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Research Focus: Intergalactic Medium; Cosmology; Numerical simulations, Bayesian Inference, Dark Energy.

EDUCATION

- 2014 – 2017 **PhD in Science**, Swinburne University of Technology.
Thesis title: Simulating metal and HI absorption lines at the conclusion of Reionization.
- 2009 – 2012 **MSc Astronomy**, Universidad Nacional de Colombia.
Thesis title: Study of Primordial Nucleosynthesis within an Early Universe Dark Energy model.
- 2004 – 2009 **BSc Physics**, Universidad Nacional de Colombia

RESEARCH EXPERIENCE

- 2018 – **Research fellow**.
Universidad ECCI. Bogotá, Colombia.
- 2018 – 2019 **Associate Researcher**.
Universidad de los Andes. Bogotá, Colombia.
- 2017 **Research Assistant CAASTRO**.
Swinburne University of Technology. Melbourne, Australia.

TEACHING EXPERIENCE

- 2023 Lecturer for *An overview on black holes interiors*. Universidad de los Andes. Bogotá, Colombia.
- 2022 – Lecturer for *Research methods for statisticians*. Universidad ECCI. Bogotá, Colombia.
- 2019 Lecturer for *Data visualization in Workshop: programming with python*.
Universidad ECCI. Bogotá, Colombia.
- 2018 – 2022 Lecturer for *Electromagnetism and Newtonian Mechanics*.
Universidad ECCI. Bogotá, Colombia.
- 2015 – 2017 Tutor for *Introduction of Physics and Energy and motion*.
Swinburne University of Technology. Melbourne, Australia.
- 2011 – 2013 Lecturer for *Electromagnetism, Oscillations and waves, Modern Physics, Newtonian Mechanics,*
and Thermodynamics and Fluids.
Fundación Universitaria Los Libertadores. Bogotá, Colombia.
- 2009 – 2011 Tutor for *Special Relativity and General Relativity*.
Observatorio Astronómico Nacional, Universidad Nacional de Colombia. Bogotá, Colombia.

SKILLS

- * **Scripting/Programming and Data Analysis.** Python, bash, Fortran, C, C++.
- * **Operative systems.** Linux, OS X, Windows.
- * **Software general.** Microsoft Office, LATEX.
- * **Others.** Basic knowledge of yt, GADGET3, Cloudy, vpfif, hdf5.

STUDENT SUPERVISION AND MENTORSHIP

- 2021 – Co-supervision MSc project: Yeimi García, Universidad Nacional de Colombia.
- 2021 – 2022 Supervision BSc in Astronomy: Julieta Osorio, Universidad de Antioquia.
- 2021 Supervision in the project **Programa RECA summer internship**: Julieta Osorio.
- 2020 – 2022 Supervision: Vanesa Lara, Universidad ECCI.

SELECTED PUBLICATIONS

- **Analysis of the impact of broad absorption lines on quasar redshift measurements with synthetic observations.** Luz Ángela García, Paul Martini, Alma X. González, Andreu Font-Rivera, Hiram Herrera, et al. Submitted to *Monthly Notices of the Royal Astronomical Society*. <https://arxiv.org/abs/2304.05855>.
- **Constraining cosmological parameters from N-body simulations with variational Bayesian neural networks.** Hortúa HJ, García LÁ, Castañeda C. L. 2023. *Front. Astron. Space Sci.* 10:1139120. doi:10.3389/fspas.2023.1139120 <http://arxiv.org/abs/2301.03991>.
- **Validation of the Scientific Program for the Dark Energy Spectroscopic Instrument.** DESI collaboration: A. G. Adame, L. A. García et al. <https://arxiv.org/abs/2306.06307>.
- **A novel early dark energy model.** Luz Ángela García, Leonardo Castañeda, Juan Manuel Tejeiro. *New Astronomy*, vol. 84, pp. 101503. ISSN 1384-1076. <https://arxiv.org/abs/2009.07357>.
- **The CGM and IGM at $z \sim 5$: metal budget and physical connection.** Alex Codoreanu, Emma V. Ryan-Weber, Luz Ángela García, Neil H.M. Crighton, George Becker, Max Pettini, Piero Madau, and Bram Venemans. *Monthly Notices of the Royal Astronomical Society*, 2018, vol. 481, issue 4, p.4940-4959. <https://arxiv.org/abs/1809.05813>.
- **Simulated metal and HI absorption lines at the conclusion of Reionization.** García L. A., Tescari E., Ryan-Weber E. V., Wyithe J. S. B. *Monthly Notices of the Royal Astronomical Society*, 2017, vol. 470, issue 2, pp. 2494-2509. <https://arxiv.org/abs/1706.01072>.
- **Theoretical study of an LAE — CIV absorption pair at $z = 5.7$.** García L. A., Tescari E., Ryan-Weber E. V., Wyithe J. S. B. *Monthly Notices of the Royal Astronomical Society: Letters*, vol. 469, issue 1, pp. L53-L57. <https://arxiv.org/abs/1704.03473>.

PROFESSIONAL SERVICE

Organization

2023	SOC member Third Workshop on Current Challenges in Cosmology . UIS.
2023	LOC of the Cosmology in Colombia, COCO 2023 . Universidad del Valle.
2022	SOC member VII Congreso Colombiano de Astronomía . UPTC.
2021 - 2022	LOC of the Cosmology in Colombia, COCO 2021 and 2022 . Online.
2018 - 2023	Organizer of the SiAMo Colloquia . Universidad ECCI.

Computing time as a PI

2022 –	2 M CPUh in Infinity , Institut Astrophysique de Paris.
2020	0.5 M CPUh in XSEDE , National Science Foundation.
2018 – 2023	0.2 M CPUh in cori , National Science Foundation.
2018 –	0.1M CPUh in the cluster Ozstar , Swinburne University of Technology.

Observational remote shifts

2023	Support Observing Scientist (SO) for the DESI telescope: 7 nights.
2023	Support Observing Scientist (SO) at CTIO telescope for DESI: 2 full nights (August).
2022	Support Observing Scientist (SO) for the DESI telescope: 5 nights.

SELECTED TALKS

2023	Monday science seminar series Studying Early Dark Energy Models with a Bayesian Approach , University of Wisconsin-Madison (online).
2023	Seminario de gravitación y cosmología Estudio de energía oscura temprana con elementos de estadística Bayesiana , ICF - UNAM (online).
2022	Invited speaker to the Cosmology & Gravitation Seminar: Studying Early Dark Energy Models with a Bayesian approach , University of Stockholm.
2022	Speaker for Encouraging young women to approach astronomy in Colombia , CAP2022.
2022	Invited speaker to the Laura Bassi Colloquium series: Studying the Epoch of Reionization with high-resolution numerical simulations (online).