

Schwerpunktsprüfung Preparation in Astrophysics

Gianna

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Contents

1	Introduction	2
1.1	Overview of Astrophysical Concepts	2

Chapter 1

Introduction

This document is intended as preparation for the *Schwerpunktsprüfung* in astrophysics. It will cover key topics, relevant formulas, and practice problems to assist in mastering the exam content.

1.1 Overview of Astrophysical Concepts

Astrophysics involves the study of the physics governing astronomical objects and phenomena. Key topics include stellar evolution, galaxy formation, cosmology, and the physics of compact objects like black holes and neutron stars.

The gravitational force between two masses m_1 and m_2 separated by a distance r is given by:

$$F = G \frac{m_1 m_2}{r^2}$$

where G is the gravitational constant.