

Thesis

Stan Daniels
Radboud University Nijmegen
FELIX Laboratory
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Abstract:

Purpose: Summarizes your entire report in 150–250 words.

Content:

- Motivation and context of the experiment
- Clear statement of the objective
- Brief description of methods or experimental approach
- Key results (numbers, trends, or qualitative findings)
- Main conclusion

Tips: Write it last. Keep it concise, readable, and avoid citations.

I. INTRODUCTION

Purpose: Introduce the reader to the field and your specific project.

Content:

- Scientific background and motivation for the study
- Importance of the topic in the broader context
- Overview of relevant literature (cite key papers)[1]
- Clearly state the objectives of your internship / thesis

Tips: Keep it logical — start broad, narrow down to your project. Make sure the reader understands why this experiment is interesting.

II. THEORY

Purpose: Provide the physics necessary to understand your experiment and results.

Content:

- Relevant physics concepts (e.g., magnetism, optics, thermodynamics)
- Equations and models used for predictions or data analysis
- Definitions of key quantities, units, and conventions
- Any approximations or assumptions made

Tips: Use figures or schematics to illustrate models if needed. Keep it directly relevant to your experiment.

III. METHODS

Purpose: Describe how the experiment was performed so others could reproduce it.

Content:

- Experimental apparatus (schematics, photos, diagrams)
- Sample preparation or materials used
- Measurement techniques (instrumentation, detection methods)
- Calibration procedures
- Any special conditions (temperature, vacuum, magnetic field, etc.)

Tips: Be clear, concise, and logical. Use sub-sections if your setup is complex. Include uncertainty sources.

IV. RESULTS

Purpose: Present the data clearly and objectively.

Content:

- Figures and tables with captions
- Trends, patterns, and quantitative measurements
- Statistical analysis or error bars
- Observations without extensive interpretation (interpretation goes in Discussion)

Tips: Use two-column-friendly figures (figure) and double-column figures (figure*) where appropriate. Make sure all axes, units, and legends are labeled.

V. DISCUSSION

Purpose: Interpret your results and relate them to theory and literature.

Content:

- Compare measurements to theoretical predictions
- Explain discrepancies or deviations
- Discuss sources of error and uncertainties
- Highlight new insights or confirmations of expected behavior

Tips: Be honest and critical. Avoid just repeating results — focus on meaning and implications.

VI. CONCLUSION

Purpose: Summarize the work and its significance.

Content:

- Restate main findings and observations
- Emphasize what you learned or achieved
- Discuss limitations
- Suggest future work or improvements

Tips: Keep it concise; often 1-2 paragraphs are enough for a bachelor thesis.

VII. ACKNOWLEDGEMENTS

Purpose: Thank people who helped or supported your work.

Content:

- Supervisors, collaborators, lab members
- Funding sources, scholarships, or technical support

Tips: Keep it polite and professional. No technical content.

[1] A. Kirilyuk, A. V. Kimel, and T. Rasing, Physics Reports **488**, 117 (2010).