



Technische Universität München  
Fakultät für Physik  
(Lehrstuhl, Leiter, Arbeitsgruppe etc.)

Michael L.  
Please translate this to english.

# Detecting Thermal Phase Transitions in a Trapped Ion Quantum Computer\*

Bachelor Thesis  
by

Michael Labenbacher  
John Smith

in fulfillment of the requirements for the degree of  
Bachelor of Science

Supervised by

Prof. Dr. Michael Knap  
Alexander Schuckert

First assessor: Prof. Dr. Michael Knap  
Second assessor: Prof. Dr. David Egger

Topic: Quantum Many-Body Physics (Theory)

January 30, 2020

---

\*September 16, 2020, Wir sollten uns nicht empören, dass andere die Wahrheit vorenthalten, wenn wir sie doch selbst so oft verschleiern. (please delete this immediately :P)

Michael L.  
Please remove this immediately.

# Abstract

Was ist schlecht? – Alles, was aus der Schwäche stammt. L<sup>A</sup>T<sub>E</sub>X class [sty](#)

Michael L.

Was aber  
die Leute  
gemeinlich  
das Schick-  
sal nennen  
sind meis-  
tens nur  
Ihre eigenen  
dummen  
Streiche. [1]

# Contents

<b>Abstract</b>	<b>i</b>
<b>1. Introduction</b>	<b>1</b>
<b>2. Theoretical Background</b>	<b>2</b>
<b>3. Computational Methods</b>	<b>3</b>
<b>4. Evaluation</b>	<b>4</b>
<b>5. Conclusion and Perspective</b>	<b>5</b>
<b>Appendix</b>	<b>6</b>
<b>Index</b>	<b>9</b>
<b>Bibliography</b>	<b>10</b>
<b>List of Figures</b>	<b>11</b>
<b>List of Tables</b>	<b>12</b>
<b>List of Listings</b>	<b>13</b>
<b>List of Todos</b>	<b>14</b>
<b>Declaration of Authorship</b>	<b>15</b>
<b>Acknowledgments</b>	<b>16</b>

# **Chapter 1.**

## **Introduction**

## **Chapter 2.**

### **Theoretical Background**

## **Chapter 3.**

### **Computational Methods**

## **Chapter 4.**

## **Evaluation**

## **Chapter 5.**

### **Conclusion and Perspective**



# Appendix

A. Experimental Setup Details	7
B. Additional Measurement Data	8

# **Appendix A.**

## **Experimental Setup Details**

## **Appendix B.**

### **Additional Measurement Data**

# Index

Unterstrichene Zahlen (`idxnumber(i)`) verweisen auf die Definition, fett hervorgehobene (`idxnumber`) geben Seiten der Erklärung zum jeweiligen Stichwort wieder und normal gedruckte verweisen hingegen auf Seiten mit zusätzlichen Informationen (Numbers underlined point to the definition; numbers written in boldface refer to the pages where the corresponding entry is described; all others indicate the places where it is used.).

<b>L</b>	class..... <b><u>i</u></b>
	sty ..... <u>i</u>
	<b>L</b>
L <sup>A</sup> T <sub>E</sub> X.....	<b><u>i</u></b>

# Bibliography

- [1] Michael Labenbacher. *Erweiterung des T<sub>E</sub>Xbooks. Feineinstellungen*. VerlagX, 1984. ISBN: 3825856976. URL: [www.labenbacher.at](http://www.labenbacher.at) (visited on March 11, 1997) (cit. on p. [i](#)).

# List of Figures

# List of Tables

# List of Listings



# List of Todos

Missing header. . . . .	I
Change/Delete. . . . .	I
Missing abstract. . . . .	i
Missing declaration of authorship. . . . .	15
Missing acknowledgments. . . . .	16

# Declaration of Authorship

I hereby declare this Bachelor's Thesis to be written exclusively by myself using the sources and facilities indicated. All direct or indirect sources used are specifically acknowledged as references at their point of use. This thesis was not presented to any other examination board before and has not been published previously.

Michael L.

La  
Rouchefou-  
cauld, Be-  
trachtun-  
gen oder  
Moralische  
Sentenzen  
und Maxi-  
men.



---

Labenbacher Michael

September 16, 2020

# Acknowledgments

Es ist eine große Begabung, seine Begabung verbergen zu können.

Michael L.

Das Ge-  
nie wohnt  
nur eine  
Etage höher  
als der  
Wahnsinn.