## **Dissertation Title**

by

### Zahiruddin Alamgir

A dissertation submitted to the University at Albany, State University of New York

*in partial fulfillment of the requirements for the degree of Doctor of Philosophy* 

Department Name

December 2017

### **Declaration**

I, Zahiruddin Alamgir, declare that this thesis titled, "Elucidation and Optimization of Resistive Random Access Memory Switching Behavior for Advanced Computing Applications", and the work presented in it are my own. Studies discussed in the part of Chapter 3, Chapter 5 and Chapter 6 have been either published or accepted in the following citations and I am the lead author of the works.

- "Flow-based computing on nanoscale crossbars: Design and implementation of full adders".
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- "Pulse width and height modulation for multi-level resistance in bilayer TaO<sub>x</sub> based RRAM".
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"The ability to perceive or think differently is more important than the knowledge gained."

David Bohm

# Abstract

Your abstract will go here.

# Acknowledgements

You should mention your advisor, lab-mates and others here.

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# Dedication

То ту ....

### Chapter 1

### Introduction

An abstract must be included within the dissertation and paginated, along with other prefatory pages, with lower case Roman numerals.

### 1.1 Format

#### 1.1.1 Page Size

The page size of the entire document must be 8.5 by 11 inches.

#### 1.1.2 Spacing

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All pages of the dissertation should have a 1 inch margin from all edges.

Candidates are advised to check pages to insure the margin accuracy of the word processing program used. Landscape printed pages are allowable, if necessary, to display a figure, table or image that will not fit as well on the page in portrait orientation. Please note, however, that the margins on the page need to be the same as all others.

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# **Chapter 2**

### **Figures Equations Tables**

### 2.1 Figures

There will be many figures in a thesis (that should be placed in the *Figures* folder). The way to insert figures into a thesis is given below.

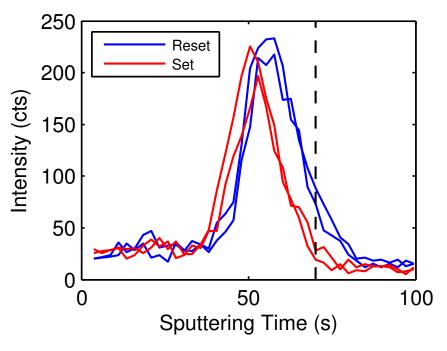


Figure 2.1: This is the caption of the Figure

Sometimes figures don't always appear where you write them in the source. The placement

depends on how much space there is on the page for the figure. But use of [htbp] is helpful to place the figure in desired place. However, you can also use [H] to force the figure to be placed at desired place. You can easily change figure size by changing the width. Usually caption goes to the list of figure, but if write something in the third bracket preceding the curly bracket in the caption, that will be inserted in the list. You can refer to Figure 2.1 using the given label to the figure.

### 2.1.1 Subfigures

How to insert several figures together is shown below:

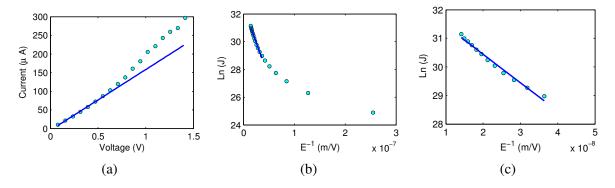


Figure 2.2: Caption for the second figure

### 2.2 Equation

All equations you write (which are not in the middle of paragraph text) are automatically given equation numbers by LATEX. An example is given below:

$$S = \frac{A}{1 + \left(\frac{e^2 N \delta}{\varepsilon \varepsilon_0}\right)} \tag{2.1}$$

In line equations like  $y = ae^{bx}$  do not get numbered. An useful website to convert an equation to LATEX formal is: https://www.codecogs.com/latex/eqneditor.php

#### 2.2.1 Miscellaneous

The following tips might be helpful in writing equations:

- Subscript: Ron
- Superscript: R<sup>on</sup>
- Greek Letters:  $\alpha$ ,  $\Delta$ ,  $\pi$
- Arrows:  $\leftarrow$ ,  $\uparrow$
- Symbols:  $\infty$ ,  $\sqrt{}$
- Relation Symbols:  $\times, \geq, \approx, \equiv$

### 2.3 Table

The example below shows how to make a table in L<sup>A</sup>T<sub>E</sub>X. There are many other ways to make present a table.

Reset Limit(V)	$\phi_B (\mathrm{eV})$	$\mathbf{R}_{off}$ (k $\Omega$ )
3.00	0.43	23
3.25	0.45	47
3.50	0.48	107
3.75	0.52	507
4.00	0.53	628

Table 2.1:  $R_{off}$  for Different  $V_{reset-max}$  and Corresponding  $\phi_B$ 

### 2.4 Citation

For citation a .bib file should be created. In this template, the file is example.bib. The references can be extracted from **Google Scholar** by clicking on *cite* and then **BibTex**. In the thesis or article citation can be made such as [1]. Several citation can be made altogether such as [2, 3, 4]. Citation of book is also possible such as [5, 6].

### 2.5 Conclusion

- https://en.wikibooks.org/wiki/LaTeX
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- https://www.latex-tutorial.com/tutorials/

# Appendix A

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Figure A.1: Permission for published content.

# **Appendix B**

### **Formal Permissions for the Figures**

### **B.1** Permission for a Figure



Figure B.1: Permission for using a figure from another publication

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### B.1.1 Figure 3

Related Figure has been adapted from an open access article (citation is provided with the Figure in the thesis). Detailed information related to open access policy can be found at: https://escholarship.org/uc/ucb/ucoapolicies.

### B.1.2 Figure 4

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### References

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