

Department of Physics and Astronomy  
University of Heidelberg

Bachelor Thesis in Physics  
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**XYZ**

born in Düsseldorf (Germany)

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# About ...

This Bachelor Thesis has been carried out by Sophia Milanov at the  
Max Planck Institute for Astronomy in Heidelberg  
under the supervision of  
Dr. Glenn van de Ven

## Abstract

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

And after the second paragraph follows the third paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

After this fourth paragraph, we start a new paragraph sequence. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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# Part I.

## Introduction

### 1. What is a globular cluster in the Milky Way?

150 of them

kugelförmige anordnung von Sternen  $10^6$  bis  $10^8$

große frage: IMBHs ja/nein

### 2. Actions&orbits

integral of motion

klarste beschreibung des orbits

actions zeitlich konstant

schon lange sind actions bekannt

auch vom sonnensystem

für andere extrem schwierig zu berechnen

mit supercomputern endlich möglich

# Part II.

## Theory

3. star formation history

4. velocity dispersion

5. Poisson's equation

density & potential

6. Orbits

7. actions

# Part III.

## Results & Discussion

### 8. Models of globular clusters

#### 8.1. CMD

color magnitude diagram aussage  
alter  
metallicity  
star formation

#### 8.2. Velocity dispersion

aussage  
plots  
erklärung physikalisch

#### 8.3. Density profile

plots  
bestätigung kugelförmig  
potential daraus

#### 8.4. Potential

### 9. Orbits

### 10. Actions

### 11. Actions along orbits

### 12. Actions from different globular clusters



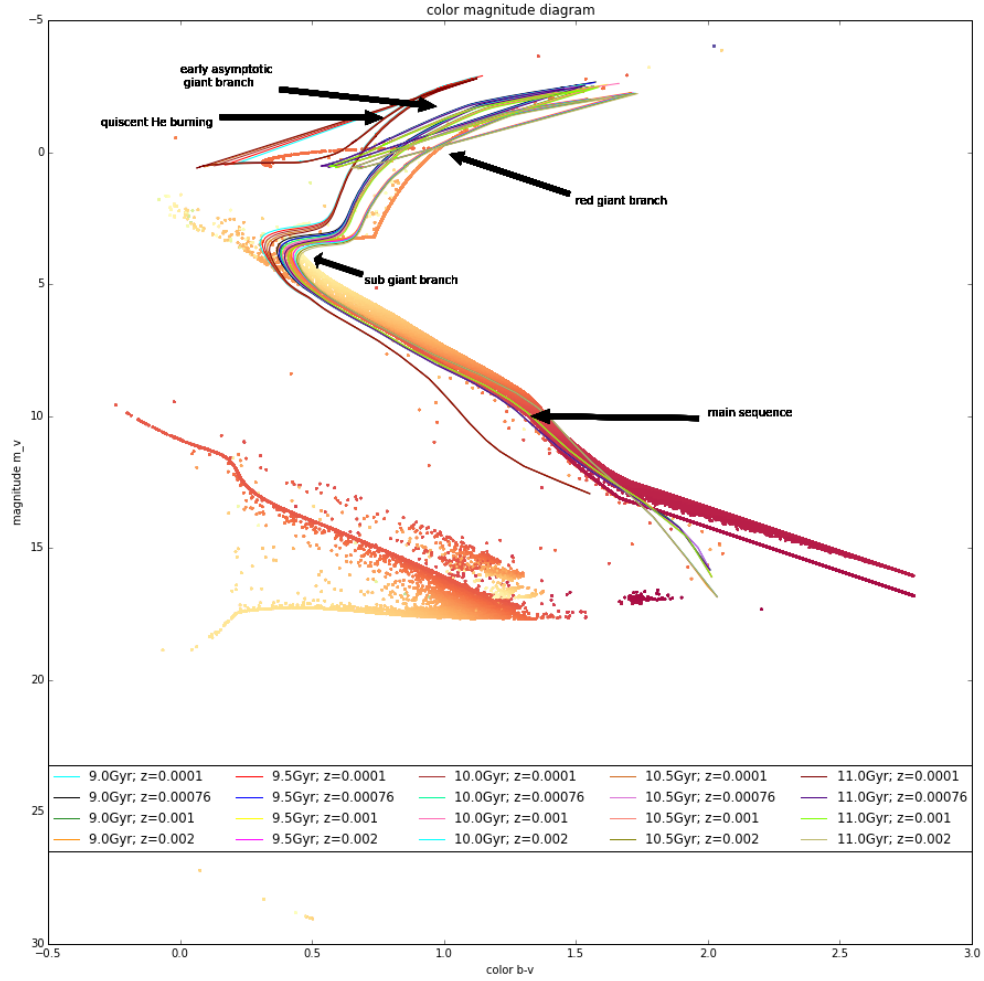


Figure 1: cmd isochrones

# Part IV.

## Summary