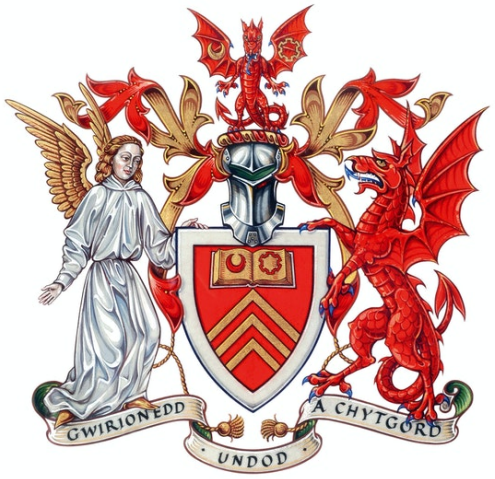
PX3350 - Project Diary

Hofstadter's butterfly in optical ring-resonator array

October 27, 2022

Author: FULL NAME (STUDENT NUMBER)
Project Supervisor: SUPERVISOR NAME



Cardiff University
School of Physics and Astronomy

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List of Figures

1 Questions

1.1 **QUESTION**

ANSWER TO QUESTION

2 Definitions

2.1 **TERM NAME**

NOTES ON THE GIVEN TERM

> "**QUOTE FROM EXTERNAL SOURCE**"
> (**SOURCE OF QUOTE**)

$$N(t) = N_0 \left(\frac{1}{2} \right)^{\frac{t}{t_{1/2}}}$$

Figure 1: *Equation blah blah blah with* $k = 30$ *math bit referencing its source [1]*

2.2 **NEXT TERM**

3 Reading

3.1 **PAPER TITLE* [1]

3.2 **LECTURE TITLE** [2]

NOTES

QUOTE FROM LECTURE

4 Experimental

4.1 **DATE**

BRIEF DESCRIPTION OF WHAT WAS DONE
ANY NOTES PER DISCRETION

5 Calculations

5.1 **NAME OF WORKING**

Blah blah we are using blah blah and blah blah to derive blah blah

$$f(x) = h_1 e^{-\frac{(x-\mu_1)^2}{2\sigma_1^2}} + h_2 e^{-\frac{(x-\mu_2)^2}{2\sigma_2^2}} + c \tag{1}$$

$$E_1 = A + B \tag{2}$$

$$\begin{aligned} E_2 = (C - D)E_1 \\ + [(1 - R) + R(1 - Y) \\ + \pi(1 - \delta)]E_2 \\ + F \cdot E_3 \end{aligned} \tag{3}$$

$$E_3 = (\pi \cdot \chi) - (R \cdot E_1) - (RY\delta \cdot E_2) \tag{4}$$

$$N = \frac{f}{d} \tag{5}$$

6 References

[1] D. R. Hofstadter. Energy levels and wave functions of bloch electrons in rational and irrational magnetic fields. *Physical review B*, 14(6):2239, 1976.

[2] P. Kim. Bloch, landau, and dirac: Hofstadter's butterfly in graphene, Jan 2014.