

Gissel Dayana Pardo Montaguth

Juan Cisterna 3034, La Serena, Chile.

(56) 982897222, montaguth.g.c@gmail.com

<https://gmontaguth.github.io/gmontaguth/>

Nationality: Colombian

Education

2020-present **University of La Serena**

Ph.D(c) in Astronomy

How the environment affects the evolution of galaxies (in this particular case dense environments like compact groups, compared to the field) such as morphological and physical properties from an integral observational perspective.

Main research skills:

- Morphology fitting: development of a code for making morphological fitting, 'MorphoPLUS'. Which is based on bash, python and GalfitM code.
- Dynamics analysis.
- Working with databases.
- Optical emission line diagnostics diagrams.
- Statistical analysis using Python.
- Writing for Observation Proposal to the Gemini Telescope: IFU Data

2013-march **University of Antioquia**

2019 **Undergraduate Researcher**

Ionization of the ISM and star formation in minor mergers of galaxies.

Main research skills:

- Photometric and spectroscopic image reduction using IRAF.
- Spectroscopic extraction and calibration.
- Spectroscopic analysis: Radial velocity estimation, galactic extinction correction, and emission lines fitting, electron density estimation, application of diagnostics diagrams, and SFR estimation.

Teaching and Mentoring experience

2023 **University of La Serena, Chile**

Mentoring a Master's Degree Student

Mentoring student Sebastian Ortiz in learning tools such as galfitM for the morphological fittings required for his thesis titled: Star-forming compact groups of galaxies: A missing link in the understanding of compact groups of galaxies?

2018 **University of Antioquia, Medellín, Colombia**

Assistant teacher

Astronomy seedbed course aimed at non-scientific students.

Attendance at Conferences and Seminars

October 2023 Oral presentation "*Impact of the Environment in Which Compact Groups are Located on the Star Formation and Morphology of Their Galaxies,*", Mock La Serena, Chile.

- September 2023 Virtual poster “Exploring the morphological transformation of galaxies in Compact Groups: Insights from a Major-scale Analysis”, “A journey through galactic environments” Porto Ercole, Italy.
- September 2023 Oral presentation “Exploring the impact of the environment where CGs are located on the star formation of their galaxies”, “Galaxy Transformation Across Space and Time”, The 3rd Australia-ESO meeting, Australian Academy of Science, Canberra.
- May 2023 Oral presentation “A peculiar galaxies population: morphological transformation in compact groups”, Galaxy Groups and Clusters III meeting, La Serena, Chile.
- March 2023 Oral presentation “Morphological transformation in compact groups: a peculiar galaxies population”, XVIII SOCHIAS annual meeting, Temuco, Chile.
- November 2022 Oral presentation “The role of dense environments in the morphological transformation of galaxies: Compact groups in the Stripe 82”, 17th S-PLUS meeting, Rio de Janeiro, Brazil.
- August 2022 Oral presentation “The role of dense environments like compact groups of galaxies in the morphological and physical evolution of galaxies.”, Area1 CATA Workshop, La Serena, Chile.
- January 2022 Oral presentation “The role of dense environments in the morphological evolution of galaxies: compact groups vs field”, 17th virtual S-PLUS meeting.
- June 2021 Poster “Physical properties of compact groups and field galaxies in the Stripe 82 region”, 15th virtual S-PLUS meeting.
- December 2020 Oral presentation “Structural properties and nuclear activity in compact groups and field galaxies in the Stripe 82 region”, 14th virtual S-PLUS meeting.
- Octubre 2019 Oral presentation “Ionization of the ISM and star formation in minor mergers of galaxies”, Congreso Colombia de Astronomía y Astrofísica (Cocoa), Medellín, Colombia.
- July 2018 Oral presentation “Star formation rate in minor mergers of galaxies”, International School for Younger Astronomers (ISYA), Socorro, Colombia.

Publication

- 2024 Montaguth G. P., et al., 2024b. Galaxy evolution in compact groups – III. Probing the Window into Environment-Morphology-Nuclear Activity Connection. In preparation.
- 2024 Montaguth G. P., et al., 2024a. Galaxy evolution in compact groups – II. Witnessing the influence of major structures in their evolution. To submit soon.
- 2023 Lima-Dias C with Montaguth G.P., 2023. Bulge-disc decomposition of the Hydra cluster galaxies in 12 bands. Submitted to MNRAS and accepted with minor revision.
- 2023 Montaguth G. P., et al., 2023, MNRAS, 524, 5340. Galaxy evolution in compact groups – I. Revealing a transitional galaxy population through a multiwavelength approach.
- 2020 Book by Lopera Londoño, Carolina with Gissel P. Montaguth: *Arañas de Colombia : biología, envenenamiento y potenciales usos terapéuticos de su veneno*

Scholarships / Awards

- 2022 Observation proposal submitted to the Gemini Telescope and awarded with time (GS-2022B-Q-210) entitled “Witnessing galaxy transformation in compact groups of galaxies: an IFU insight to understand kinematic and physical properties of galaxies”.
- 2020 National Doctoral Scholarship 2020 awarded by the National Agency for Research and Development of Chile to pursue my Ph.D. at the University of La Serena.
- 2019-2020 Young Researchers and Innovators scholarship, awarded by the Ministry of Science of the Government of Colombia and the University of Antioquia: Present Science Spiders. Communication of acquired knowledge on ophidism and scorpionism program at the University of Antioquia.

- 2018 International School for Younger Astronomers (ISYA), Scholarship, International Astronomical Union (IAU).
- 2017 Young Researchers scholarship awarded by University of Antioquia, for the project 'Modeling Star Formation in Galaxies: Characterization of Star Formation Recipes'
- 2017 Observational internship, Scholarship, Observatory Pico Dos Dias (OPD) and University of Antioquia: Para observar 7 noche y obtener datos fotometricos y espectroscopicos de pares de galaxias.
- 2016 Dean's list in the second semester of the year, University of Antioquia, Medellín, Colombia.
- 2016 Dean's list in the first semester of the year, University of Antioquia, Medellín, Colombia.

Public Outreach

Throughout my bachelor's and PhD studies, I have actively participated in various community events. For me, it is essential to give back to the community, aiming to entertain and stimulate people with a blend of humor and science. Here are some of the activities in which I have been involved:

- 2018-present Radio announcer in the program El laboratorio (the laboratory) in the educational radio system from University of Antioquia.
- 2022 Talk at the planetarium of Medellín: Galaxias: Historias de vecindarios espaciales on April 21: Ciencia en bicicleta.
- 2020 Conociendo el cielo project by University of La Serena: Two videos about the Moon phases and the conjunction between Saturn and the Moon in Conociendo el cielo project.
- 2020 Talk at the planetarium of Medellín in the sky section tonight on July 24, 2020: El cielo esta noche: hablemos de cometas.
- 2020 Podcasters on a humor podcast with some science: La verdad absoluta del peluche.

Additional Activities

- 2023 Member of the Local Organizing Committee at the 'Mock La Serena Meeting' held at the University of La Serena from October 16-19.
- 2023 Member of the Local Organizing Committee at the 'Galaxy Groups and Clusters III' Meeting held at the University of La Serena from May 15-19.

References

(PhD *Prof Dr. Antonela Monachesi, Director of PhD Program in Astronomy, University of La Serena, Supervisor*) Avda. Juan Cisternas 1200, La Serena, Chile, (56) 512204482, amonachesi@userena.cl.

(PhD *Prof Dr. Serigo Torres Flores, University of La Serena, Avda. Juan Cisternas 1200, La Serena, Supervisor*) Chile, (56) 512204490, sptorres@userena.cl.

Prof Dr. Claudia Lucia Mendes de Oliveira, Full professor at the Institute of Astronomy, Geophysics and Atmospheric Sciences of the University of São Paulo, Rua do Matão 1226, Sao Paulo, Brasil, (11) 30912707, claudia.oliveira@iag.usp.br.