

Week 11 – Week commencing 2/5/2022

Week Outline

Online meeting. This meeting was mainly used to discuss the final report plan and what topics needed to be covered and what need to be removed. Advised to rephrase more of the superconductivity stuff from the interim report and summarize it into a smaller chunk. Talk more about the methodology and analysis of the project. Several diagrams was also included by my supervisor to include in my report.

Task Outline

- Using the report plan, create a final report
- Use the recommendations in the final report

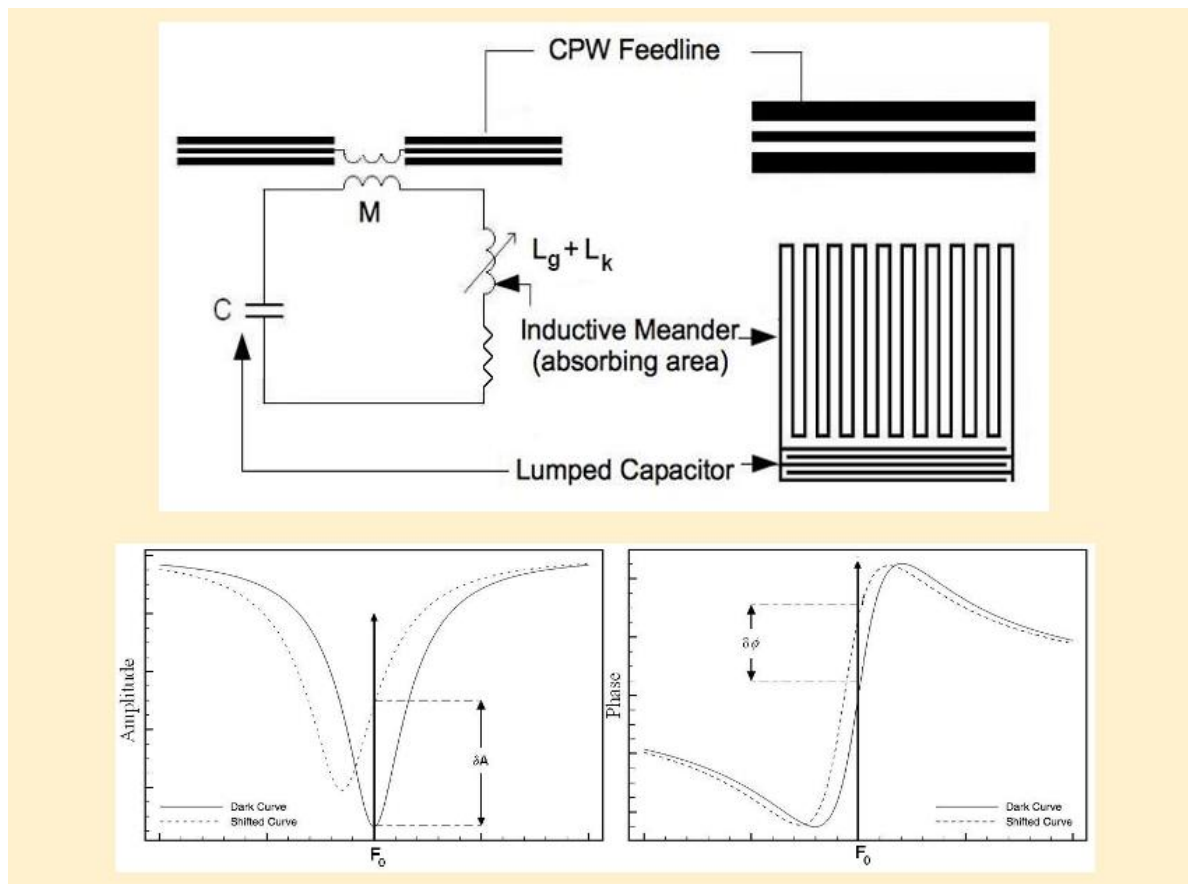
Planned table of contents

Table of contents	
A. <u>Cover and Abstract and Acknowledgements</u> (TBC)	3. <u>Experimental</u>
A. <u>Table of Contents</u>	3.1 Detector Data
1. <u>Introduction</u>	3.2 Modelling the Measured Power
1.1. Background	3.3 Response of the Detector
1.2. Kinetic Inductance Detectors	3.4 NoiseEquivalentPower
1.3. Characterizing Detector Systems	4. <u>Results and Discussion</u>
1.4 Aims and Objectives (Should I fit this in somewhere? Does not need its own section?)	4.1 Noise Sources and Contributions
2. <u>Kinetic Inductance Detector Theory</u>	4.2 Analysis of the Result(Maybe better title?)
2.1. Principles of Superconductivity	4.3 Implications to the System(Maybe better title?)
2.2. How Do KIDs Work(Maybe better title?)	5. <u>Conclusion</u>
2.3. Ideal KID Simulation	6. <u>References</u>
(Refer Interim for this section)	
	• ~1500 words each section
	• Conclusion + Abstract + Cover + table of contents + Reference ~1500 words
	• Total should be somewhere between 8000~8500 (9000 limit)

Recommendations

- Make sure under word limit by Turnitin
- Intro: describe photon noise, background, and KIDs overview
- Condense the superconductivity theory into less words
- Use lots of graphs and diagrams to aid explanations (words count, but diagram = 0 words)
- Touch upon more experimental stuff
- KID simulation and $dF0$ formula analysis is good to have in
- Explain photon noise limit and what implications if NEP higher? (excess noise, etc. Link to ERD)
- Noise sources? (explain?)

Diagram of KID response given by Supervisor



This diagram can be used to explain how a KID responds to light in the report