Miguel Sabogal García
Curriculum Vitæ

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Over the last 3 years I actively participated in many physics research that resulted in international scientific publications. These experiences allowed me to acquire strengths in leadership, creativity and perseverance, while building skills in a wide range of programming languages, developing specialized software and performing data management through process automation.

Professional experience

05/2022 - 08/2022   **Research intern**, *RECA Internship program 2022, Red de Estudiantes de Astronomía de Colombia.*

Tasks performed:

- *Design and development of specialized software in Python*
- *Statistical analysis using Markov chain Monte Carlo (MCMC)*
- *Writing of scientific articles*
- *Non-parametric reconstruction using Gaussian Processes (Machine Learning)*
- *Keep the project manager informed of the overall status of the solution*
- *Develop the end to end project plans with the execution team*
- *Be part of technical discussions and solution*

05/2022 - 06/2022   ***Supportive Mentor**, Pgm. de Apoyo a la Permanencia y Graduación estudiantil, Universidad del Atlántico*

Tasks performed:

- *In-person and virtual classes of Physics and Mathematics*
- *Academic support to students in their first semesters and mid-career.*
- *Mentoring colleagues providing advice and guidance on best practice and development techniques*

Education

- 2015 – 2022 **Physicist,** Bachelor's degree/ *Universidad del Atlántico.*

Computational skills

Python: Advanced, **C/C++:** Intermediate, **Fortran 90:** Intermediate, **MATLAB/Mathematica/Excel**: Advanced, **HTML:** Basic

Techniques: Process Automation, Gaussian Processes (Machine Learning), Statistical analysis using MCMC, Web scraping, Object-oriented programming.

Tools: Selenium, Beautifulsoup, Scrapy, Numpy, SciPy, Pandas.

Research Experience, Publications and Projects

Peer-Reviewed Publications

- Oliveros, A., **Sabogal, M.A.,** & Acero, M.A. Barrow holographic dark energy with Granda–Oliveros cutoff. Eur. Phys. J. Plus 137, 783 (2022). DOI: 10.1140/epjp/s13360-022-02994-z

- **Sabogal, M. A.** , Parra, I. C. , Bandera, M. , Gallardo, J. , & Mejía-Cortés, C. (2020, May). Mobility of localized beams in non-homogeneous photonic lattices. In Journal of Physics: Conference Series (Vol. 1547, No. 1, p. 012023). IOP Publishing. [DOI: 10.1088/1742-6596/1547/1/012023](DOI: 10.1088/1742-6596/1547/1/012023)

Manuscripts Under Review

- Cardona, W., & **Sabogal, M.A.** (2022). Holographic energy density, dark energy sound speed, and tensions in cosmological parameters: H0 and S8. arXiv preprint arXiv:2210.13335.

In Preparation

- **Sabogal, M.A.**, & Gonzalez, J.(2022). Hubble constant estimation from BAO signals with LSST-simulated data. [Draft: zenodo.7131390](zenodo.7131390)

Honors and Awards

- *Funding award* **"Enabling Science Program 2021 Award - 51"**, *granted by the Legacy Survey of Space and Time (**LSST**) observatory.*
- ***Undergraduate Honors Theses***, Universidad del Atlántico.

Additional languages

English (TOEFL**)**   Read: **C1**   Speak: **B2**   Write: **B2**   Listen: **C1**   **Test date:** Nov 2022

Presentations and Events

Event: *XIV Latin American Symposium on High Energy Physics*

Type of event: *International Congress*

Type of participation: *Speaker*

Conference title: *Decoding Holographic Dark Energy in the structure formation.*

Place: *QUITO, ECUADOR - Universidad San Francisco de Quito, 14/11/2022 – 18/11/2022.*

Courses and certifications

SAFETY AND HEALTH AT WORK Course (2022)
PYTHON IN ASTRONOMY Course (2022)

Work references

Mario A. Acero Ortega, PhD in Physics.
Associate Professor
Physics Program, Faculty of Basic Sciences, Universidad del Atlántico.
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Javier E. Gonzalez Sanchez, PhD in Astronomy.
Associate professor and supervisor in the *Red de Estudiantes de Astronomía de Colombia*.
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Personal references

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