

Jennifer P. Lucero

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EDUCATION

- PhD in Astronomy & Astrophysics** Oct 2023 to present
Instituto de Astrofísica e Ciências do Espaço, University of Porto
- Bachelor of Science in Astronomy** Mar 2019 to Dec 2022
Pontificia Universidad Católica de Chile (UC)
Thesis: *Optimized routines for exoplanet detection by calculating high-precision radial velocities with the CHIRON spectrograph*
Advisor: James Jenkins
GPA: 6.2 out of 7 (A+) [[transcript](#)]
- Non-Degree Student, Physics** Aug 2017 to Dec 2018
Universidad Nacional Autónoma de México (UNAM)
I studied for the first three semesters and then switched to the Astronomy program at UC.
- High School Diploma** (with High Honors) Aug 2014 to Apr 2017
Escuela Nacional Preparatoria No. 1 "Gabino Barreda", UNAM.

RESEARCH INTERESTS

- ★ Search and characterization of extrasolar planets
- ★ Habitability of extrasolar planets
- ★ Dynamics of planetary systems
- ★ Exoplanet atmospheres

RESEARCH EXPERIENCE

- Research Assistant, [Institute of Astrophysical Studies, UDP](#) March 2023 to present
Project: **Exploring the diversity of the most extreme exoplanetary systems**
★Supervisor: Dr. James Jenkins (UDP)
- Research Assistant, [Institute of Astrophysical Studies, UDP](#) Aug 2021 to Feb 2023
Project: **Improving radial velocity precision on CHIRON data for exoplanet detection**
★Supervisor: Dr. James Jenkins (UDP)
- Summer Research Intern, [European Southern Observatory \(ESO\)](#) Dec 2022 to Mar 2023
Project: **Revision of the ESPRESSO calibration plan**
★Supervisors: Matias Jones (ESO) & Elyar Sedaghati (ESO)
- Research Assistant, [Institute of Astrophysics, UC](#) Jan 2022 to Mar 2022
Project: **Study of short-period tidal inflation of exo-Neptunes**
★Supervisors: Dr. Cristobal Petrovich (UC) & Dr. Sarah Millholland (MIT)
- Summer Research Intern, [Institute of Astrophysics, UC](#), Dec 2020 to Feb 2021
Project: **VLT/MUSE IFU Observations of Interacting and Active Galaxies**
★Supervisors: Dr. Ezequiel Treister (UC) & Dr. Giacomo Venturi (UC)
- Research Assistant, [Atomic and Molecular Physics Laboratory, UNAM](#) May 2018 to Dec 2018
Project: **Development of a superconducting pill made of Y1Ba3CuO7**
★Supervisor: Dr. Martin Romero (UNAM)

OBSERVATIONAL EXPERIENCE

- [La Silla Observatory](#) Apr 2022
I assisted Professor Leonardo Vanzi during an observing run at La Silla's observatory, in which we obtained spectra from FIDEOS for 5 different targets in order to measure radial velocities.
- [Santa Martina Observatory](#) Mar 2023 to Jul 2023
Working as an astronomer assistant at the Observatory, where UC astronomy students make scientific observations. MEADE30 and MEADE40 telescope operation.
- [Paranal Observatory](#) Jan 2023
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.

AWARDED TELESCOPE TIME

Co-I CHIRON, Summer 2023. 75 hours, PI: James Jenkins.

Co-I CHIRON, Winter 2023. 75 hours, PI: James Jenkins.

HONORS & AWARDS

Bécalos Undergraduate Academic Excellence Scholarship

2017-2018

ESO Summer Research Fellowship

2023

PROFESSIONAL EXPERIENCE

Teaching Assistant, UC

TTF040	<i>Church Social Doctrine.</i>	2020-1, 2020-2, 2021-1
	Course Head: Prof. Diego Miranda	
AST0111	<i>Astronomy</i>	2021-1
	Course Head: Prof. Claudia Aguilera	
AST0112	<i>Astronomy (english version)</i>	2021-2
	Course Head: Prof. Thomas H. Puzia	
AST101	<i>A walk through the Universe</i>	2022-1
	Course Head: Prof. Luis Felipe Barrientos	
AST102	<i>The Relativistic Universe of Einstein</i>	2022-2
	Course Head: Prof. Rolando Dünner	
FIS1504	<i>General Physics II</i>	2022-2
	Course Head: Prof. Griselda García	
FIZ0321	<i>Electromagnetic Theory</i>	2022-2
	Course Head: Prof. Sascha Wallentowitz	
AST1529	<i>Planets in the Universe</i>	2023-1
	Course Head: Prof. Cristóbal Petrovich	
MAT1640	<i>Differential Equations</i>	2023-1
	Course Head: Prof. Daniel Gajardo	

Laboratory Assistant, UC

FIS0152	<i>Thermodynamics Laboratory</i>	2022-1, 2023-1
	Course Head: Prof. Edward Arevalo	
FIZ312L	<i>Waves & Optics Laboratory</i>	2022-2, 2023-1
	Course Head: Prof. Macarena Muñoz	

TECHNICAL SKILLS

Programming Languages: Python (Advanced), C, Octave, SQL (Beginner).

Operating Systems: Mac OS X, Linux, Windows.

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

Analysis Software: DS9, QFitsView, Exo-Striker

Other Software Skills: L^AT_EX, Pack Office(Word, Excel, PowerPoint), Adobe Photoshop & Lightroom.

WORKSHOPS & SCHOOLS

Science & Commit , Department of Astronomy, Universidad de Chile.	Mar 2022
Sagan Exoplanet Summer Hybrid Workshop , California Institute of Technology.	Jul 2022
Writing and Communicating your Science , European Southern Observatory (Chile).	Apr 2023
PoET Workshop # 2 , Instituto de Astrofísica e Ciências do Espaço (Portugal).	Oct 2024

TALKS

Online Seminar Series, Faculty of Physics, UC Chile.	May 2021
Talk title: <i>VLT/MUSE IFU Observations of Interacting and Active Galaxies</i> [poster] [talk]	
CATA Exoplanet group Meeting, Cerro Calán Observatory, Chile.	Apr 2022
Talk title: <i>An algorithm to confirm exoplanets with CHIRON spectra</i>	
ESPRESSO IOT Meeting, European Southern Observatory, Chile.	Mar 2023
Talk title: <i>Revision of the ESPRESSO calibration plan</i>	

34^o Encontro Nacional de Astronomia e Astrofísica, Guimarães, Portugal.

Sep 2024

Talk title: *Retrieving the transmission spectrum of a simulated transiting planet*

PoET Workshop # 2, Porto, Portugal.

Oct 2024

Talk title: *Detecting exoplanet atmospheres in the presence of stellar activity*

MANUSCRIPTS & PUBLICATIONS

- 1 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.
- 2 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.
- 3 C. Santos, Nuno, et al. including **P. Lucero, J.**, [PoET: the Paranal solar ESPRESSO Telescope](#), 2024, ESO The Messenger.
- 4 Cristo, E., et al. including **P. Lucero, J.**, [SOAPv4: a new step towards the modelling of stellar signatures in exoplanet research](#), 2025, Astronomy & Astrophysics (*submitted*).
- 5 **P. Lucero, Jennifer**, et al., [Effect of stellar spots on the high-resolution transmission spectra of a giant planet around a Sun-like star](#), 2025, Astronomy & Astrophysics (*in prep*).

OUTREACH

Latinas NASA, Panelist

Jul 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](#)

Golden Webinars UC, Panelist

Jul 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".

UNIVERSITY SERVICE

Staff at Welcome Commission for erasmus students at the UC (CAUC)

Santiago, Chile

Participated in the organization and realization of different activities for erasmus students at UC.

Mar 2020 - Dec 2021

Coordinator at Welcome Commission for erasmus students at the UC (CAUC)

Santiago, Chile

Develop the organization's website, along with merchandising initiatives that help with the dissemination of activities for erasmus students at UC.

Mar 2022 - Dec 2022

Volunteer in MAIBuddy Program UC

Santiago, Chile

I participated as a mentor for a student coming from abroad in order to help him to get used to chilean culture and university life at UC.

Aug 2022 - Dec 2022

Volunteer in the Physics Faculty Mentoring Program

Santiago, Chile

I participated as a mentor for a group of first semester Physics students to help them integrate into university life.

Mar 2021 - Dec 2021

REFERENCES

- **Nuno C. Santos** nuno@astro.up.pt
Professor. Instituto de Astrofísica e Ciências do Espaço (IA), Universidade do Porto CAUP
Porto, Portugal
- **Olivier Demangeon** olivier.demangeon@astro.up.pt
Researcher. Instituto de Astrofísica e Ciências do Espaço (IA), Universidade do Porto CAUP
Porto, Portugal
- **James S. Jenkins** james.jenkins@mail.udp.cl
Professor. Institute of Astrophysical Studies, Universidad Diego Portales
Santiago, Chile
- **Matias Jones** mjones@eso.org
Staff Astronomer. European Southern Observatory (ESO)
Santiago, Chile

BIOGRAPHICAL INFORMATION

Citizenship: Mexican.

Languages: Spanish (native), English (C1), Portuguese (C1)