

Sebastian Bustamante

Curriculum Vitae

CONTACT INFORMATION

Full name: Sebastián Bustamante Jaramillo
Institution: Heidelberg Institute for Theoretical Studies (HITS)
Place Heidelberg, Germany

Citizenship: Colombian
Email: sebastian.bustamante@h-its.org
Website: sbustamante.github.io/Sebastian-Bustamante
Github: github.com/sbustamante
Born: June 20th 1990, Maceo, Colombia.

RESEARCH EMPLOYMENT

2015-present **PhD candidate at Heidelberg Institute for Theoretical Studies.**
3 years PhD program at Heidelberg Institute for Theoretical Studies (HITS).

EDUCATION AND ACADEMIC DEGREES

2015-2018* **PhD in Astrophysics at Heidelberg University**
*Graduation date is flexible.
Thesis title: *Modelling supermassive black holes in hydrodynamical simulations of galaxy formation.*
Advisor: Prof. Dr. Volker Springel.

2014-2015* **MSc in Physics at Universidad de Antioquia**
*Two terms completed.

2007-2012 **BSc in Physics at Universidad de Antioquia**
Degree awarded April 4th 2013.
Thesis title: *The place of the Milky Way and Andromeda in the cosmic web.*
Advisor: Prof. Dr. Jaime E. Forero-Romero.

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

SCHOLARSHIPS AND PRIZES

2015 **PhD scholarship from the DAAD (German Academic Exchange Service).**
3 years PhD scholarship for going to HITS. ~ 45000 EUR.

2013 **Best BSc physics student of 2012 from Universidad de Antioquia.**
Exonerated from paying tuition fees of the master program.

2012 **Best oral presentation at 2nd International Congress of Astrobiology.**

COMPUTER AND TECHNICAL SKILLS

- **Hydrodynamical simulations:** Running and developing simulations with Gadget and AREPO codes. I have developed a module in AREPO to integrate spin evolution of supermassive black holes in simulations of galaxy formation.
- **Software development:**
 - **PLYNET:** I have developed a software to calculate the interior structure and thermal evolution of rocky planets. (github.com/facom/Plynet/tree/1.0-release).
 - **Void Finder:** I also developed a method to find voids in cosmological simulations based on the tidal-tensor and the watershed transform. (github.com/sbustamante/Void-Finder)
- **Programming languages:** Python, C, C++, Bash, Mathematica, TI-Basic.
- **Systems and Software:** Linux, MSWindows, LaTeX, gnuplot.
- **Repositories:** A list of my projects can be found in my *github* page: github.com/sbustamante

TEACHING EXPERIENCE

- 2013 Tutoring at Universidad de Antioquia:**
Physics 1, computational lab of Physics 2, computational lab of Physics 3.
- 2013-2015 Lecturer at Universidad de Antioquia:**
Introduction to physics, lab of Physics 1, introduction to computers, computational methods for Astronomy and Physics (github.com/sbustamante/ComputationalMethods).
- 2017 Tutoring at Heidelberg University:**
Introduction to computational physics.

MENTORING

I am the main scientific advisor of Daniel Montenegro. He is an undergraduate student of Astronomy at Universidad de Antioquia, in Colombia.

LANGUAGES

- Spanish** Native speaker.
English Proficient.
German Intermediate.

REFERENCES

- **Prof. Volker Springel**
Volker.Springel@h-its.org
Heidelberg Institute for Theoretical Studies, Heidelberg, Germany.
Max Planck Institute for Astrophysics, Garching, Germany.
- **Prof. Jaime E. Forero-Romero**
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Universidad de los Andes, Bogotá, Colombia.
- **Dr. Martin Sparre**
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Potsdam University, Potsdam, Germany.