FYSC23

Semiconductor lab

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Abstract

Contents

1 Introduction

Semiconductors

2 Theory

3 Experiment

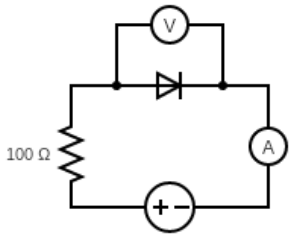
Main goal: explain what you did with enough detail so the reader could reproduce it Include the equipment used, quantities you measured (if relevant also the accuracy of the equipment), procedures you followed Diagrams (e.g. scheme of the circuit) can be included Please do not include results here!

3.1 Part 1

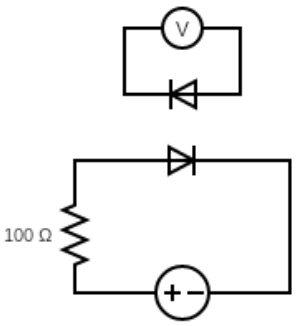
During the first part of the lab we measured the intensity for a white diode with different voltages. The voltage was controlled through a DC-source shown in Figure 1a.

3.2 Part 2

3.3 Part 3



(a) This sktch shows the circuit for part 1 and part 2.



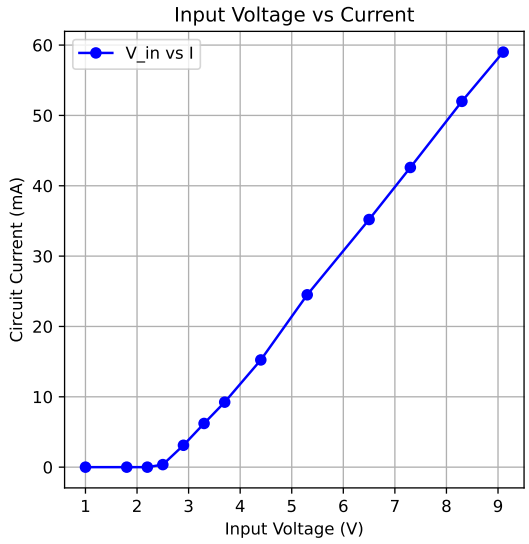
(b) This sktch shows the circuit for part 3, with the two different diodes.

Figure 1: Above one can see the circuits used in this lab. Both circuits used an resistor with 100 Ω.

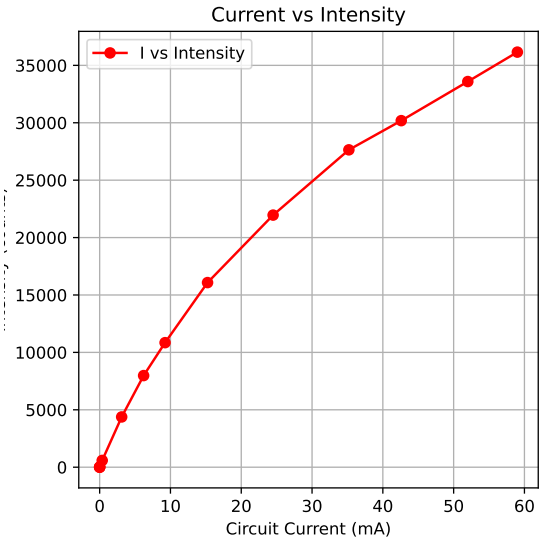
4 Result

4.1 Part 1

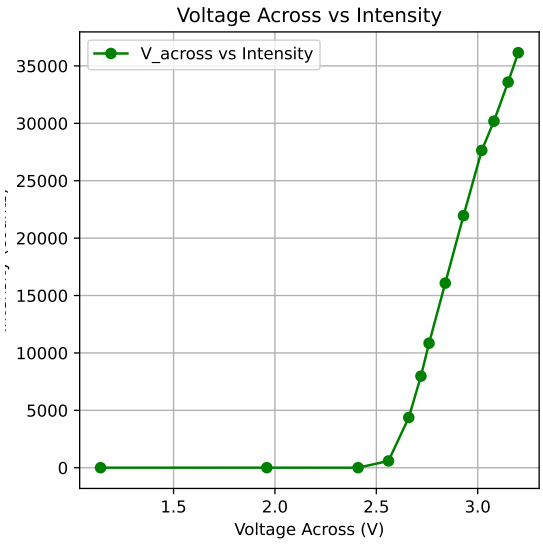
Wavelength white LED: 454.17 nm integration time 70 ms averaging every 10th measurements



(a) Spring



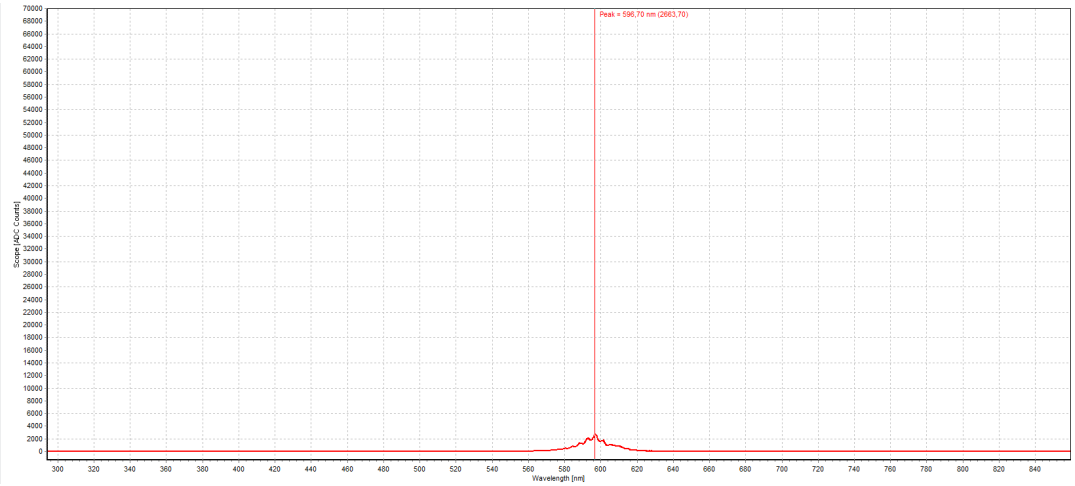
(b) Summer



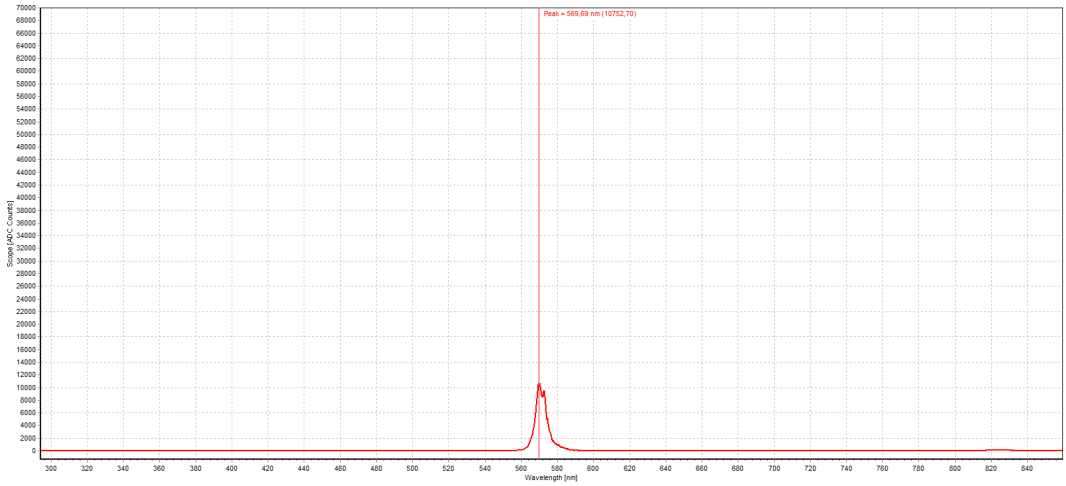
(c) Autumn

Figure 2: Histograms for different seasons.

4.2 Part 2



(a) Spring



(b) Summer

Figure 3: ...

Wavelength white LED: 596.85 nm integration time 2 ms averaging every 10th measurements

Before: V_{in} was 5.0 V, V_{across} 2.06 V, $I_{circuit}$ 30.8 mA and the intensity 2663.70

After: V_{in} was 5.0 V, V_{across} 4.44 V, $I_{circuit}$ 7.7 mA and the intensity 10752.70

4.3 Part 3

Detector/Emitter	Red	Green	Blue
Red	Output	No output	No output
Green	Output	Output	No output
Blue	Output	Output	Output

Table 1: tab:part3

5 Discussion

6 Conclusion