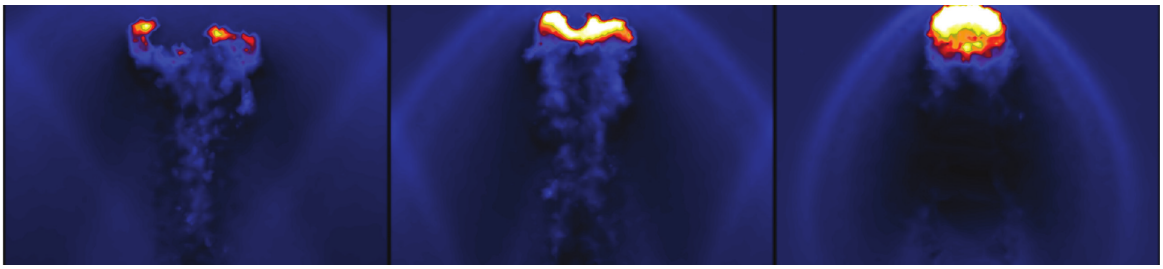
Research Proposal for a Master Thesis in Physics

Verifying the VPH scheme in Galaxy Formation

Sebastian Bustamante Jaramillo



Time evolution of a gas cloud in a supersonic wind using a VPH scheme. Taken from (Heß & Springel, 2010)

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1 General Information

Information of the Student

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More detailed information of the applicant can be found here `http://goo.gl/BPZGzK`

Information of the Project

Title	**Verifying the VPH scheme in Galaxy Formation**
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

6 Methodology

General Objective

- Evaluating the performance of the `VPH` method

7 Expected Results

8 Scientific Impact

9 Schedule

Semester	Goals
First	• Identifying a set of existing `AREPO` simulations suitable for our succeeding studies. • Applying web finding schemes (T-web and V-web) to the simulations for quantifying structures in the gaseous cosmic web, i.e. voids, walls, filaments and clusters. • Evaluating properties of found structures at different redshifts.
Second	• Studying by mean of high resolution simulations the impact of the gaseous cosmic web on specific galaxy evolution processes.

8 Bibliography

Heß S., Springel V., 2010, MNRAS, 406, 2289