# Dummy Title

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**Abstract**

Enter a short summary here. What topic did you want to investigate and why? What experiment did you perform? What were your main results and conclusion?

## 1 This creates a new section

Write a short introduction about what you did in the lab.

Briefly explain what methods you will use in the experiment, and what values you will extract from the data.

If you want to cite something you can do it like this[1], this will refer to the medium defined in the end that has the tag nano3.

## 2 Theory

### 2.1 this is how you make a subsection

No theory really needed for this experiment.

## 3 Experiment 1-2 pages

### 3.1 Experimental set-up

Explain the experimental set-up here. Use a schematic picture (make it yourself in photoshop, paint, powerpoint (powerpoint is very underrated for quick drawings)) to show how the components are connected. Briefly explain how a lock-in amplifier works.

## 4 Results and interpretation

### 4.1 Resistor

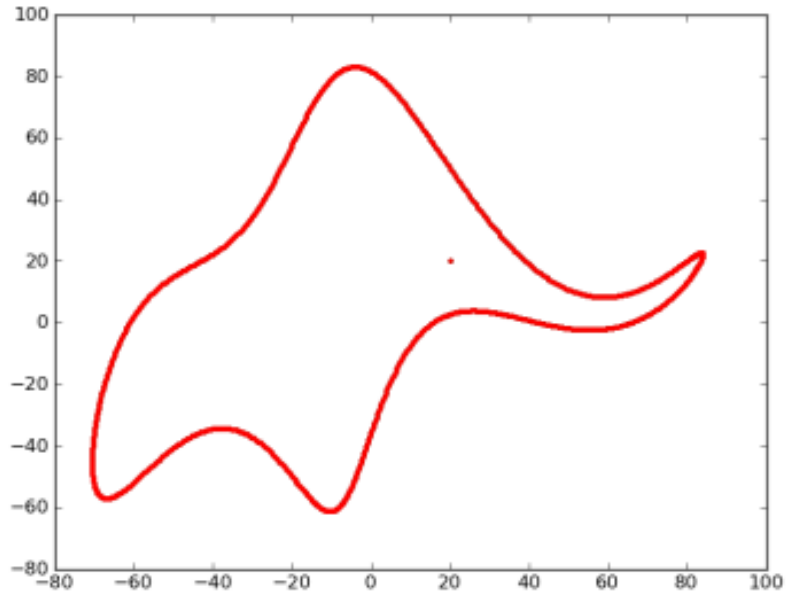Show the 2 graphs for transistor behavior as asked for in the manual.

Figure 1: Replace this figure [2] with the one you've made and add an appropriate caption.

## 4.2    Transistor

Include the two 2D plots you made about the behavior of the resistor. Most of the time LATEXdoesn't put the figures where you would expect them but where they are ideally place from a layout prospective, you can always just refer to the number of the picture with the label command for example Figure 2.
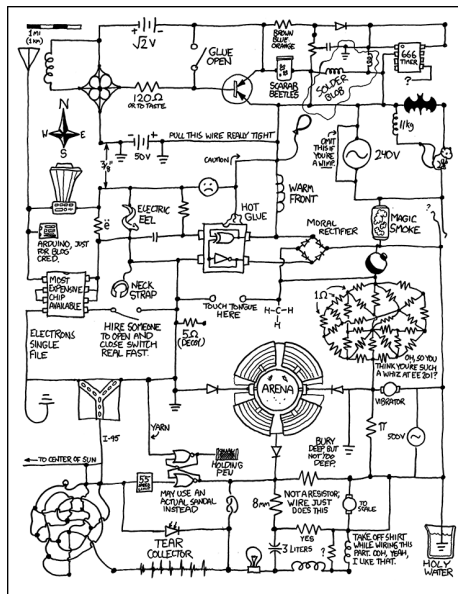
Figure 2: Replace this figure [3] with the one you've made and add an appropriate caption. By the way you should always cite when you put any stuff in your reports you didn't make yourself.



Figure 3: This frog was uploaded to writeLaTeX via the project menu.

# 5    Some LaTeX tips

## 5.1    How to Include Figures

First you have to upload the image file (JPEG, PNG or PDF) from your computer to writeLaTeX using the upload link the project menu. Then use the includegraphics command to include it in your document. Use the figure environment and the caption command to add a number and a caption to your figure. See the code for Figure 3 in this section for an example.

## 5.2    How to Make Tables

Use the table and tabular commands for basic tables — see Table 1, for example.

| Item | Quantity |
|---|---|
| Widgets | 42 |
| Gadgets | 13 |

Table 1: An example table.

## 5.3 How to Write Mathematics

LaTeX is great at typesetting mathematics. Let $X_1, X_2, \ldots, X_n$ be a sequence of independent and identically distributed random variables with $E[X_i] = \mu$ and $Var[X_i] = \sigma^2 < \infty$, and let

$$S_n = \frac{X_1 + X_2 + \cdots + X_n}{n} = \frac{1}{n} \sum_i^n X_i \tag{1}$$

denote their mean. Then as $n$ approaches infinity, the random variables $\sqrt{n}(S_n - \mu)$ converge in distribution to a normal $\mathcal{N}(0, \sigma^2)$.

The equation 1 is very nice.

## 5.4 How to Make Sections and Subsections

Use section and subsection commands to organize your document. LaTeX handles all the formatting and numbering automatically. Use ref and label commands for cross-references.

## 5.5 How to Make Lists

You can make lists with automatic numbering ...

1. Like this,

2. and like this.

... or bullet points ...

- Like this,

- and like this.

... or with words and descriptions ...

**Word** Definition

**Concept** Explanation

**Idea** Text

We hope you find writeLaTeX useful, and please let us know if you have any feedback using the help menu above.

# References

[1] K. Grove-Rasmussen og Jesper Nygård, *Kvantefænomener i Nanosystemer. Niels Bohr Institute & Nano-Science Center, Københavns Universitet*

[2] How to fit an elephant, *https://www.johndcook.com/blog/2011/06/21/how-to-fit-an-elephant/*

[3] xkcd 730, *https://xkcd.com/730/*