

Jennifer P. Lucero

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🌐 <https://astrojennz.github.io>

PhD student in Astrophysics with research experience in exoplanet detection and characterization with the radial velocity method and in high-resolution transmission spectroscopy.

🎓 Education

Instituto de Astrofísica e Ciências do Espaço, Universidade do Porto

PhD in Astrophysics

2023 – Ongoing
Porto, Portugal

- Current GPA: 18/20
- Thesis title: Detecting exoplanet atmospheres in the presence of stellar activity
- Supervisors: Olivier Demangeon & Nuno C. Santos

Pontificia Universidad Católica de Chile

BSc in Astronomy

2019 – 2022
Santiago, Chile

- GPA: 6.2/7 ([transcript](#))
- Thesis title: Optimized routines for exoplanet detection by calculating high-precision radial velocities
- Supervisor: James S. Jenkins

🔬 Research Interests

- Search and characterization of extrasolar planets
- Habitability of extrasolar planets
- Exoplanet atmospheres (modelling and observational)
- Stellar activity

📁 Manuscripts & Publications

First-authored:

- 1 **P. Lucero, Jennifer**, et al., Stellar spot contamination in high-resolution transmission spectroscopy of Earth analogues: implications for ELT/ANDES, 2026 (*in prep*).
- 2 **P. Lucero, Jennifer**, et al., [Impact of stellar spots on the high-resolution transmission spectra of a giant planet around a Sun-like star](#), A&A, 709 (2026) A153.

Co-authored:

- 1 Damasceno, Y. C., et al. including **P. Lucero, J.**, Expectations for high-resolution characterisation of the super-puff HIP 41378 f's atmosphere, 2026 (*in revision*).
- 2 Dethier, W., et al. including **P. Lucero, J.**, Effect of stellar spot spectral lines in high-resolution transit spectroscopy, 2025, Astronomy & Astrophysics (*accepted*).
- 3 Cristo, E., et al. including **P. Lucero, J.**, [SOAPv4: a new step towards the modelling of stellar signatures in exoplanet research](#), 2025, Astronomy & Astrophysics.
- 4 C. Santos, Nuno, et al. including **P. Lucero, J.**, [PoET: the Paranal solar ESPRESSO Telescope](#), 2024, ESO The Messenger.
- 5 Espinoza-Retamal Juan I., et al. including **P. Lucero, J.**, [HATS-38 b and WASP-139 b join a growing group of hot Neptunes on polar orbits](#), 2024, AAS Journals.

6 Mistry, P., et al., including **P. Lucero, J.** [VaTEST I: Validation of Sub-Saturn Exoplanet TOI-181b in Narrow Orbit from its Host Star](#), 2022, MNRAS.

Conferences & Workshops

Charting the Future of Stellar and Exoplanet Spectroscopy (CHASES)	2026
<i>Talk (accepted): Impact of stellar spots on a high-resolution transmission spectrum of an Earth-like planet around a Sun-like star</i>	<i>Procchio, Elba Island, Italy</i>
HORS3S	2026
<i>Poster: Impact of stellar spots on the high-resolution transmission spectra of a giant planet around a Sun-like star</i>	<i>Granada, Spain</i>
Exoplanets 6	2026
<i>Poster: Stellar activity as a limitation for high-resolution exoplanet atmosphere studies</i>	<i>Porto, Portugal</i>
Thirty Minute Talk (TMT) at ESO Vitacura	2025
<i>Talk: Effect of stellar spots on high-resolution transmission spectroscopy</i>	<i>Santiago, Chile</i>
Extremely Precise Radial Velocities (EPRV 6)	2025
<i>Poster: Effect of stellar non-occulted spots on high-resolution transmission spectroscopy</i>	<i>Porto, Portugal</i>
PLATO - ESP2025	2025
<i>Talk: Effect of stellar spots on the high-resolution transmission spectra of an Earth-like planet in the habitable zone of a Sun-like star</i>	<i>Marseille, France</i>
PoET Workshop # 2	2024
<i>Talk: Detecting exoplanet atmospheres in the presence of stellar activity</i>	<i>Porto, Portugal</i>
34º Encontro Nacional de Astronomia e Astrofísica	2024
<i>Talk: Retrieving the transmission spectrum of a simulated transiting planet</i>	<i>Guimarães, Portugal</i>
Online Seminar Series, Faculty of Physics at Pontificia Universidad Católica de Chile	2021
<i>Poster: VLT/MUSE IFU Observations of Interacting and Active Galaxies</i>	<i>Santiago, Chile</i>
ESPRESSO IOT Meeting, European Southern Observatory	2023
<i>Talk: Revision of the ESPRESSO calibration plan</i>	<i>Santiago, Chile</i>
CATA Exoplanet Meeting, Cerro Calán Observatory	2022
<i>Talk: An algorithm to confirm exoplanets with CHIRON spectra</i>	<i>Santiago, Chile</i>
Participation	
<i>Science & Commit, Universidad de Chile (2022), Sagan Exoplanet Summer Workshop, Caltech (2022), Writing and Communicating your Science, ESO Chile (2023)</i>	

Research Experience

Project: Exploring the diversity of the most extreme exoplanetary systems	2022 – 2023
<i>Research Assistant</i>	<i>Universidad Diego Portales</i>
- Supervisor: James S. Jenkins - I developed an algorithm to measure high-precision radial velocities with the CHIRON spectrograph. Working on this algorithm would later become the main topic of my undergraduate thesis.	
Project: Revision of the ESPRESSO calibration plan	2023
<i>Summer Research Intern</i>	<i>European Southern Observatory, Chile</i>
- Supervisors: Matias Jones & Elyar Sedaghati - For this project I reduced and analyzed ESPRESSO calibration data, in order to determine the adequate validity periods for each type of calibration, based on the stability requirements of the instrument.	
Project: VLT/MUSE IFU Observations of Interacting and Active Galaxies	2020 – 2021
<i>Summer Research Intern</i>	<i>Pontificia Universidad Católica de Chile</i>
- Supervisors: Ezequiel Treister & Giacomo Venturi - I studied the kinematics and ionization mechanisms of the gas composing the galaxy NGC 17, a system in the final fusion stage, using data cubes from the Multi Unit Spectroscopic Explorer (MUSE), on the VLT.	

★ Observational Experience

La Silla Observatory

On site

2025

La Serena, Chile

- Observing astronomer with E. Cristo (NIRPS Consortium), supporting 9 nights of NIRPS & HARPS observations during GTO Run 13 with the 3.6m telescope.

Santa Martina Observatory

On site

2023

Santiago, Chile

- Worked as an astronomer assistant at the Observatory, where astronomy students do their scientific observations. I participated as MEADE30 and MEADE40 telescope operation.

Paranal Observatory

On site

2023

Antofagasta, Chile

- I accompanied Dr. Matias Jones for 10 nights at the Paranal Observatory, specifically at the VLT control building for UT3 telescope operation, as part of my Summer Internship at ESO.

Remotely

2026

Porto, Portugal

- Observing astronomer (PoET Consortium)

📖 Teaching Experience

Pontificia Universidad Católica de Chile

Teaching & Outreach

2020-2023

Santiago, Chile

- Teaching Assistant in undergraduate Physics & Astronomy courses, including: General Physics II (FIS1504), Electromagnetic Theory (FIZ0321), Laboratory of Thermodynamics (FIS0152), Laboratory of Waves & Optics (FIZ312L), Astronomy (AST011), Astronomy (english version, AST0112), The Relativistic Universe of Einstein (AST102), Planets in the Universe (AST1529) and A Journey Through the Universe (AST101).
- Staff and Coordinator in the Welcome Commission for Erasmus students.
- Tutor in MAIBuddy Program, helping Erasmus students to get used to Chilean culture and university life.
- Tutor in the Physics Faculty Mentoring Program of a group of first-semester Physics students to help them integrate into university life.

Universidade do Porto

Teaching & Outreach

2025-2026

Porto, Portugal

- Lecturer of a class on Exoplanets (in Portuguese) for secondary school students at the Porto Planetarium as part of the Universidade Junior Program.
- Tutor of a team of 3 students participating in the [HACK-4- SAGES](#) Hackathon in the *Digital Twins in exoplanet habitability* category.

🏆 Fellowships & Grants

Bécalos Undergraduate Academic Excellence Scholarship

2017-2018

ESO Summer Research Fellowship

2022

CAUP CIAAUP-22/2023-BI-D PhD Fellowship

2023-Ongoing

👥 Consortia & Awarded Telescope Time

Paranal solar ESPRESSO Telescope (PoET)

2025

Member of Science Team

Planets Beyond the Milky Way: Using Extragalactic Stars to Test the Limits of Planet Formation

2023

Co-Investigator, Instruments: CHIRON, Time: 75h

Outreach

Comic Con Portugal

2026

I participated as an exhibitor at the Planetario do Porto stand to talk about spectroscopy of stars, the transits method to detect exoplanets, and astrobiology.

Días Abertos, Faculdade de Ciências UP

2025

I took part in the Open Days event, where I worked at the astronomy stand to talk about study opportunities at the University of Porto. I presented a demonstration of how we observe transit light curves to detect and characterize exoplanets. The interaction was in Portuguese and aimed at high school students.

Ignite IAstro Armamar

2024

I participated in the Ignite IAstro session, where I presented my research (in portuguese) in a fast and demanding format: 5 minutes with 20 auto-advancing slides of 15 seconds each. I talked about exoplanet atmospheres in a simple and accessible way, adapted for a general audience.

Golden Webinars, Pontificia Universidad Católica de Chile

2021

I participated as a panelist in a talk with Dr. André Maeder from the Geneva Observatory on "Exploration of Scale Invariant Effects in Cosmology in Relation with Dark Components"

Latinas NASA

2021

I participated as a panelist in a talk with three NASA women of Latino origin: Sandra Cauffman, Farisa Morales, and Adriana Ocampo, on the role of women in STEM. Media Appearance: NASA en Español, official YouTube channel: [Latinas@NASA](#)

Organization

Exoplanets 6

2024-Ongoing

Local Organizing Committee

Extreme Precise Radial Velocity (EPRV) 6

2024-2025

Local Organizing Committee

Skills

Programming & Data Analysis: Python (Advanced), C, Octave, SQL

Fits file handling Instrumentation, Photometry, Data reduction (Python, ESORex/ESOReflex-ESPRESSO pipeline)

Astronomy Tools DS9, QFitsView, Exo-Striker, Batman, SOAPv4

Other Software Skills: $\LaTeX$, Pack Office(Word, Excel, PowerPoint), Adobe Photoshop & Lightroom.

References

Nuno C. Santos Professor, Instituto de Astrofísica e Ciências do Espaço - nuno@astro.up.pt

Olivier Demangeon Researcher, Instituto de Astrofísica e Ciências do Espaço - olivier.demangeon@astro.up.pt

James S. Jenkins Professor, Institute of Astrophysical Studies, Universidad Diego Portales - james.jenkins@mail.udp.cl

Matias Jones Staff Astronomer, ESO Chile - mjones@eso.org

Communication

Spanish Native

English C1

Portuguese C2