

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

INAF - Osservatorio Astrofisico di Arcetri, Firenze
(Italy)

05/2024 - present

Severo Ochoa Excellence PhD fellow

Instituto de Astrofisica de Canarias, Tenerife (Spain)

10/2020 - 05/2024

Probing the baryonic cycle of galaxies through stellar population analyses
Supervisors: Dr. Ignacio Martin Navarro and Dr. Jesús Falcón Barroso

ERASMUS+ research stay

Leiden Observatory, Leiden (The Netherlands)

03/2022-06/2022

Galaxy and dark matter halo properties in cosmological simulations
Supervisor: Prof. Dr. Joop Schaye

Msc thesis

University of La Laguna, Tenerife (Spain)

09/2019-07/2020

The source of gas fuelling star-formation in EAGLE galaxies
Supervisors: Dr. Claudio Dalla Vecchia and Dr. Jorge Sánchez Almeida.

ERASMUS+ research stay

Max-Planck Institute for Astronomy, Heidelberg
(Germany)

07/2019 - 09/2019

Stellar population properties of SDSS galaxy clusters
Supervisor: Dr. Ignacio Martin Navarro.

Bsc thesis

University of La Laguna, Tenerife (Spain)

09/2015 - 07/2016

Study of energy transfer between molecules of biological interest
Supervisors: Dr. Fernando Lahoz Zamarro and Dr. Mario Díaz González.

Collaborator at the Physics Department

University of La Laguna, Tenerife (Spain)

09/2015 - 07/2016

Grant to extend my bachelor thesis working in the Physics Department
Supervisor: Dr. Fernando Lahoz Zamarro

EDUCATION

Ph. D. in Astrophysics

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

10/2020 - 05/2024

Summa cum laude and International doctorate mention

Master in Astrophysics (Theory and Computation)

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

09/2018 - 07/2020

Bachelor in Physics

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

09/2012 - 07/2016

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.
to be submitted to A&A

to be submitted

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

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

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 - to halo mass relation

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

Published

History of the gas fuelling star formation in EAGLE galaxies

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

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

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 monthly 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 *TRACES* 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 *European Astronomical Society Annual meeting EAS2020* Online 29/06-03/07/20

LOC of the *COEFIS VIII conference (VIII Physics students conference)* University of La Laguna, Tenerife (Spain) 09/2014-03/2015

OUTREACH ACTIVITIES

Invited speaker for an interview in the TV programme *Ponte al día* RTVC Canarias, online 27/02/24

Invited speaker for an interview for the newspaper *El Día* 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) 2023-2024
I brought astronomy closer to the public and gave visibility to women researchers by giving talks in high schools

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

OBSERVING TIME

Isaac Newton Telescope (INT), IDS/EEV10, at ORM 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

INTERNATIONAL COLLABORATIONS

Member of the WEAVE-Apertif international collaboration PI: J. Falcón-Barroso 2024-present

TALKS, SEMINARS & POSTERS

Contributed talk at the *WAVES team meeting*
Australia, Perth (online) 06/12/2024

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 18/10/2024

Contributed talk at the *XVI Scientific meeting of the Spanish Astronomical Society SEA 2024 conference*
Granada, Spain 17/07/2024

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

Invited seminar at IAC
Tenerife, Spain 14/03/2024

Talk at the *Galaxy Coffee from IAC*
Tenerife, Spain 18/10/2023

Contributed talk at the *A life devoted to stellar populations conference*
Puerto de la Cruz, Tenerife, Spain 05/10/2023

Contributed talk at the *A journey through galactic environments conference*
Porto Ercole, Italy 25/09/2023

Invited talk at the *Santa Cruz Galaxy Workshop conference*
Santa Cruz, California, USA 10/08/2023

Contributed talk at *European Astronomical Society Annual meeting, EAS2023, conference*
Krakow, Poland 13/07/23

Special session *Reconstructing the Assembly History of Galaxies*

Contributed talk at *European Astronomical Society Annual meeting, EAS2023, conference*
Krakow, Poland 12/07/23

Special session *The universe in 3D: past, present and future of integral field spectroscopy*

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 *Complementary activities to research*
University of La Laguna, Tenerife, Spain 13/10/22

<p>Contributed talk at the XV Scientific meeting of the Spanish Astronomical Society SEA 2022 conference Tenerife, Spain</p> <p>Session <i>Galaxies: Stellar populations and mass assembly</i></p>	08/09/22
<p>Contributed talk at the European Astronomical Society Annual meeting, EAS2022, conference Valencia, Spain</p> <p>Symposia <i>Galaxies as cosmological tracers</i></p>	30/06/22
<p>Poster at the European Astronomical Society Annual meeting, EAS2022, conference Valencia, Spain</p> <p>Special session <i>The Main Sequence: going beyond the scaling relation and investing complex evolutionary histories</i></p>	27/06-01/07/22
<p>Invited talk at Kapteyn Institute Groningen, The Netherlands</p>	28/04/22
<p>Invited talk at Leiden Observatory Leiden, The Netherlands</p>	21/04/22
<p>Invited talk at the Galaxy Coffee from Max-Planck Institute for Astronomy (MPIA) Heidelberg, Germany (online)</p>	31/03/22
<p>Invited talk at the Galactic Nuclei research group meeting led by Dr. Nadine Neumayer at MPIA Heidelberg, Germany (online)</p>	01/12/21
<p>Poster at the EAS2021 conference Online</p> <p>Symposia <i>Massive Galaxies: The build-up of monsters through cosmic history</i></p>	28/06-02/07/21
<p>Contributed talk at the XII Día de Nuestra Ciencia conference at IAC Tenerife, Spain (online)</p>	10/04/21
<p>Talk at the Galaxy Coffee from IAC Tenerife, Spain</p>	07/04/21
<p>Talk at the collaboration meeting between the Theory groups led by Claudio Dalla Vecchia at IAC (Tenerife, Spain) and by Gustavo Yepes at UAM (Madrid, Spain) online</p>	22/07/20
<p>Talk at the TRACES research group meeting led by Michael Beasley at IAC Tenerife, Spain (online)</p>	15/05/20
<p>Talk at the Galactic Nuclei research group meeting led by Dr. Nadine Neumayer at MPIA Heidelberg, Germany</p>	04/09/19

WORKSHOPS & CONFERENCES

Participant at the *XXXV Winter School of the Canary Islands: Baryonic cycle across space and time*
Tenerife, Spain

08-18/10/2024

Participant at the *Galaxy Evolution in the data science era (GALEVO23)* conference
Kavli Institute for Theoretical Physics (KITP), California (USA)

21-24/03/2023

Participant at the *Extragalactic Spectroscopic Surveys: Past, Present and Future of Galaxy Evolution conference (GALSPEC2021)* conference
ESO in Chile, moved to virtual conference

April 2021

Participant at the workshop *Code/Astro: A software engineering workshop for astronomy*
Heising-Simons Foundation (USA), online

22-26/06/2020

Participant at the course *2015: International Year of Light and technologies based on light. Modules I: Light in Science and Engineering and III: Light in the biomedical field*
University of La Laguna, Tenerife (Spain)

04/2015,05/2015