Sebastián Bustamante Jaramillo

Curriculum Vitae

Contact information

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**
*Expected graduation date in the last quarter of 2018.
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. $\sim$ 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, 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 thesis advisor of Daniel Montenegro. He is a undergrad 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**
  `je.forero@uniandes.edu.co`
  Universidad de los Andes, Bogotá, Colombia.

- **Dr. Martin Sparre**
  `martinsparre@gmail.com`
  Potsdam University, Potsdam, Germany.