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# TITLE GOES HERE

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**SCHOOL OF MATHEMATICAL SCIENCES**



# Declaration

Except where stated this thesis is, to the best of my knowledge, my own work and my supervisor has approved its submission.

Signed by student:

Date:

Signed by supervisor:

Date:

# Acknowledgements

# Abstract

**Abstract**

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# Chapter 1

## Introduction

## Chapter 2

### The Squire-Long model



# Chapter 3

## Flow Examples

3.1 Rotating Flow

3.2 Rankine Vortex

3.3 Lamb-Oseen Vortex

# Chapter 4

## Solver

### 4.1 Computational Efficiency

# Appendices

# Appendix A

## Derivation of Squire-Long

# Appendix B

## Code

### B.1 Code1

# Bibliography