Sebastián
Bustamante Jaramillo

Curriculum Vitae

Bello, Colombia
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I am a physicist with a strong interest in astrophysics, specifically in cosmology. I have always thought humanity's understanding the large-scale universe through science is like a bacteria colony trying to build a complete map of the earth or even more. I am looking forward to cooperate and get involve with high quality research teams in order to contribute my humble grain of sand to this grand and exciting enterprise called science. If I were asked to introduce myself in four words, they would be astrophysics-programming-swimming-guitar.

GENERAL INFORMATION

Name	Sebastián Bustamante Jaramillo.
Date of Birth	20th June, 1990.
Place of Birth	Maceo - Colombia.
Nationality	Colombian.
Marital Status	Single.
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EDUCATION

2001-2006	**High School Diploma**, *Institución Educativa Cisneros*, Cisneros, Colombia.
2007-2012	**B.Sc. in Physics**, *Institute of Physics, Universidad de Antioquia*, Medellín, Colombia.
Thesis	"The place of the Milky Way and Andromeda in the cosmic web".
Description	This study is aimed to characterize the local environment of Local Group (LG)-like systems from dark matter simulations of the large-scale universe. Using two different types of simulations, an unconstrained simulation (Bolshoi project) and a set of constrained simulations (CLUES project), it is first constructed a LG-like sample based upon observational constrains on the kinematic properties and isolation criteria of the real LG, along with the results of the CLUES simulations. By using a tensorial scheme based upon the peculiar velocity field of the dark matter, the V-web scheme, it is classified the local environment of systems in each simulation. Finally, it has been found that LG-like systems lies preferentially in sheet-like regions, furthermore a significant environmental bias for the total mass and the specific energy. No correlations have been found for the specific angular momentum and other studied properties.
Advisor	Jaime E. Forero-Romero, Ph.D.

ADDITIONAL EDUCATION

2008	**Extension Course of Planetary Sciences**, *Faculty of Exact and Natural Sciences, Universidad de Antioquia*, Medellín, Colombia.

Fields of Interest

Cosmology. Large-scale structure formation. Galaxy astrophysics. Planetary interior. Numerical simulations. Computational astrophysics. General astrophysics and physics. Programming.

Languages

Spanish Native speaker.

English Good.

Computer Skills

Systems Linux, MSWindows ME/XP/Vista/7/8.

Development C/C++, Python, Basic, TI Basic, shell scripts.

Software Mathematica, LaTeX, gnuplot, Gadget.

Simulation Tools N-body simulations, SPH, MonteCarlo, Finite Differences, Numerical integrators, Audio processing.

Repositories A list of my projects can be found in my *github* page: `https://github.com/sbustamante`.

Honours, Awards, and Accomplishments

2001-2006 **High School Diploma**, *Institución Educativa Cisneros*, Cisneros, Colombia.

Teaching

Assistant Instructor **Physics 1 (Mechanics), 2013/1**, *Faculty of Exact and Natural Sciences, Universidad de Antioquia*, Medellín, Colombia.

Assistant Instructor **Computational Complement of Physics 2 (Electricity and Magnetism), 2013/1**, *Faculty of Exact and Natural Sciences, Universidad de Antioquia*, Medellín, Colombia.

Assistant Instructor **Computational Complement of Physics 3 (Oscillations and Waves), 2013/1**, *Faculty of Exact and Natural Sciences, Universidad de Antioquia*, Medellín, Colombia.

Adjunct Professor **Introductory Physics, 2013/2**, *Faculty of Engineering, Universidad de Antioquia*, Medellín, Colombia.

Adjunct Professor **Laboratory of Physics 1 (Mechanics), 2013/2**, *Faculty of Engineering, Universidad de Antioquia*, Medellín, Colombia.

Research Experience

2010-2011 **Young Investigator Programme**, Fundamental of quantum mechanics, *Group of Atomic and Molecular Physics (GFAM), Committee for Research Development (CODI), Universidad de Antioquia*, Medellín, Colombia.

2011-2012 **Young Investigator Programme**, Thermal evolution of rocky exoplanets, *Group of Computational Physics and Astrophysics (FACom), Committee for Research Development (CODI), Universidad de Antioquia*, Medellín, Colombia.

August, 2012 **Research Internship**, *Physics Department, Universidad de los Andes*, Bogotá, Colombia.

Conferences, schools and workshops attended

2012 **Regional WCRP/SPARC Workshop with focus on the Southern Hemisphere and South America.**, Universidad de Buenos Aires,November 26-27, Buenos Aires, Argentina.

Poster: Moisture Flux across Northerm of South America using ERA Interim data.

2012 **XI Meeting of teaching in science and mathematics.**, Universidad de Antioquia, Universidad EAFIT, April 19-20, Medellín, Colombia.

2011 **XI Colombian Congress of Meteorology.**, Universidad Nacional de Colombia, sede Bogotá, March 23-25, Bogotá, Colombia.

2008 **I Colombian Congress of Astronomy and Astrophysics.**, Universidad de Antioquia, Universidad EAFIT, August 19-20, Medellín, Colombia.

Miscellaneous

Computer Skills C, Linux, Mathematica, CDO,GrADS .

Languages Spanish (native), English.

References

○ **Jaime E. Forero-Romero** (*Advisor*)
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