

Elena Arjona Gálvez

Astrophysics Ph.D. student

Education

Nov 2021 - now, Ph.D. in Astrophysics

Universidad de La Laguna (ULL)

Instituto de Astrofísica de Canarias (IAC)

Title: Local Group Simulation with Black Hole Feedback:

detailed analysis and comparison with ongoing and upcoming surveys.

Supervised by Arianna Di Cintio and Robert J. J. Grand

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2019 - 2021, Masters degree in Astrophysics

Universidad de La Laguna (ULL)

Theoretical and computational specialization.

• **Master thesis:** “The formation of bulgeless galaxies in simulations. Study of the evolution of bulgeless galaxies and this formation using EAGLE.”

Supervised by Claudio Dalla Vecchia and Jairo Méndez-Abreu.

Grade: **9.1/10**

2013 - 2019, Bachelor's degree in Physics

Universidad de Sevilla (US).

• **Bachelor thesis:** “Formation and evolution of Galaxies in Cold Dark Matter Cosmology. Study of the relation between the morphology of massive galaxies and their satellites using EAGLE simulations.”

Supervised by Claudio Dalla Vecchia and Christopher Bryan Brook.

Grade: **9.5/10**

Publications

1ST AUTHOR:

- *Arjona-Gálvez, E.; Sales V., L.; Canalizo, G.; Di Cintio, A.; Grand, R.); A deeper insight into gas properties & AGN outflows in low-mass galaxies in prep*
- *Arjona-Gálvez, E.; Cardona-Barrero, S.; Grand, R.; ... ;(9 more); A physically motivated galaxy size definition across different state-of-the-art hydrodynamical simulations*
Submitted in Astronomy & Astrophysics
DOI: [10.48550/arXiv.2502.20398](https://doi.org/10.48550/arXiv.2502.20398)
- *Arjona-Gálvez, E.; Di Cintio, A.; Grand, R. October 2024; The role of AGN feedback on the evolution of dwarf galaxies from cosmological simulations: SMBHs suppress star formation in low-mass galaxies*
Astronomy & Astrophysics, Volume 690, A286
DOI: [10.1051/0004-6361/202449439](https://doi.org/10.1051/0004-6361/202449439)

OTHERS:

- *Expósito-Márquez, J.; Brook, C. B.; Huertas-Company, M.; Di Cintio, A.; ... ; Arjona-Gálvez, E. March 2023; A probabilistic deep learning model to distinguish cusps and cores in dwarf galaxies*
Monthly Notices of the Royal Astronomical Society, Volume 519, Pages 4384–4396
DOI: [10.1093/mnras/stac3799](https://doi.org/10.1093/mnras/stac3799)

Congress and Workshops

Oct 2025, I ExGal-Twin winter school in Computational astrophysics (Confirmed)

Durham, UK

- Participation as tutorial assistance in the sessions.

Jun 2025, EAS European Astronomical Society Annual Meeting (Confirmed)

Cork, Ireland

- e-Poster (accepted)

Jun 2025, XVI Día de Nuestra Ciencia y Tecnología

IACTEC, La Laguna Spain

- Oral contribution (proposed as one of the highlight research talks of the galaxy formation line)

Jan 2025, First Annual ExGal-Twin Meeting

La Laguna, Spain

- Oral contribution

Oct 2024, XXXV Canary Island Winter School of Astrophysics

Baryonic Cycle Across Space & Time

La Laguna, Spain

- Oral contribution

Jul 2024, XVI Reunión de la Sociedad Española de Astronomía

Granada, Spain

- Oral contribution

Jun 2024, CLUES for Local Universe Exploration & Study

Center for Theoretical Physics: Warsaw, Poland

- Two oral contributions

Dec 2023, Black Holes on Broadway: AGN Workshop

Flatiron Institute, NYC, EEUU

- Oral contribution

Nov 2023, XXXIII Canary Islands Winter School of Astrophysics

The Local Group as a benchmark for Galaxy Evolution

La Laguna, Spain

- Oral contribution
- Member of the LOC

Sep 2023, II UAM-IAC meeting

Universidad Autónoma, Madrid, Spain

- Oral contribution

Jun 2023, I BEARD meeting

IAC, La Laguna, Spain

- Oral contribution

Jun 2023, XIV Día de Nuestra Ciencia

IACTEC, La Laguna Spain

- Oral contribution

Jan 2023, I UAM-IAC meeting

Universidad Autónoma, Madrid, Spain

- Oral contribution

Nov 2022, XXXII Canary Islands Winter School of Astrophysics

Overlaps at the Frontiers of Astrophysics, Cosmology and Particle Physics

La Laguna, Spain

- Oral contribution

Sep 2022, XV Reunión de la Sociedad Española de Astronomía

La Laguna, Spain

- Poster contribution

Jun 2022, EAS European Astronomical Society Annual Meeting

Valencia, Spain

- Poster contribution

Jun 2022, XIII Día de Nuestra Ciencia

IACTEC, La Laguna Spain

- Poster contribution

May 2022, IAA-CSIC Severo Ochoa Advanced School on Galaxy Evolution

IAA, Granada, Spain

- Poster contribution

Jul 2018, SEMF Summer Programme

Universitat de València (UV)

Short-courses aimed at Mathematics and Physics

Talks in seminars

[Nov 2024, UCR Astro Seminar \(UC, Riverside\)](#)

[Apr 2024, AGN talk Series \(IAC, La Laguna\)](#)

[Nov 2023, BAHAMAS group weekly meeting \(LJMU, Liverpool\)](#)

[Oct 2023, LJMU Research Talk \(LJMU, Liverpool\)](#)

[Apr 2023, MWLG monthly Journal Club \(IAC, La Laguna\)](#)

[Nov 2022, Galaxy Coffee \(IAC, La Laguna\)](#)

Research activities

Jun 2025, research visitor at ICC (Institute for Computational Cosmology, Durham) (Confirmed)

One week stay along with Giulia Golini working with Dr. Francesca Frakoudi using the AURIGA Superstars simulations.

Hosts: Francesca Frakoudi

Nov 2024 - Dic 2024, research visitor at UCR (University of California, Riverside)

Five weeks stay regarding my PhD thesis, working with relevant people studying AGN galactic outflows.

Hosts: Laura V. Sales & Gabriela Canalizo

Sep 2023 - Nov 2023, research visitor at LJMU (Liverpool John Moore University, UK)

Two months stay regarding my PhD thesis, working with relevant people in the galaxy formation area.

Hosts: Robert Grand & Andrea Foont

Aug 2019 - Oct 2019, Research initiation at Max-Planck-Institut für extraterrestrische Physik (MPE, Garching)

Two months stay founded by ERASMUS+ Traineeship program. Studying galaxy voids as cosmological laboratories.

Supervisor: Ariel G. Sánchez

Dec 2018 - Jan 2018, Research initiation at Instituto de Astrofísica de Canarias (IAC, La Laguna)

Participation in the development of the LISA project

Supervisor: Juan Villa and José Javier Díaz

Sep 2017 - Jul 2018, Internal Student at Universidad de Sevilla (US, Sevilla)

Introduction to Geometry and General Relativity.

Supervisor: Diego Gómez

Awards

2021, FPI-SO Research Grant at Instituto de Astrofísica de Canarias (IAC)

Spanish 3+4 years PhD grant to fully cover the study of my PhD thesis.

2019, ERASMUS+ Traineeship at Max-Planck-Institut für extraterrestrische Physik (MPE)

Fellow to fully cover the stay at MPE studying voids as cosmological laboratories.

2019, Prácticas Externas at Instituto de Astrofísica de Canarias (IAC-TEC)

Fellow to work two months as an internal student under the LISA project.

2018, SICUE at Universidad de La Laguna

Fellow to spend one year in another Spain University. Elective courses aimed at Astrophysics.

Observational experience

Total journeys: 18 nights

Total telescopes: IAC80 (3 nights), Isaac Newton Telescope (INT, 15 nights)

Total instruments: CAMELOT2 (IAC80), Wide-Field Camera (WFC, INT)

Outreach

Apr, 2025, Outreach, STARMUS: The Island of The Stars

30 hours of outreach participating at the IAC stand in the STARMUS IAC team.

La Palma

Mar, 2025, Outreach, Observación del Eclipse Parcial en el Observatorio del Teide

5 hours of outreach showing to the general public about the eclipse.

OT, Izaña

Feb, 2024, Outreach, Mujeres en la astronomía: ¡Habla con ellas!

50-minute talk about the role of women in astrophysics, and the shape of the galaxies, how they form and evolve along the time of the universe.

IES Herrera, Sevilla

Aug, 2023, Outreach, Aprende a identificar el cielo nocturno

Organizing an astronomical night for kids. Teaching about the night sky, constellations, and how to orient themselves by looking at the stars.

Centro Cultural de Isla Redonda, Sevilla

May, 2023, Outreach, Mujeres en la astronomía: ¡Habla con ellas!

50-minute talk about the role of women in astrophysics, my scientific career and other curiosities about my research life for senior high-school students.

IES Herrera, Sevilla

Programming Skills

- Matlab - advanced C/C++ - fair Python - advanced Astro-Softwares - advance
- Fortran - medium IDL - basic SQL - medium MPI - fair

Languages

- Spanish - native English - advanced B2 (APTIS, 2019)

Additional roles and Activities

- Member of IAC-DivulgaTeam
- PhD Student representative of the IAC
- PhD Student representative of the astrophysics department at ULL
- Member of the Comisión de Sostenibilidad
- Member of the Galaxy Coffee committee at IAC
- Member of ExGal-Twin
- Member of UNDARK
- Member of the BEARD project
- LOC committee at the XXXIII Canary Islands Winter School of Astrophysics
- Former theory group weekly meeting organiser at IAC
- Former secretary of the Asociación Sevillana de Estudiantes de Física (ASEF)
- Former director of ASEF Astronomy Club