

Thesis

Fang Ni

October 4, 2018



# Contents

<b>1</b>	<b>Introduction</b>	<b>5</b>
1.1	First section . . . . .	5
1.1.1	A subsection . . . . .	5
<b>2</b>	<b>Pairing model</b>	<b>7</b>
2.0.1	Exact solution . . . . .	7
2.0.2	TDHFB dynamics . . . . .	7
<b>3</b>	<b>Requantization of TDHFB in integrable system</b>	<b>9</b>
3.0.1	Canonical quantization . . . . .	9
3.0.2	Fourier decomposition . . . . .	9
3.0.3	Stationary phase to the path integral . . . . .	9
3.0.4	Result . . . . .	9
<b>4</b>	<b>Requantization of TDHFB in non-integrable system</b>	<b>11</b>
4.0.1	Derivation of the collective subspace in adiabatic self-consistent collective coordinate method . . . . .	11
4.0.2	Application of SPA in non-integrable system . . . . .	11
4.0.3	Result . . . . .	11
<b>5</b>	<b>Discussion</b>	<b>13</b>
<b>6</b>	<b>Conclusion</b>	<b>15</b>



# Chapter 1

## Introduction

### 1.1 First section

Your text goes here.

#### 1.1.1 A subsection

More text.



## Chapter 2

# Pairing model

The Hamiltonian of pairing model is

$$H = \sum_l \epsilon_l n_l - g \sum_{l,l'} S_l^+ S_{l'}^-, \quad (2.1)$$

where

$$n_l = \sum_m a_{lm}^\dagger a_{lm} \quad (2.2)$$

$$S_l^+ = \sum_{m>0} a_{lm}^\dagger a_{l\bar{m}}^\dagger, \quad S_l^- = S_l^{+\dagger} \quad (2.3)$$

### 2.1 Exact solution

### 2.2 TDHFB dynamics





## Chapter 3

# Requantization of TDHFB in integrable system

- 3.1 Canonical quantization
- 3.2 Fourier decomposition
- 3.3 Stationary phase to the path integral
- 3.4 Result



## Chapter 4

# Requantization of TDHFB in non-integrable system

- 4.1 Derivation of the collective subspace in adiabatic self-consistent collective coordinate method
- 4.2 Application of SPA in non-integrable system
- 4.3 Result



## Chapter 5

## Discussion



Chapter 6

Conclusion