Baryon acoustic oscillations in the dark matter halos in the SDSS

Research Proposal for a Master Thesis in Physics

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1 General Information

Information of the Student

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Information of the Project

Title	**Properties of the BAOs from dark matter halos in the SDSS**
Field	Cosmology, Astrophysics, Physical Sciences
Advisor 1	Professor Juan Carlos Munoz-Cuartas. Universidad de Antioquia, Colombia.
University	Universidad de Antioquia, Master of Physics program
Time Frame	2 years

2 Abstract

3   Introduction

4   Theoretical Framework

5   Objectives

General Objective

To study the properties of the baryon accoustic osscillations (BAOs), amplitude and width, using as tracers the distribution of the halos in the sloan digital sky survey and their dependence with the tracer halo population.

Specific Objectives

- Determine in which way the structure scale is related to the amplitude and width of the baryon acoustic oscillations.

- Find if there is a change in the BAOs position with the structure scale and quantify it.

- Find a possible correlation between the BAOs properties and structure formation.

6   Methodology

It is going to be used observational data from the SDSS, DR-7 and DR-12, to study the BAOs in the observable universe. There is going to be used N body cosmological simulations to model the formation process of large scale structure. The comparision between both of them it will provide information about the BAOs and its properties.

7   Expected Results

8   Scientific Impact

9   Schedule