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Abstract

Acknowledgments

Contents

List of Figures

Chapter 1

Introduction

Chapter 2

Background Theory

2.1 History of cosmology and how we model the universe

2.2 Cosmological parameters and distances

When describing an expanding universe

2.2.1 Evolution of the universe and the ΛCDM model

In modern cosmology, the dominating model for describing the universe is the ΛCDM model. Its name is an abbreviation for what is considered the main energy contributions governing the expansion of the universe. The cosmological constant Λ represents dark energy, CDM is an abbrevation for cold dark matter and lastly we have ordinary matter which is what we interact with in our everyday lives. The current estimates suggest that approximately 69% of the universe consists of dark energy while the remaining 31% (Dette er hentet fra Planck 2018) is attributed to dark matter at around 27% and 4% for regular matter leaving only trace contributions from other energy contributing factors such as photons (γ) and neutrinos (ν).(Kanskje vÃ¦re mer spesifikk her). When modelling the universe these quantites enter into what is called density parameters Ω_i, where i represents a certain type of energy contribution to the universe i.e dark matter or CDM. The density parameter is defined as

$$\Omega_i = \frac{\rho_i}{\rho_c}, \tag{2.1}$$

where ρ_i is the density of the current energy contribution and ρ_cÂ is the critical density of the universe. The critical density is the density at which the (blabla). For a flat universe we have

$$\sum_i \Omega_i = 1. \tag{2.2}$$

Appendices