \cdot s$) | Lattice Constant (Å) |
|---|---|---|---|---|
| Si | 1.12 | 1,500 | 470 | 5.43095[a] |
| Ge | 0.67 | 3,900 | 1,900 | 5.64613[a] |
| GaAs | 1.42 | 8,500 | 400 | 5.6533[b] |
| CdS | 2.5 | 300 | 50 | 5.8320[c] |
| AlAs | 2.16 | 1,200 | 400 | 5.6622[b] |
| ZnS | 3.66 | 165 | 5 | 5.410[d] |

Table 1.1: Selected properties of some common semiconductors at $T = 300\,\mathrm{K}$. Adapted from ref. [5].

[1] Drift mobilities in the purest materials.
[a] Diamond cubic crystal structure [4].
[b] Zinc blende crystal structure [3].
[c] Hexagonal and cubic... citation needed.
[d] Notes on ZnS structure.

## 1.2 Evolution of Semiconductors

## 1.3 Interest and Development of Two-dimensional Materials

## 1.4 Current State of Two-dimensional Materials

# Chapter 2

# Chapter 2

## 2.1 Section Heading

# Chapter 3

# Chapter 3

## 3.1 Section Heading

# Chapter 4

# Conclusion

## 4.1 Heading

# Bibliography

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[5] Dieter K. Schroder. *Semiconductor Material and Device Characterization.* John Wiley and Sons, Inc., Hoboken, New Jersey, 3rd edition, 2006.