

# A Wonderful Piece of Scientific Research

A thesis submitted in partial fulfillment of the requirement  
for the degree of Bachelor of Science with Honors in  
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by

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# Acknowledgments

I would like to thank lots of people, and this is where I will do it...

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**Abstract**

*Abstract*

# Chapter 1

## Introduction



# Chapter 2

## Theory

### 2.1 Gradient Flow

### 2.2 Field Theories on the Lattice

### 2.3 Non-linear $\sigma$ model

# Chapter 3

## Methods

### 3.1 Markov Chain Monte Carlo

#### 3.1.1 Metropolis Algorithm

#### 3.1.2 Wolff Cluster Algorithm

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# Chapter 4

## Results

# Chapter 5

## Statistical Analysis

## Chapter 6

### Conclusion & Outlook

# Appendix A

## My Great Computer Program

### A.1 Code sample