TexEdBook Example Document

Riley C. Hanus

November 17, 2023

Forward

This is an example of a unnumbered chapter. Unnumbered chapters are commonly used for Forwards or Afterwords.

Contents

1

Supported Document Features

In this chapter we will demonstrate native latex document features that are explicitly supported by texedbook. The features include Equations, Figures, Lists, and Tables.

Before one writes a thesis or textbook, it is difficult to appreciate how critical the proper handling of standard document features is. Without a framework to efficiently write and cross-reference equations, figures, tables, etc. in real time, writing anything with technical substanance becomes impossible. Latex, despite its quarks, is a very good framework to manage these critical writing tools.

1.1 Equations

Equations are an inherently tricky problem for digital publishing. The core of the problem lies in the fact that html was designed around the standard alpha numeric alphabet, and math requires a wider range of complex symbols and typesetting. The default useage of texedbook leverages mathjax, allowing all of the native latex equations, that the author spent so much time perfecting, is reliably reproduced in the html output.

1.1.1 Inline equations

In equations can be included using both methods: $n\lambda = 2d\sin\theta$ or $n\lambda = 2d\sin\theta$. In addition unicode characters can be directly writen in the latex, and they rendered in the latex and preserved through into the html output,

Eq. **??**. Etiam et sapien eget lectus interdum posuere sit amet ac urna. Aliquam pellentesque imperdiet erat, eget consectetur felis malesuada quis. Pellentesque sollicitudin, odio sed dapibus eleifend, magna sem luctus turpis, id aliquam felis dolor eu diam. Etiam ullamcorper, nunc a accumsan adipiscing, turpis odio bibendum erat, id convallis magna eros nec metus. Sed vel ligula justo, sit amet vestibulum dolor. Sed vitae augue sit amet magna ullamcorper suscipit. Quisque dictum ipsum a sapien egestas facilisis.

$$\kappa_{\mathrm{pg}} = \frac{1}{3}\int_0^{\omega_{\max}} C(\omega)\, v_{\mathrm{g}}(\omega)^2\, \tau(\omega)\, d\omega. \tag{1.1}$$

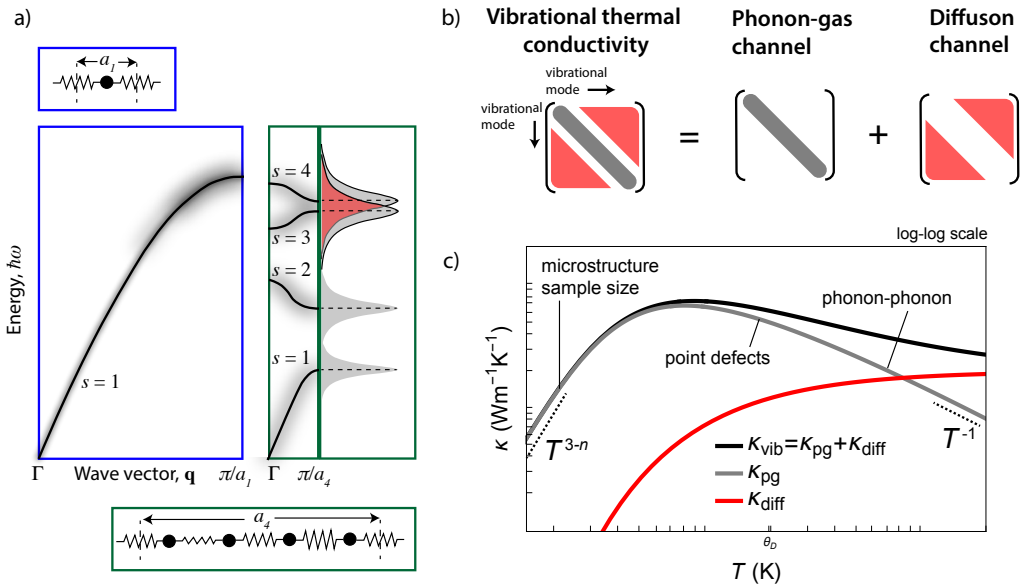

Figure 1.1: Figure Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis risus ante, auctor et pulvinar non, posuere ac lacus. Praesent egestas nisi id metus rhoncus ac lobortis sem hendrerit.

Test. Etiam ullamcorper, nunc a accumsan adipiscing, turpis odio bibendum erat, id convallis magna eros nec metus. Sed vel ligula justo, sit amet vestibulum dolor. Sed vitae augue sit amet magna ullamcorper suscipit. Quisque dictum ipsum a sapien egestas facilisis.

1.2 Figures

Lorem ipsum dolor sit amet Figure **??**, consectetur adipiscing elit. Reference something in Chapter 1, Table **??**. Duis risus ante, auctor et pulvinar non, posuere ac lacus. Praesent egestas nisi id metus rhoncus ac lobortis sem hendrerit. Etiam et sapien eget lectus interdum posuere sit amet ac urna [**?**]. Etiam et sapien eget lectus interdum posuere sit amet ac urna. Aliquam pellentesque imperdiet erat, eget consectetur felis malesuada quis. Pellentesque sollicitudin, odio sed dapibus eleifend, magna sem luctus turpis, id aliquam felis dolor eu diam. Etiam ullamcorper, nunc a accumsan adipiscing, turpis odio bibendum erat, id convallis magna eros nec metus. Sed vel ligula justo, sit amet vestibulum dolor. Sed vitae augue sit amet magna ullamcorper suscipit. Quisque dictum ipsum a sapien egestas facilisis. Snyder's thermoelectrics website.

1.3 Lists

Lorem ipsum dolor sit amet [**?**], consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

$$\alpha = x^2 \tag{1.2}$$

1.3.1 Numbered list

?? Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
Lorem ipsum list:

1. Lorem ipsum dolor sit amet, consectetur adipiscing elit.
2. Duis ac mi magna, a consectetur elit.
3. Curabitur posuere erat *dignissim ligula euismod* ut euismod nisi.
4. Fusce vulputate facilisis neque, et ornare mauris mattis vel.
5. Mauris sit amet nulla mi, vitae rutrum ante.
6. Maecenas quis nulla risus, vel tincidunt ligula.
7. Nullam ac enim neque, non *dapibus* mauris.
8. Integer volutpat leo a orci suscipit eget rhoncus urna eleifend.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis risus ante, auctor et pulvinar non, posuere ac lacus. Praesent egestas nisi id metus rhoncus ac lobortis sem hendrerit. Etiam et sapien eget lectus interdum posuere sit amet ac urna:

1.3.2 Bulleted list

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis risus ante, auctor et pulvinar non, posuere ac lacus. Praesent egestas nisi id metus rhoncus ac lobortis sem hendrerit. Etiam et sapien eget lectus interdum posuere sit amet ac urna. Aliquam pellentesque imperdiet erat, eget consectetur felis malesuada quis. Pellentesque sollicitudin, odio sed dapibus eleifend, magna sem luctus turpis, id aliquam felis dolor eu diam. Etiam ullamcorper, nunc a accumsan adipiscing, turpis odio bibendum erat, id convallis magna eros nec metus. Sed vel ligula justo, sit amet vestibulum dolor. Sed vitae augue sit amet magna ullamcorper suscipit. Quisque dictum ipsum a sapien egestas facilisis.
Lorem ipsum list:

- Mauris sit amet nulla mi, vitae rutrum ante.
- Maecenas quis nulla risus, vel tincidunt ligula.
- Nullam ac enim neque, non *dapibus* mauris.

1.4 Tables

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Table 1.1: Sample table

S. No.	Column#1	Thermal conductivity, κ_{pg}	Column#3
1	50	837	970
2	47	877	230
3	31	25	415
4	35	144	2356
5	45	300	556

Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

2

Interactive Content

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

2.1 Videos

Digital Content : Video

Calculus | This video by the Three Blue One Brown YouTube channel give a wonderful introduction to the core concepts of Calculus

Digital Content : Video

Complex Fermi Surfaces | This video by Prof. Jeff Snyder introduces complex Fermi surfaces in semi-conductors.

2.2 Coding

Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

```
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(0,2)
y1 = np.exp(x)
```

```
y2 = x + 1

plt.plot(x, y1, label=r"$y_1=e^x$")
plt.plot(x, y2, label=r"$y_2 = x + 1$")
plt.legend()
plt.xlim(0,1)
plt.ylim(0,3)
plt.xlabel('x')
plt.ylabel('y')

plt.show()
```

Digital Content : Python coding environment

Sample Trinket | This is a Python3 coding evironment powered by Trinket.

2.3 Live Math

Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Digital Content : CalcHub Workspace

Sample CalcHub Workspace | At this link you can find and interactive workspace for working out live math problems.

Afterword