

A Template for Typesetting Graduate Thesis & Dissertation Using

L^AT_EX





Gowtham

Information Technology Services

it-help@mtu.edu • (906) 487/1111 • <http://www.it.mtu.edu/>

OUTLINE

Basics of LaTeX

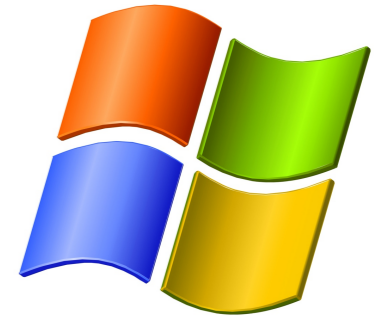
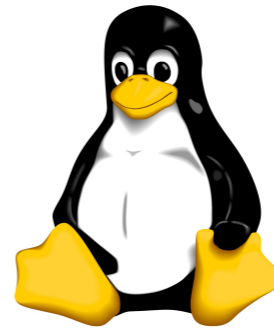
-  What is it & why use it
-  Where to get it
-  How to install & use it
-  Typesetting simple documents

Template for Graduate Thesis & Dissertations

-  Linux
-  Mac
-  Windows

BASICS OF LATEX

- What is it & why use it
- Where to get it
- How to install & use it
- Typesetting simple documents



Please refer to the video/slides from

An Introduction to LaTeX

<http://gradschool.mtu.edu/professional> ⇒ Online Seminar Archive ⇒ 2011

THESIS & DISSERTATION

- 📌 Visit the website, <http://sgowtham.net/mtu-latex/>
- 📌 Read through the post
- 📌 Download the template
 - 📌 Retain the filenames as they are
 - 📌 Make other necessary changes
- 📌 Pick an editor (vi, gedit, TeXMaker, WinEdt)
 - 📌 Make necessary changes to embed fonts
- 📌 Compile away

Please note that using this template is not a substitute for learning the fundamentals of LaTeX - both typesetting your material and compiling it to generate fully functional PDF

TEMPLATE FEATURES

- Sets up
 - the title page
 - the signature page
 - up to 2 advisors
 - up to 4 advisory committee members
 - department, program, school
 - an appropriate layout
 - table of contents, figures, tables; line spacing, margins
 - chapters, sections, subsections, subsubsections
- Removes page numbers on blank pages
- Bookmarks and embedded fonts in PDF

In compliance with
Graduate School
guidelines

Also works with Subversion and other revision control systems

MICHIGANTECH_MSPHD.TEX

```
% Document type
% Uncomment the line below for single sided printing
% \documentclass[letterpaper,12pt,fleqn]{report}
\documentclass[letterpaper,twoside,12pt,fleqn]{report}

% Necessary packages
% MichiganTech_MSPHD.sty
% This will in turn load all other required packages and (re)define
% several aspects to make the document compliant with Michigan Tech
% Graduate School requirements
\usepackage{MichiganTech_MSPHD}

% Information required for Title & Signature pages
%% University
\university{MICHIGAN TECHNOLOGICAL UNIVERSITY}
%% Thesis/Dissertation title
\thesistitle{Beginning, Evolution, Sustenance And Future Of Our Very Own
Sweet Little Universe}
%% Thesis/Dissertation author
\thesisauthor{Mary A. Doe}
%% Thesis/Dissertation year
\thesisyear{2012}
```

Necessary Changes For All OS

MICHIGANTECH_MSPHD.TEX

%% Department or School
`\deptschool{Physics}`
%% Program (optional)
`\program{Engineering Physics}`
%% Chair of the primary/home department
%% `\deptchair` must be empty, if `\schooldean` is not empty
`\deptchair{Dr. Dept Chair}`
%% Dean of the School - applies if you entered a school for `\dept`
%% `\schooldean` must be empty, if `\deptchair` is not empty
`\schooldean{}`
%% Primary advisor
`\primaryadvisor{Dr. Advisor}`
%% Co-Advisor (optional)
`\coadvisor{}`
%% Advisory committee member #1 (optional)
`\advcommone{Dr. Advisory Committee \#1}`
%% Advisory committee member #2 (optional)
`\advcommtwo{Dr. Advisory Committee \#2}`
%% Advisory committee member #2 (optional)
`\advcommthree{Dr. Advisory Committee \#3}`
%% Advisory committee member #4 (optional)
`\advcommfour{Dr. Advisory Committee \#4}`

Necessary Changes For All OS

```
...
% Title and Signature pages
%% For MS: replace \phdtitlpage with \mstitlepage
%%           replace \phdsignaturepage with \mssignaturepage
\phdtitlpage
\cleartooddpage[\thispagestyle{empty}]
\phdsignaturepage

...
%% Dedication (optional)
%% Comment the line below if not needed
\include{Dedication}

...
%% Preface (optional)
%% Uncomment the line below if needed
% \include{Preface}

...
%% Chapters
%% Add more, if need be
\include{Chapter1}
\include{Chapter2}
\include{Chapter3}
```


GENERAL WORK FLOW

LaTeX ⇒

LaTeX ⇒

BibTeX ⇒

BibTeX ⇒

LaTeX ⇒

LaTeX ⇒

DVIPS ⇒

PS2PDF ⇒ **View the PDF**

OS SPECIFIC CHANGES

- 📌 No additional changes are necessary

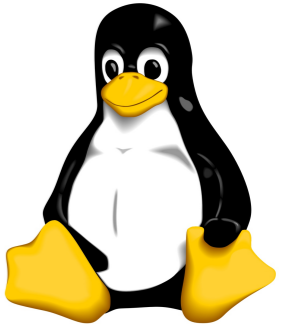
- 📌 If you use the associated `Makefile`

- 📌 It's as simple as typing `make`

- 📌 If using other editors (Kile, etc.)

- 📌 Check the preferences (or options)

- 📌 Edit the commands by comparing with `Makefile`



OS SPECIFIC CHANGES



📌 No additional changes are necessary

📌 If you use the associated **Makefile**

📌 It's as simple as typing **make**

📌 If using TeXMaker

Preferences ⇨ Quick Build ⇨ Quick Build Command ⇨ User

```
"/usr/texbin/latex" -interaction=nonstopmode %.tex |
"/usr/texbin/latex" -interaction=nonstopmode %.tex |
"/usr/texbin/bibtex" %.aux |
"/usr/texbin/bibtex" %.aux |
"/usr/texbin/latex" -interaction=nonstopmode %.tex |
"/usr/texbin/latex" -interaction=nonstopmode %.tex |
"/usr/texbin/dvips" -Ppdf -o %.ps %.dvi |
"/usr/local/bin/ps2pdf" -dPDFSETTINGS=/prepress
-dEmbedAllFonts=true -dSubsetFonts=true -dMaxSubsetPct=100 %.ps
```

OS SPECIFIC CHANGES



is a
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pos
http
cume
comm
cume
umen
cess
chic
e
app

Configure Texmaker

Commands

Quick Build

Editor

Quick Build Command

- LaTeX + dvips + View PS
- LaTeX + View DVI
- PdflaTeX + View PDF
- LaTeX + dvi_{pdfm} + View PDF
- LaTeX + dvips + ps2pdf + View PDF
- LaTeX + Asymptote + LaTeX + dvips + View PS
- PdflaTeX + Asymptote + PdflaTeX + View Pdf
- User : (% : filename without extension)

`-dEmbedAllFonts=true -dSubsetFonts=true -dMaxSubsetPct=100 %.ps | open %.pdf`

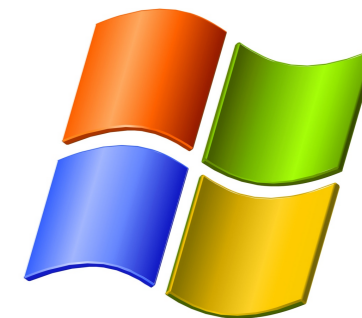
(the commands must be separated by '|')

OK Cancel

OS SPECIFIC CHANGES

If using TeXMaker

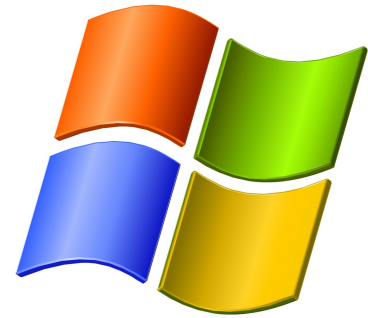
Options ⇒ Configure TeXMaker ⇒ Quick Build ⇒
Quick Build Command ⇒ User



```
latex -interaction=nonstopmode %.tex |
latex -interaction=nonstopmode %.tex |
bibtex % |
bibtex % |
latex -interaction=nonstopmode %.tex |
latex -interaction=nonstopmode %.tex |
dvips -Ppdf -o %.ps %.dvi |
"C:/Program Files (x86)/gs/gs9.00/bin/gswin32c.exe" -dBATCH
-dNOPAUSE -sDEVICE=pdfwrite -r600 -dCompatibilityLevel=1.4
-dPDFSETTINGS=/printer -dEmbedAllFonts=true
-dSubsetFonts=true -dMaxSubsetPct=100
-sOutputFile="%.pdf" "%.ps"
```

Check the path to
gswin32c.exe command

OS SPECIFIC CHANGES



The screenshot shows the 'Configure Texmaker' dialog box. On the left, there are three categories: 'Commands' (with a key icon), 'Quick Build' (with a gear icon), and 'Editor' (with a pencil icon). Below these is a 'Shortcuts' section with a 'Ctrl' key icon and a gear icon. The main area is titled 'Quick Build Command' and contains a list of radio buttons for different build configurations. The 'User' option is selected. Below the list is a text input field containing the command: `ts=true -sOutputFile="%.pdf" "%.ps" | "C:/Program Files (x86)/Adobe/Reader 10.0/Reader/AcroRd32.exe" %.pdf`. A 'wizard' button is to the right of the text field. Below the text field is a note: '(the commands must be separated by '|')'. A checked checkbox is labeled 'Don't launch a new instance of the viewer if the dvi/ps/pdf file is already opened'. At the bottom right, there are 'OK' and 'Cancel' buttons.

Configure Texmaker

Commands

Quick Build

Editor

Shortcuts

Quick Build Command

- LaTeX + dvips + View PS
- LaTeX + View DVI
- PdflaTeX + View PDF
- LaTeX + dvi_{pdfm} + View PDF
- LaTeX + dvips + ps2pdf + View PDF
- LaTeX + Asymptote + LaTeX + dvips + View PS
- PdflaTeX + Asymptote + PdflaTeX + View Pdf
- LatexMk + View PDF
- User : (% : filename without extension)

`ts=true -sOutputFile="%.pdf" "%.ps" | "C:/Program Files (x86)/Adobe/Reader 10.0/Reader/AcroRd32.exe" %.pdf` wizard

(the commands must be separated by '|')

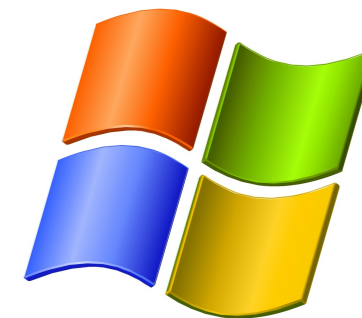
Don't launch a new instance of the viewer if the dvi/ps/pdf file is already opened

OK Cancel

OS SPECIFIC CHANGES

If using WinEdt 6.x

Options ⇨ Execution Modes ⇨ Console Applications ⇨
Accessories ⇨ ps2pdf ⇨ Command Line



For Executable:

```
gswin32c.exe
```

For Switches:

```
-dBATCH -dNOPAUSE -sDEVICE=pdfwrite -r600  
-dCompatibilityLevel=1.4 -dPDFSETTINGS=/printer  
-dEmbedAllFonts=true -dSubsetFonts=true  
-dMaxSubsetPct=100
```

For Parameters:

```
-sOutputFile="%N.pdf" "%N.ps"
```

Check the path to
`gswin32c.exe` command

OS SPECIFIC CHANGES



Execution Modes - Default

Console Applications | TeX System | TeX Options | PDF Viewer | Ghostscript | PATH | Variables | Diagnosis

Accessories

- LaTeX
- TeX
- AMSTeX
- PDFLaTeX
- PDFTeX
- XeLaTeX
- XeTeX
- LuaLaTeX
- LuaTeX
- TeXify
- PDFTeXify
- BibTeX
- MakeIndex
- MakeGlossary
- dvi2ps
- dvi2pdf
- ps2pdf
- ConTeXt (?)

Process Flow

- Enter Extra Switches on Spot
- High Priority Process
- Wait for Execution to finish
 - Open Error Dialog
 - Open Warnings Dialog
 - Detect Exit Code Error
 - Start Viewer
 - Forward Search
- Redirect Console I/O
- No Interaction
- C-style Errors
- Clean Build

Console Attributes

- Pause / Do not Hide the Window
- Background Window
- Hidden Window
- WinEdt Console

Paper Size and Orientation

- Default
- Custom: A3
- Letter
- Legal
- A4
- Landscape

Command Line

Executable: gswin32c.exe

Switches: -dBATCH -dNOPAUSE -sDEVICE=pdfwrite -r600 -dCompatibilityLevel=1.4 -dPDFSETTINGS=/printer -dMaxSubsetPc

Parameters: -sOutputFile="%N.pdf" "%N.ps"

Full Executable

Found? C:\Program Files (x86)\gs\gs9.00\bin\gswin32c.exe

Buttons: Backup, Restore, Save as..., Load From..., Default, Windows Console, WinEdt Console, Browse for executable ..., OK, Cancel, Help

WHEN ALL GOES WELL

BEGINNING, EVOLUTION, SUSTENANCE AND FUTURE OF OUR VERY OWN
SWEET LITTLE UNIVERSE

By

Mary A. Doe

A THESIS

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

(Engineering Physics)

MICHIGAN TECHNOLOGICAL UNIVERSITY

2012

MS Title

WHEN ALL GOES WELL

Signatures:

Thesis Advisor

Dr. Advisor

Committee Member

Dr. Advisory Committee #1

Committee Member

Dr. Advisory Committee #2

Committee Member

Dr. Advisory Committee #3

Committee Member

Dr. Advisory Committee #4

Department Chair

Dr. Dept Chair

Date

MS Signature: 1 Advisor, Chair

WHEN ALL GOES WELL

Signatures:

Thesis Advisor _____
Dr. Advisor

Committee Member _____
Dr. Advisory Committee #1

Committee Member _____
Dr. Advisory Committee #2

Committee Member _____
Dr. Advisory Committee #3

Committee Member _____
Dr. Advisory Committee #4

Dean _____
Dr. Dean of School

Date _____

MS Signature: 1 Advisor, Dean

WHEN ALL GOES WELL

Signatures:

Thesis Co-Advisor _____

Dr. Advisor #1

Thesis Co-Advisor _____

Dr. Advisor #2

Committee Member _____

Dr. Advisory Committee #1

Committee Member _____

Dr. Advisory Committee #2

Committee Member _____

Dr. Advisory Committee #3

Committee Member _____

Dr. Advisory Committee #4

Department Chair _____

Dr. Dept Chair

Date _____

MS Signature: 2 Advisors, Chair

WHEN ALL GOES WELL

Signatures:

Thesis Co-Advisor _____
Dr. Advisor #1

Thesis Co-Advisor _____
Dr. Advisor #2

Committee Member _____
Dr. Advisory Committee #1

Committee Member _____
Dr. Advisory Committee #2

Committee Member _____
Dr. Advisory Committee #3

Committee Member _____
Dr. Advisory Committee #4

Dean _____
Dr. Dean of School

Date _____

MS Signature: 2 Advisors, Dean

WHEN ALL GOES WELL

BEGINNING, EVOLUTION, SUSTENANCE AND FUTURE OF OUR VERY OWN
SWEET LITTLE UNIVERSE

By

Mary A. Doe

A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

(Engineering Physics)

MICHIGAN TECHNOLOGICAL UNIVERSITY

2012

PhD Title

WHEN ALL GOES WELL

Signatures:

Dissertation Advisor _____
Dr. Advisor

Committee Member _____
Dr. Advisory Committee #1

Committee Member _____
Dr. Advisory Committee #2

Committee Member _____
Dr. Advisory Committee #3

Committee Member _____
Dr. Advisory Committee #4

Department Chair _____
Dr. Dept Chair

Date _____

PhD Signature: 1 Advisor, Chair

WHEN ALL GOES WELL

Signatures:

Dissertation Advisor _____
Dr. Advisor

Committee Member _____
Dr. Advisory Committee #1

Committee Member _____
Dr. Advisory Committee #2

Committee Member _____
Dr. Advisory Committee #3

Committee Member _____
Dr. Advisory Committee #4

Dean _____
Dr. Dean of School

Date _____

PhD Signature: 1 Advisor, Dean

WHEN ALL GOES WELL

Signatures:

Dissertation Co-Advisor _____
Dr. Advisor #1

Dissertation Co-Advisor _____
Dr. Advisor #2

Committee Member _____
Dr. Advisory Committee #1

Committee Member _____
Dr. Advisory Committee #2

Committee Member _____
Dr. Advisory Committee #3

Committee Member _____
Dr. Advisory Committee #4

Department Chair _____
Dr. Dept Chair

Date _____

PhD Signature: 2 Advisors, Chair

WHEN ALL GOES WELL

Signatures:

Dissertation Co-Advisor _____
Dr. Advisor #1

Dissertation Co-Advisor _____
Dr. Advisor #2

Committee Member _____
Dr. Advisory Committee #1

Committee Member _____
Dr. Advisory Committee #2

Committee Member _____
Dr. Advisory Committee #3

Committee Member _____
Dr. Advisory Committee #4

Dean _____
Dr. Dean of School

Date _____

PhD Signature: 2 Advisors, Dean

Contents

List of Figures	ix
List of Tables	xi
Acknowledgments	xiii
Abstract	xv
1 The Beginning	1
1.1 Introduction	1
1.1.1 Oldest Model	2
1.1.2 Older Model	2
1.1.3 Not So Old Model	3
2 The Evolution	5

List of Figures

1.1	Schematic representation of the <i>Not So Old</i> model	3
2.1	A sequence of shrinking squares, rotated more and more, and painted alternately black and red. <i>pstricks</i> package was used to create this graphic on the fly	6
2.2	One can fit in more than one image by adjusting the width without using <i>subfigure</i> package - does not, however, provide finer control over referencing individual images. These were produced with campus licensed version of MATLAB R2011b , a product of <i>MathWorks, Inc.</i>	7
2.3	One can fit in more than one image by using <i>subfigure</i> package - while this still requires playing around with width/height, one gains finer control over referencing any one (or all) of the images. These were produced with campus licensed version of MATLAB R2011b , a product of <i>MathWorks, Inc.</i>	7

List of Tables

2.1	A normal timeline of the grand unification project: first column represents the year in which the Nobel prize in physics was awarded; second column indicates the name of the scientist and the third column is the work for which the Nobel prize was awarded	9
2.2	A landscape timeline of the grand unification project: first column represents the year in which the Nobel prize in physics was awarded; second column indicates the name of the scientist and the third column is an <i>as is</i> Nobel citation, from 1901 through 1908	10
2.3	A landscape timeline of the grand unification project: first column represents the year in which the Nobel prize in physics was awarded; second column indicates the name of the scientist and the third column is an <i>as is</i> Nobel citation, from 1909 through 1921	11
3.1	Data points representing the future of our universe	22

WHEN ALL GOES WELL

significant was accomplished in 1916.

Table 2.1

A normal timeline of the grand unification project: first column represents the year in which the Nobel prize in physics was awarded; second column indicates the name of the scientist and the third column is the work for which the Nobel prize was awarded

Year	Scientist(s)	Nobel Work
1901	W. C. Röntgen	X-rays
1902	H. A. Lorentz	Influence of magnetism on radiation
	P. Zeeman	Influence of magnetism on radiation
1903	A. H. Becquerel	Spontaneous radioactivity
	M. Curie	Radiation phenomena discovered by Becquerel
	P. Curie	Radiation phenomena discovered by Becquerel
1904	J. W. Strutt	Argon
1905	P. E. A. von Lenard	Cathode rays
1906	J. J. Thomson	Electrical conductivity of gases
1907	A. A. Michelson	Spectroscopic and metrological investigations
1908	G. Lippmann	Photographic reproduction of colours
1909	K. F. Braun	Wireless telegraphy
	G. Marconi	Wireless telegraphy
1910	J. D. van der Waals	Equation of state of gases and liquids
1911	W. Wien	Laws governing heat radiation
1912	N. G. Dalèn	Automatic regulators for lighting coastal beacons and light buoys
1913	H. K. Onnes	Properties of matter at low temperatures; Production of liquid helium
1914	M. von Laue	Diffraction of X-rays by crystals
1915	W. H. Bragg	Crystal structure by means of X-rays
	W. L. Bragg	Crystal structure by means of X-rays
1917	C. G. Barkla	Characteristic X-radiation of elements

WHEN ALL GOES WELL

more outside participation than was possible in **Red Hat Linux**. By using this more open process, we hope to provide an operating system that uses free software development practices and is more appealing to the open source community.



Figure 2.1: A sequence of shrinking squares, rotated more and more, and painted alternately black and red. *pstricks* package was used to create this graphic on the fly

To learn more about the process, refer to **About**, the **Objectives**, and the **FAQs**. To learn

Complete set of screenshots are available at <http://sgowtham.net/mtu-latex/>

BOOKMARKS IN PDF

The screenshot shows a PDF viewer window titled "MichiganTech_MSPHD.pdf". The interface includes a top toolbar with icons for "Create", save, print, email, settings, search, and navigation. Below the toolbar, a navigation bar shows the current page "i (1 of 49)", a mouse cursor, a hand icon, zoom controls set to "65.1%", and a thumbnail view icon. On the left, a "Bookmarks" sidebar is open, displaying a hierarchical list of document sections:

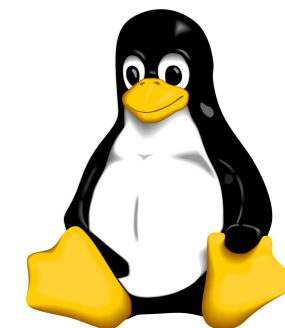
- Contents
- List of Figures
- List of Tables
- Acknowledgments
- Abstract
- ▼ The Beginning
 - ▼ Introduction
 - Oldest Model
 - Older Model
 - Not So Old Model
 - ▼ The Evolution
 - Introduction
 - ▼ Mathematical Stuff
 - Mean of Gaussian Distribution
 - Variance of Gaussian Distribution
 - ▼ Sustenance & Future
 - ▼ Introduction
 - Sustenance Curves
 - Future
- References
- Meta-Physical Proofs
- Philosophical Proofs
- Letters of Permission

The main content area on the right displays the following text:

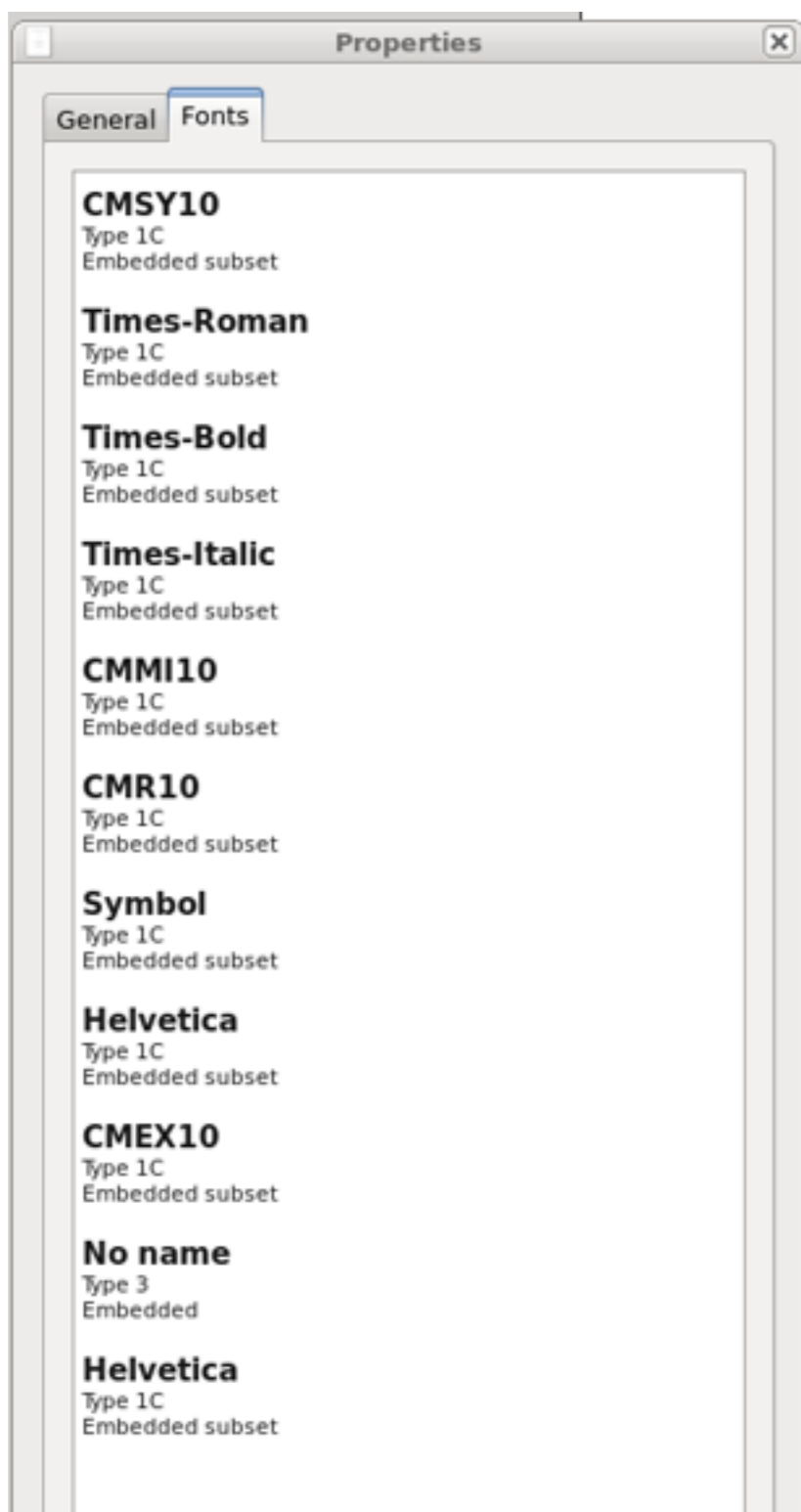
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MICHIGAN 1



EMBEDDED FONTS IN PDF



BEGINNING, EVOLUTION, SUSTENANCE AND FUTURE OF OUR V

SWEET LITTLE UNIVERSE

By

Mary A. Doe

A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree

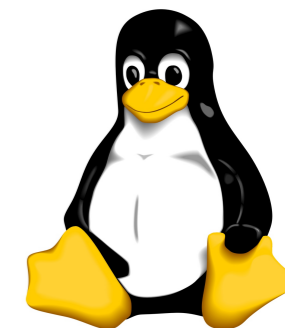
DOCTOR OF PHILOSOPHY

(Engineering Physics)

MICHIGAN TECHNOLOGICAL UNIVERSITY

2012

© 2012 Mary A. Doe



EMBEDDED FONTS IN PDF



BEGINNING, EVOLUT

Submitted in pa

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Document Properties

Description Security **Fonts** Initial View

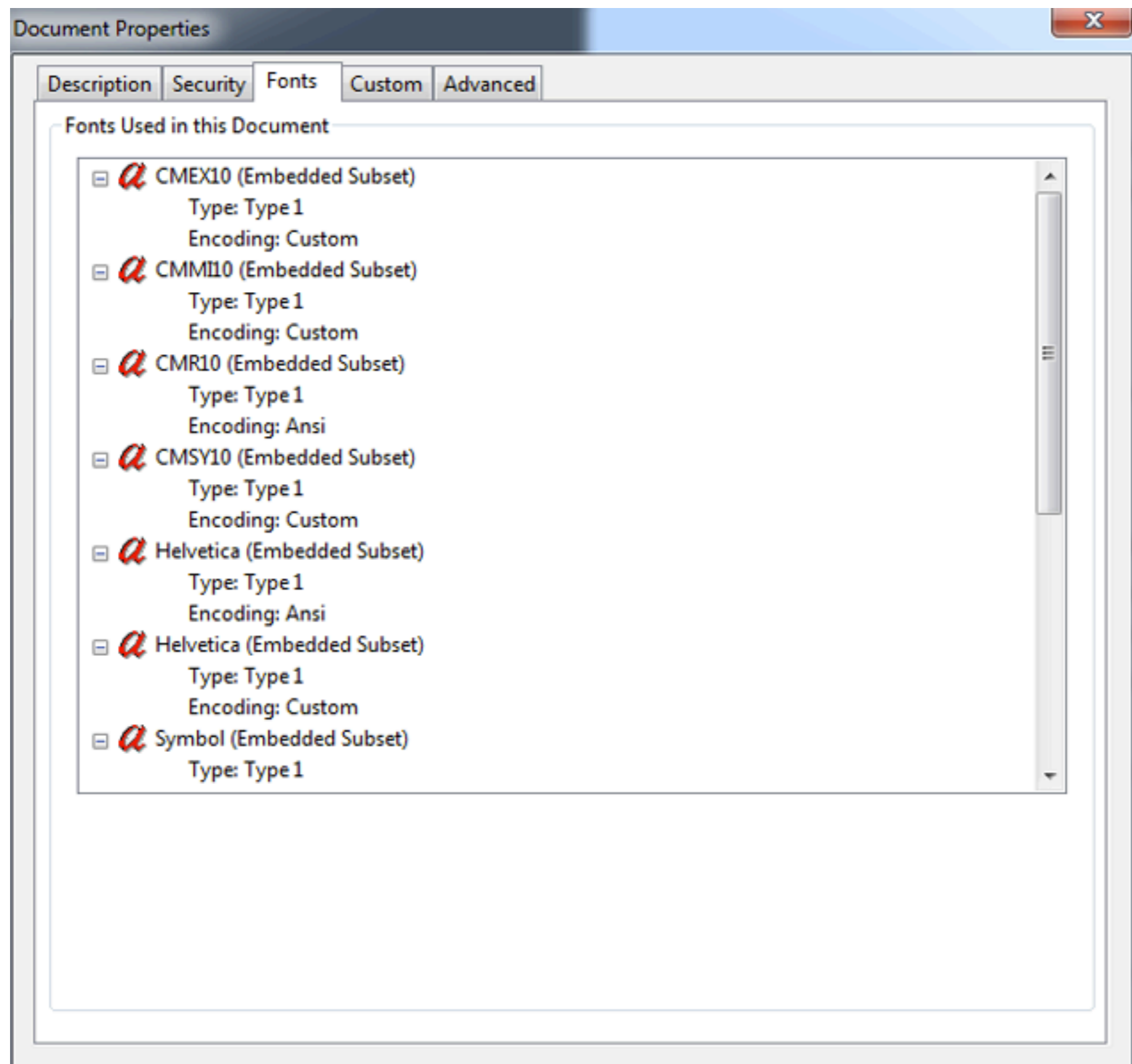
Fonts Used in this Document

- ▼ *a* CMEX10 (Embedded Subset)
Type: Type 1
Encoding: Custom
- ▼ *a* CMMI10 (Embedded Subset)
Type: Type 1
Encoding: Custom
- ▼ *a* CMR10 (Embedded Subset)
Type: Type 1
Encoding: Ansi
- ▼ *a* CMSY10 (Embedded Subset)
Type: Type 1
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- ▼ *a* Symbol (Embedded Subset)
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Help

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EMBEDDED FONTS IN PDF



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L UNIVERSITY

Doe

NEED HELP? HAVE IDEAS?

If you need help with using this template and/or have ideas to make it better (for e.g., incorporating newer guidelines from Graduate School, etc.),

contact me via email, g@mtu.edu

post them as comments at

<http://sgowtham.net/mtu-latex/>

ACKNOWLEDGMENTS



Dr. Michael Larsen

Department of Physics & Astronomy
College of Charleston



Dr. Debra Charlesworth

Graduate School
Michigan Technological University



Dr. Charles Wallace

Department of Computer Science
Michigan Technological University



Good Friends

Bijunath Patla, Jacob Fugal, David Clark, David Fritz,
Nils Markus Stenvig, John Armstead, Irfan Ahmed,
Shaughn Kern and more



Physics Faculty

Dr. Ravi Pandey, Dr. Alexander Kostinski,
Dr. Will Cantrell, Dr. Raymond Shaw
Members of my advisory committee
Michigan Technological University



Friends Of The Internet

Discussion forum, mailing lists, etc.

