

LAURA SCHOLZ DIAZ

Postdoctoral researcher - Galaxy Formation & Evolution

CONTACT

📍 INAF - Osservatorio di Arcetri,
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📄 NASA/ADS publication list

PROGRAMMING

Python

IDL

Fortran

SOFTWARE TOOLS &

Astronomy (astropy,
pPXF, VorBin, TOPCAT)

Data Handling (numpy,
scipy, pandas, emcee)

Visualisation (mat-
plotlib, seaborn)

Parallelization (multi-
processing)

LaTeX

IRAF

LANGUAGES

English

Spanish

RESEARCH EXPERIENCE

Postdoctoral researcher

05/2024 - present

INAF - Osservatorio Astrofisico di Arcetri, Firenze (Italy)

Severo Ochoa Excellence PhD fellow

10/2020 - 05/2024

Instituto de Astrofisica de Canarias, Tenerife (Spain)

Probing the baryonic cycle of galaxies through stellar population analyses

Supervisors: Dr. Ignacio Martin Navarro and Dr. Jesús Falcón Barroso

ERASMUS+ research stay

03/2022-06/2022

Leiden Observatory, Leiden (The Netherlands)

Galaxy and dark matter halo properties in cosmological simulations

Supervisor: Prof. Dr. Joop Schaye

Msc thesis

09/2019-07/2020

University of La Laguna, Tenerife (Spain)

The source of gas fuelling star-formation in EAGLE galaxies

Supervisors: Dr. Claudio Dalla Vecchia and Dr. Jorge Sánchez Almeida.

ERASMUS+ research stay

07/2019 - 09/2019

Max-Planck Institute for Astronomy, Heidelberg (Germany)

Stellar population properties of SDSS galaxy clusters

Supervisor: Dr. Ignacio Martin Navarro.

Bsc thesis

09/2015 - 07/2016

University of La Laguna, Tenerife (Spain)

Study of energy transfer between molecules of biological interest

Supervisors: Dr. Fernando Lahoz Zamarro and Dr. Mario Díaz González.

Collaborator at the Physics Department

09/2015 - 07/2016

University of La Laguna, Tenerife (Spain)

Grant to extend my bachelor thesis working in the Physics Department

Supervisor: Dr. Fernando Lahoz Zamarro

EDUCATION

Ph. D. in Astrophysics

10/2020 - 05/2024

Instituto de Astrofisica de Canarias (IAC) & University of La Laguna (ULL), Tenerife (Spain)

Sobresaliente cum laude and International doctorate mention

Master in Astrophysics (Theory and Computation)

09/2018 - 07/2020

University of La Laguna (ULL), Tenerife, (Spain)

Bachelor in Physics

09/2012 - 07/2016

University of La Laguna (ULL), Tenerife, (Spain)

Italian

German

RESEARCH INTERESTS

- Galaxy formation & evolution
- Large-scale structure

stellar populations
star formation histories
chemical enrichment
elemental abundances
integrated spectra
full-spectral fitting
SSP models
IFU observations
dark matter halos
halo assembly
galaxy-halo connection
cosmo. hydro-simulations
high-redshift Universe
cosmic web
dynamical modelling

PUBLICATIONS

Scholz-Díaz, Gallazzi, Zibetti et al.

Under revision

Recommended for publication in A&A after minor revisions

Spatially resolved stellar-to-total dynamical mass relation: Radial variations, gradients and profiles of galaxy stellar populations

Scholz-Díaz, Martín-Navarro, Falcón-Barroso et al.
Nat. Astron., 8, 648 (2024)

Published

Baryonic properties of nearby galaxies across the stellar-to-total dynamical mass relation DOI: 10.1038/s41550-024-02209-8

Scholz-Díaz, Martín-Navarro and Falcón-Barroso
MNRAS, 518, 6325 (2023)

Published

The dark side of galaxy stellar populations II: The dependence of star formation histories on halo mass and the scatter of the main sequence
DOI: 10.1093/mnras/stac3422

Scholz-Díaz, Martín-Navarro and Falcón-Barroso
MNRAS, 511, 4900 (2022)

Published

The dark side of galaxy stellar populations I: The stellar-to-halo mass relation and the velocity dispersion - halo mass relation DOI: 10.1093/mnras/stac361

Scholz-Díaz, Sánchez Almeida and Dalla Vecchia
MNRAS, 505, 4655 (2021)

Published

History of the gas fuelling star formation in EAGLE galaxies DOI: 10.1093/mnras/stab1629

T. Bulichi, K. Fahrion, F. Mernier, et al. (incl. Scholz-Díaz)
A&A, 679A, 98B (2023)

Published

Expanding on the fundamental metallicity relation in dwarf galaxies with MUSE DOI: 10.1051/0004-6361/202346002

Lahoz, Scholz, Boto et al.

Published

Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 239, 118498, (2020)

FRET mechanism between a fluorescent breast-cancer drug and photodynamic therapy sensitizers DOI: 10.1016/j.saa.2020.118498

I performed the experiments and analyzed the data. I demonstrated that a process of resonance energy transfer can occur between the fluorescent drug and the photosensitizers.

Díaz, Scholz, Marrero-Alonso et al.
Optical Materials, 84, 442 (2018)

Published

Opto-chemical and laser properties of FLTX1, a novel fluorescent tamoxifen derivative, and its potential applications in breast cancer photodynamic chemotherapy 10.1016/j.optmat.2018.04.055

I performed the experiments and analyzed the data. I demonstrated that the energy transfer between FLTX1 and photosensitizers lead to the production of reactive oxygen species (free radicals).

COMMUNITY ACTIVITIES

Co-organizer of the weekly Extragalactic group meetings
INAF-O.A.A., Firenze (Italy)

09/2024-present

Co-founder and co-organizer of the Arcetri early-career researchers meeting INAF-O.A.A., Firenze (Italy)	07/2024-present
Reviewer for Monthly Notices of the Royal Astronomical Society (MNRAS)	01/2024-present
Co-organizer of weekly group meetings of the research group <i>TRACES</i> led by Ignacio Martín Navarro Insituto de Astrofísica de Canarias, Tenerife (Spain)	10/2020-05/2024
Co-organizer of weekly Journal Club meetings Insituto de Astrofísica de Canarias, Tenerife (Spain)	10/2020-05/2024
Volunteer at the <i>European Astronomical Society Annual meeting EAS2020</i> Online	29/06-03/07/20
LOC of the <i>COEFIS VIII conference (VIII Physics students conference)</i> University of La Laguna, Tenerife (Spain)	09/2014-03/2015

OUTREACH ACTIVITIES

Collaborator at the <i>Notte d'Estate</i> (Summer nights festival) of Arcetri INAF-O.A. Arcetri I assisted with logistics and visitor coordination at the summer nights festival, which features outreach astronomy talks and telescope observations for the public	06/25-07/25
Chat responder at the initiative "Chat with women astronomers" from the Spanish Astronomical Society in occasion of the International Day of Women and Girls in Science Online I chatted with high-school students responding their questions and curiosities on Astronomy and on the scientific career, and on my experience being a female researcher	11/02/25
Invited speaker for an interview in the TV programme <i>Ponte al día</i> RTVC Canarias, online	27/02/24
Invited speaker for an interview for the newspaper <i>El Día</i> El Día, Tenerife (Spain)	21/02/24
Invited speaker for an interview in the radio of the high school IES Geneto on the occasion of the International Day of Women and Girls in Science IES Geneto, Tenerife (Spain)	20/02/24
Speaker at the 2023 and 2024 editions of the project "Talk to them: Women in Astronomy" Instituto de Astrofísica de Canarias, Tenerife (Spain) I brought astronomy closer to the public and gave visibility to women researchers by giving talks in high schools	2023-2024

Invited speaker for an interview in news TV *Atlántico Noticias* on the occasion of the International Day of Women and Girls in Science
RTVC Canarias, online

11/02/22

OBSERING TIME

Isaac Newton Telescope (INT), IDS/EEV10, at ORM.
Programme: 021-INT10/21A. Semester: 2021A
PI: Scholz-Díaz. Awarded time: 11 nights

03/2021

*Proposal: Do black holes regulate the baryonic cycle of dark matter halos?
UV-powered star formation histories of golden mass galaxies*

OBSERVING EXPERIENCE

ESO VLT UT4, ERIS/SPIFFIER & ERIS/NIX, at Paranal Observatory (Paranal, Chile)
Visiting astronomer for 3 nights

10/2025

INT, IDS/WFC, at Roque de los Muchachos Observatory (La Palma, Spain)
Visiting astronomer for 2 nights

01/2024

INT, IDS/WFC, at Roque de los Muchachos Observatory (La Palma, Spain)
Visiting astronomer for 2 nights

05/2021

INT, IDS/EEV10, at Roque de los Muchachos Observatory (La Palma, Spain)
Visiting astronomer for 7 nights

03/2021

INTERNATIONAL COLLABORATIONS

Member of the WEAVE-StePS international collaboration
PI: A. Iovino, co-PI: M. Longhetti

2025-present

Member of the WEAVE-Apertif international collaboration
PI: J. Falcón-Barroso

2024-present

PRIZES

Extraordinary doctoral thesis prize in the field of Science. Discipline: Physics and Mathematics
Awarded by the University of La Laguna (Tenerife, Spain) for the academic year 2023-2024

2025

TALKS, SEMINARS & POSTERS

Contributed talk at the *Galaxy memoirs: inferring their past from their present* conference
Búzios, Brasil

11/08/25

Contributed talk at the *Massive Galaxies across time* conference - IAU Symposium #396
Naples, Italy

12/06/25

Poster at *European Astronomical Society meeting, EAS2025*, conference
Cork, Ireland (online)

23-27/06/25

Symposium *Cosmic Chemical Enrichment: A tale of stars and galaxies*

Invited seminar at INAF-O.A. Capodimonte
Naples, Italy

09/04/25

Contributed talk at the *WAVES team* meeting
Australia, Perth (online)

06/12/24

Invited outreach talk at the *XXXV Winter School of the Canary Islands: Baryonic cycle across space and time*
Museo de la Ciencia y el Cosmos, Tenerife, Spain

18/10/24

Contributed talk at the *XVI Scientific meeting of the Spanish Astronomical Society SEA 2024* conference
Granada, Spain

17/07/24

Symposium *Galaxy surveys: Star formation, environment and AGN feedback as drivers of Galaxy evolution*

Invited seminar at IAC
Tenerife, Spain

14/03/24

Talk at the *Galaxy Coffee* from IAC
Tenerife, Spain

18/10/23

Contributed talk at the *A life devoted to stellar populations* conference
Puerto de la Cruz, Tenerife, Spain

05/10/23

Contributed talk at the *A journey through galactic environments* conference
Porto Ercole, Italy

25/09/23

Invited talk at the *Santa Cruz Galaxy Workshop* conference
Santa Cruz, California, USA

10/08/23

Contributed talk at <i>European Astronomical Society Annual meeting, EAS2023</i>, conference Krakow, Poland Special session <i>Reconstructing the Assembly History of Galaxies</i>	13/07/23
Contributed talk at <i>European Astronomical Society Annual meeting, EAS2023</i>, conference Krakow, Poland Special session <i>The universe in 3D: past, present and future of integral field spectroscopy</i>	12/07/23
CGI (Cosmology/Galaxies/IGM) invited seminar at UCSC Santa Cruz, California, USA	13/03/23
Invited talk at the research group meeting led by Helmut Dannerbauer and Carlos Gutiérrez at IAC Tenerife, Spain	08/02/23
Invited lecture at the Masters degree in Astrophysics in the subject <i>Complementary activities to research</i> University of La Laguna, Tenerife, Spain	13/10/22
Contributed talk at the <i>XV Scientific meeting of the Spanish Astronomical Society SEA 2022</i> conference Tenerife, Spain Session <i>Galaxies: Stellar populations and mass assembly</i>	08/09/22
Contributed talk at the <i>European Astronomical Society Annual meeting, EAS2022</i>, conference Valencia, Spain Symposia <i>Galaxies as cosmological tracers</i>	30/06/22
Poster at the <i>European Astronomical Society Annual meeting, EAS2022</i>, conference Valencia, Spain Special session <i>The Main Sequence: going beyond the scaling relation and investing complex evolutionary histories</i>	27/06-01/07/22
Invited talk at Kapteyn Institute Groningen, The Netherlands	28/04/22
Invited talk at Leiden Observatory Leiden, The Netherlands	21/04/22
Invited talk at the Galaxy Coffee from Max-Planck Institute for Astronomy (MPIA) Heidelberg, Germany (online)	31/03/22
Invited talk at the <i>Galactic Nuclei</i> research group meeting led by Dr. Nadine Neumayer at MPIA Heidelberg, Germany (online)	01/12/21
Poster at the <i>EAS2021</i> conference Online Symposium <i>Massive Galaxies: The build-up of monsters through cosmic history</i>	28/06-02/07/21

Contributed talk at the <i>XII Día de Nuestra Ciencia</i> conference at IAC Tenerife, Spain (online)	10/04/21
Talk at the Galaxy Coffee from IAC Tenerife, Spain	07/04/21
Talk at the collaboration meeting between the <i>Theory groups</i> led by Claudio Dalla Vecchia at IAC (Tenerife, Spain) and by Gustavo Yepes at UAM (Madrid, Spain) online	22/07/20
Talk at the <i>TRACES</i> research group meeting led by Michael Beasley at IAC Tenerife, Spain (online)	15/05/20
Talk at the <i>Galactic Nuclei</i> research group meeting led by Dr. Nadine Neumayer at MPA Heidelberg, Germany	04/09/19

WORKSHOPS & CONFERENCES

Participant at the <i>XXXV Winter School of the Canary Islands: Baryonic cycle across space and time</i> Tenerife, Spain	08-18/10/2024
Participant at the <i>Galaxy Evolution in the data science era (GALEVO23)</i> conference Kavli Institute for Theoretical Physics (KITP), California (USA)	21-24/03/2023
Participant at the <i>Extragalactic Spectroscopic Surveys: Past, Present and Future of Galaxy Evolution conference (GALSPEC2021)</i> conference ESO in Chile, moved to virtual conference	April 2021
Participant a the workshop <i>Code/Astro: A software engineering workshop for astronomy</i> Heising-Simons Foundation (USA), online	22-26/06/2020
Participant a the course <i>2015: International Year of Light and technologies based on light. Modules I: Light in Science and Engineering and III: Light in the biomedical field</i> University of La Laguna, Tenerife (Spain)	04/2015,05/2015