

Dr. Bibiana Prinoth

Postdoctoral Researcher in Astronomy & Astrophysics at Lund University

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Education

- 2025 – 🎓 **Postdoctoral Researcher, Lund University, Sweden**
- 2020 – 2025 🎓 **Ph.D. in Astronomy & Astrophysics, Lund University, Sweden
& European Southern Observatory, Chile**
Thesis title: *High-resolution Transmission Spectroscopy of Gas Giant Atmospheres*
Advisors: H. Jens Hoeijmakers (LU), Elyar Sedaghati (ESO) & Julia V. Seidel (ESO)
ESO Studentship in Santiago, Aug 2023 - Jul 2024
- 2018 – 2020 🎓 **M.Sc. ETH in Physics, ETH Zürich, Switzerland**
Thesis title: *Detectability of Radial Velocity Planets with ELT / METIS*
Advisor: Sascha Quanz
- 2015 – 2019 🎓 **B.Sc. ETH in Physics, ETH Zürich, Switzerland**
Thesis title: *An Attempt to Calculate the Disc Fractional Polarisation of HD 142169.*
Advisor: Hans-Martin Schmid

Research Publications

First-authored

- 1 **B. Prinoth**, J. V. Seidel, H. J. Hoeijmakers, B. M. Morris, *et al.*, “Titanium chemistry of WASP-121 b with ESPRESSO in 4-UT mode,” vol. 694, A284, A284, 2025. 📄 DOI: 10 . 1051/0004-6361/202452405.
- 2 **B. Prinoth**, H. J. Hoeijmakers, B. M. Morris, M. Lam, *et al.*, “An atlas of resolved spectral features in the transmission spectrum of WASP-189 b with MAROON-X,” *Astronomy & Astrophysics*, 2024. 📄 DOI: 10 . 1051/0004-6361/202349125.
- 3 **B. Prinoth**, E. Sedaghati, J. V. Seidel, H. J. Hoeijmakers, *et al.*, “High-resolution transmission spectroscopy of warm Jupiters: An ESPRESSO sample with predictions for ANDES,” *AJ*, 2024. 📄 DOI: 10 . 3847/1538-3881/ad5a7f.
- 4 **B. Prinoth**, H. J. Hoeijmakers, S. Pelletier, D. Kitzmann, *et al.*, “Time-resolved transmission spectroscopy of the ultra-hot Jupiter WASP-189 b,” *Astronomy and Astrophysics*, vol. 678, A182, 2023, issn: 0004-6361. 📄 DOI: 10 . 1051/0004-6361/202347262.
- 5 Seidel, J. V. & **Prinoth, B.**, E. Knudstrup, H. J. Hoeijmakers, J. J. Zanzizzi, and S. Albrecht, “Detection of atmospheric species and dynamics in the bloated hot Jupiter WASP-172 b with ESPRESSO,” *Astronomy and Astrophysics*, vol. 678, A150, 2023, issn: 0004-6361. 📄 DOI: 10 . 1051/0004-6361/202347160.
- 6 **B. Prinoth**, H. J. Hoeijmakers, D. Kitzmann, E. Sandvik, *et al.*, “Titanium oxide and chemical inhomogeneity in the atmosphere of the exoplanet WASP-189 b,” *Nature Astronomy*, 2022. 📄 DOI: 10 . 1038/s41550-021-01581-z.

Co-authored

- 1 P. C. August, L. A. Buchhave, H. Diamond-Lowe, J. M. Mendonça, *et al.*, “Hot Rocks Survey I: A possible shallow eclipse for LHS 1478 b,” vol. 695, A171, A171, 2025. 📄 DOI: 10 . 1051/0004-6361/202452611.
- 2 E. A. Meier Valdés, B. - . Demory, H. Diamond-Lowe, J. M. Mendonça, *et al.*, “Hot Rocks Survey II: The thermal emission of TOI-1468 b reveals a hot bare rock,” *arXiv e-prints*, arXiv:2503.19772, arXiv:2503.19772, 2025. 📄 DOI: 10 . 48550/arXiv.2503.19772.
- 3 S. Pelletier, B. Benneke, Y. Chachan, L. Bazinet, *et al.*, “CRIRES+ and ESPRESSO Reveal an Atmosphere Enriched in Volatiles Relative to Refractories on the Ultrahot Jupiter WASP-121b,” vol. 169, no. 1, 10, p. 10, 2025. 📄 DOI: 10 . 3847/1538-3881/ad8b28.
- 4 J. V. Seidel, **B. Prinoth**, L. Pino, L. A. dos Santos, *et al.*, “Vertical structure of an exoplanet’s atmospheric jet stream,” vol. 639, no. 8056, pp. 902–908, 2025. 📄 DOI: 10 . 1038/s41586-025-08664-1.
- 5 E. Ahler, J. V. Seidel, L. Doyle, S. Gandhi, *et al.*, “Atmospheric characterization and tighter constraints on the orbital misalignment of WASP-94 A b with HARPS,” *MNRAS*, 2024. 📄 DOI: 10 . 1093/mnras/stae1000.

- 6 N. W. Borsato, H. J. Hoeijmakers, D. Cont, D. Kitzmann, *et al.*, “Small but mighty: High-resolution spectroscopy of ultra-hot Jupiter atmospheres with compact telescopes. Transmission spectrum of KELT-9 b with Wendelstein’s FOCES spectrograph,” *Astronomy & Astrophysics*, 2024. [DOI: 10.1051/0004-6361/202347684](#).
- 7 Y. C. Damasceno, J. V. Seidel, **B. Prinoth**, A. Psaridi, *et al.*, “The atmospheric composition of the ultra-hot Jupiter WASP-178 b observed with ESPRESSO,” vol. 689, A54, A54, 2024. [DOI: 10.1051/0004-6361/202450119](#).
- 8 M. B. Lam, H. J. Hoeijmakers, **B. Prinoth**, and B. Thorsbro, “Secrets in the shadow: High precision stellar abundances of fast-rotating A-type exoplanet host stars through transit spectroscopy,” vol. 691, A141, A141, 2024. [DOI: 10.1051/0004-6361/202450624](#).
- 9 N. W. B. Borsato, H. J. Hoeijmakers, **B. Prinoth**, B. Thorsbro, *et al.*, “The Mantis Network. III. Expanding the limits of chemical searches within ultra-hot Jupiters: New detections of Ca I, VI, Ti I, Cr I, Ni I, Sr II, Ba II, and Tb II in KELT-9 b,” *Astronomy & Astrophysics*, 2023. [DOI: 10.1051/0004-6361/202245121](#).
- 10 D. Kitzmann, H. J. Hoeijmakers, S. L. Grimm, N. W. Borsato, A. Lueber, and **B. Prinoth**, “The Mantis Network I. A standard grid of templates and masks for cross-correlation analyses of ultra-hot Jupiter transmission spectra,” *Astronomy & Astrophysics*, 2023. [DOI: 10.1051/0004-6361/202142969](#).
- 11 S. Pelletier, B. Benneke, M. Ali-Dib, **B. Prinoth**, *et al.*, “Vanadium oxide and a sharp onset of cold-trapping on a giant exoplanet,” *Nature*, 2023. [DOI: 10.1038/s41586-023-06134-0](#).
- 12 H. J. Hoeijmakers, D. Kitzmann, B. M. Morris, **B. Prinoth**, *et al.*, “The Mantis Network IV: A titanium cold-trap on the ultra-hot Jupiter WASP-121 b,” *arXiv e-prints*, 2022. [DOI: 10.48550/arXiv.2210.12847](#).
- 13 E. K. H. Lee, **B. Prinoth**, D. Kitzmann, S.-M. Tsai, *et al.*, “The Mantis Network II : Examining the 3D high-resolution observable properties of the UHJs WASP-121b and WASP-189b through GCM modelling,” *MNRAS*, 2022. [DOI: 10.1093/mnras/stac2246](#).
- 14 E. K. H. Lee, J. P. Wardenier, **B. Prinoth**, V. Parmentier, *et al.*, “3D Radiative Transfer for Exoplanet Atmospheres. gCMCRT: A GPU-accelerated MCRT Code,” *The Astrophysical Journal*, 2022. [DOI: 10.3847/1538-4357/ac61d6](#).

Observational Experience and Proposals

Principle Investigator	<ul style="list-style-type: none"> ◇ 115.2857, ESO P116, VLT, CRIRES+, 5 nights (distributed over 8 transits) 23A036 (rescheduling), OPTICON 2023B, Southern African Large Telescope, HRS, 5 hours 23A036, OPTICON 2023A, Southern African Large Telescope, HRS, 5 hours 22A024, OPTICON 2022A, Southern African Large Telescope, HRS, 5 hours 107.22QF, ESO SC107, VLT, ESPRESSO, 5.5 hours
Co-Investigator	<ul style="list-style-type: none"> ◇ 108.22CZ, ESO P108, VLT, CRIRES+, 11 hours (PI: Allart) 108.22AN, ESO P108, VLT, CRIRES+, 6.4 hours (PI: Borsato) 108.22BR, ESO P108, VLT, CRIRES+, 5x0.4 nights (PI: Hoeijmakers) 109.236F, ESO P109, VLT, CRIRES+, 4 hours (PI: Hoeijmakers) 109.23D2, ESO P109, VLT, CRIRES+, 0.5 nights (PI: Thorsbro) 111.251V, ESO P111, VLT, CRIRES+, 0.5 nights (PI: Hoeijmakers) 112.25NQ, ESO P112, VLT, CRIRES+, 0.75 nights (PI: Borsato) 65-001, NOT Cycle 65, Nordic Optical Telescope, FIES, 2 transits (PI: Johansen) 64-021, NOT Cycle 64, Nordic Optical Telescope, FIES, 2 transits (PI: Johansen) Keck, HIRES (PI: Borsato) Gemini-North, MAROON-X, 2 transits (PI: Pelletier) ID 4195, JWST Cycle 2 (PI: Fisher) ID 4126, JWST Cycle 2 (PI: Fisher) ID 3969, JWST Cycle 2 (PIs: Espinoza, Powell) ID 3730, JWST Cycle 2 (PIs: Diamond-Lowe, Mendonça) ID 3279, JWST Cycle 2 (PI: Hoeijmakers) ID 7675, JWST Cycle 4 (PI: August)

Supervision

- 2025 ◇ **Co-supervision of Alex Ståhlén**
 during his Bachelor’s project about properties of the WASP-121 b system retrieved from transit lightcurves and RV measurements.

Supervision (continued)

- 2023 ♦ **Co-supervision of Yuri Carrilho Damasceno**
as a master's student (through SSDF funded ESO Vitacura internship) as part of his MSc thesis. Yuri is now PhD student in Astronomy at the University of Porto, the article about his project has recently been published in A&A; Damasceno, Seidel, Prinoth et al. 2024, (co-supervision with Dr. Julia V. Seidel, ESO)
- 2022 - 2023 ♦ **Co-supervision of Klaudia Jaworska, BSc**
Klaudia is now master's student in Astronomy at Lund University, currently preparing the article about her thesis (co-supervision with Dr. H. Jens Hoeijmakers, Lund University) – Her work has recently been honoured with the Rosa Tengborg Prize (500 Euro) for young astronomers from the Swedish Astronomical Society.

Awards and Grants

- 2024 ♦ **Research Grant**
Royal Physiographic Society of Lund, Walter Gyllenberg Foundation (SEK 46 000, approx. 4200 EUR)
- 2022 ♦ **Research Grant**
Royal Physiographic Society of Lund, Walter Gyllenberg Foundation (SEK 56 063, approx. 5100 EUR)
- ♦ **Seminar Grant**
Royal Physiographic Society of Lund, Gunnar & Gunnel Källén's Memorial Fund (SEK 50 000, approx. 4600 EUR)
- 2021 ♦ **Research Grant**
Royal Physiographic Society of Lund, Walter Gyllenberg Foundation (SEK 100 000, approx. 9200 EUR)
- 2020 ♦ **Research Grant**
Royal Physiographic Society of Lund, Walter Gyllenberg Foundation (SEK 105 000, approx. 9700 EUR)
- ♦ **VMP Assistentenaward: Award for excellent teaching**
Association of mathematics and physics students at ETH Zürich (VMP)

Seminars, Talks and Presentations

- 2025 ♦ **Astrophysics seminar in Lund**
Hidden in plain sight: Using ESPRESSO's superpower to detect depleted titanium in WASP-121 b (invited seminar)
<https://www.astro.lu.se/calendar/seminar-bibiana-prinoth-topic-titanium-atmosphere-exoplanet>
- ♦ **TOP seminar in Nice**
Titanium chemistry of WASP-121 b with ESPRESSO in 4-UT mode (invited seminar)
- 2024 ♦ **Cross-correlation challenges in the ANDES era: Observing warm Jupiters on eccentric orbits**
Two HoRSEs: High-Resolution Exoplanet and Stellar Characterization Today and in the ELT Era, Berlin, Germany, July 15-19, 2024 (contributed talk)
<https://sites.google.com/view/two-horses/>
- ♦ **Revealing the Formation History of Ultra-Hot Jupiters through Refractory-to-Volatile Elemental Ratios: Benchmarking with WASP-189 b**
Challenge Accepted: Linking Planet Formation with Present-Day Atmospheres, Heidelberg, Germany, July 8-12, 2024 (contributed talk)
<https://the-great-link.github.io/>
- ♦ **Cross-correlation challenges in the ANDES era: Observing warm Jupiters on eccentric orbits**
ESO Seminar, ESO Garching, Germany, June 11, 2024
- ♦ **Time-resolved transmission spectroscopy of the ultra-hot Jupiter WASP-189 b**
Exoplanets 5, Leiden, Netherlands, June 17-21, 2024 (poster presentation)
<https://exoplanets5.org/>
- ♦ **Exploring the Limits of Atmospheric Studies on Warm Jupiters: The Role of System Architectures**
Seminar at Universidad Adolfo Ibáñez, Santiago, Chile, April 17, 2024
- ♦ **Exploring Extreme Worlds: Insights on Ultra-hot Jupiters from WASP-189 b**
Astro Seminar, American Museum of Natural History, New York, April 9, 2024
- ♦ **Time-resolved transmission spectroscopy of the ultra-hot Jupiter WASP-189 b**
Extreme Solar Systems V, Christchurch, New Zealand, March 16-21, 2024 (poster presentation)
<https://aas.org/meetings/exssv>
- ♦ **Exploring Extreme Worlds: Insights on Ultra-hot Jupiters from WASP-189 b**
MQAAAstro Seminar, Macquarie University, Sydney, Australia, March 15, 2024
- ♦ **Exploring Extreme Worlds: Insights on Ultra-hot Jupiters from WASP-189 b**
Astro Seminar, University of New South Wales, Sydney, Australia, March 13, 2024

Seminars, Talks and Presentations (continued)

- 2023
- ◇ **Time-resolved transmission spectroscopy of the ultra-hot Jupiter WASP-189 b**
OPAGA, Puerto Natales, December 4 - 8, 2023 (contributed talk)
<https://astrofiscamas.cl/opaga/>
 - ◇ **Time-resolved transmission spectroscopy of the ultra-hot Jupiter WASP-189 b**
Seminar at Universidad Adolfo Ibañez, Santiago, Chile, October 24, 2023
 - ◇ **Time-resolved transmission spectroscopy of the ultra-hot Jupiter WASP-189 b**
Thirty-Minutes-Talk ESO Chile, October 18, 2023
 - ◇ **Time-resolved transmission spectroscopy of the ultra-hot Jupiter WASP-189 b**
DPS-EPSC, October 1-6, 2023 (remote attendance, contributed talk)
<https://aas.org/meetings/dps55>
 - ◇ **Exploring the atmosphere of the ultra-hot Jupiter WASP-189 b**
Stockholm University Astronomy Departmental Seminar, June 2, 2023
<https://www.albanova.se/event/astronomy-departmental-seminar-bibiana-prinoth-lund/>
 - ◇ **Through the telescope: Exploring the atmosphere of the ultra-hot Jupiter WASP-189 b**
SPI-MAX Astrophysics Seminar, May 10, 2023
<https://www.physics.ox.ac.uk/events/spi-max-bibiana-prinoth>
 - ◇ **Exploring the atmosphere of the ultra-hot Jupiter WASP-189 b**
Helsinki Astrophysics Seminar, March 2023 (online)
<https://wiki.helsinki.fi/display/astjourn/Astrophysics+seminar>
- 2022
- ◇ **What else is there to see? Revisiting the transmission spectrum of WASP-189 b**
Astronomdagarna, Oct 4-6, 2022 (contributed talk)
 - ◇ **Titanium oxide and chemical inhomogeneity in the atmosphere of WASP-189 b**
EAS 2022, Jun 27 - Jul 2, 2022 (poster presentation)
 - ◇ **Titanium oxide and chemical inhomogeneity in the atmosphere of WASP-189 b**
Exoplanets IV, May 1-6, 2022 (poster presentation)
 - ◇ **Revealing dynamics, atmospheric stratification and chemical inhomogeneities in the atmosphere of WASP-189 b**
Uppsala University Astronomy/Space physics seminar in February 2022 (invited seminar)
- 2021
- ◇ **Revealing Dynamics, Three-Dimensional Stratification, and Chemical Inhomogeneities in the Atmosphere of an Ultra-Hot Jupiter**
Astronomdagarna, Oct 22-23, 2021 (contributed talk)
<https://indico.cern.ch/event/1016890/contributions/4498334/>
 - ◇ **Interpreting Detections of Metals in the Transmission Spectra of Ultra-hot Jupiters**
ESO Atmospheres Conference & Workshop, Aug 23-27, 2021 (contributed talk)
<https://eso.org/sci/meetings/2021/Atmo2021/program/Prinoth.html>









Work Experience and Teaching

- 2024 – present
- ◇ **Reviewer**
*Monthly Notices of the Royal Astronomical Society, Journal of Emerging Investigators **
- 2022 – present
- ◇ **Teaching assistant in ASTB01 - Introduction to Astrophysics**
Department for Astronomy and Theoretical Physics, Lund University
- 2022
- ◇ **Social Media Internship at the Europlanet Science Congress**
Europlanet Science Congress in Granada, Spain, Sep 18 – 23, 2022
- 2021 – 2023
- ◇ **Teaching assistant in FYSB21 - Mathematical Methods for Waves, Vibrations and Diffusion**
Department for Astronomy and Theoretical Physics, Lund University, Apr 2021 – Jul 2021, Nov 2021 – Jan 2022, Apr 2022 – Jul 2022, Nov 2022 – Jan 2023
- 2020 – present
- ◇ **Teaching assistant in ASTC01 - Astrobiology**
Department for Astronomy and Theoretical Physics, Lund University
- 2020
- ◇ **Teaching assistant in Physics II**
Institute for Particle Physics and Astrophysics, Department of Physics, ETH Zürich, Feb – Aug 2020
- 2018 – 2020
- ◇ **Teaching assistant in Physics I & II**
Institute for Particle Physics and Astrophysics, Department of Physics, ETH Zürich, Sep 2018 – Jan 2020
- 2015 – 2016
- ◇ **Substitute Teacher in Mathematics**
Kantonsschule Sargans (Gymnasium), Switzerland, Sep 21 – 25, 2015 / Feb 15 – 19, 2016


Voluntary Work and Student Representation


- 2024 –  **Equal Opportunity, Diversity and Inclusion Committee**
Lund University, Department of Physics, Sweden, since Sep 2024
- 2023 –  **Student Council for Physics Doctoral Students**
Lund University, Department of Physics, Sweden, Jun 2023 – Jun 2025
- 2024  **Co-organiser of the Python Coffee Series**
European Southern Observatory, Chile, Jan 2024 – Jun 2024
- 2022  **Main Organiser and Host of the Källén Seminars for Young Astronomers**
Lund Observatory, Jan 2022 – Dec 2022
-  **Founding Member of SENECA – The Swedish Network for Early Career Astronomers**
<https://seneca-astro.github.io>
- 2022 – 2023  **NDR Working Committee Member**
Naturvetenskapliga Doktorandrådet (NDR), Jul 2022 – Jun 2023
- 2021 – 2024  **PhD representative in the Research Education Board**
Naturvetenskapliga Doktorandrådet (NDR), Jan 2021 – June 2023
- 2021 – 2022  **NDR Chair**
Naturvetenskapliga Doktorandrådet (NDR), Jul 2021 – Jun 2022
- 2018 – 2020  **Co-Secretary General of IDEALiStiC**
IDEA League Students in Conference, Feb 2018 – Oct 2020
- 2018 – 2019  **President of the Council for Student Associations**
Verband der Studierenden an der ETH Zürich, Sep 2018 - Feb 2019
- 2017 – 2018  **Board member for communication at VSETH**
Verband der Studierenden an der ETH Zürich, Sep 2017 - Mar 2018
- 2016 – 2017  **President of VMP**
Verein der Mathematik- und Physikstudierenden an der ETH Zürich, Oct 2016 - Oct 2017
- 2015 – 2016  **Founding member and president of [phimale]**
Verein der Mathematik- und Physikstudierenden an der ETH Zürich, Oct 2015 - Oct 2016


Outreach Activities


- 2025  **Pint of Science, Sweden**
Outreach talk
<https://pintofscience.se/event/otherworldly-adventures>
- 2024  **Astronomical Youth district conference in Lund**
Talks about exoplanets and my way into academia as a first-gen for high-school students
-  **Culture Night**
Public observing night during Kulturnatten in Lund
<https://www.lu.se/node/35015#eng>
- 2023  **Knut Lundmark-dagarna at Lund University**
Lectures about exoplanets for high-school students organised by Astronomisk Ungdom
<https://www.astronomiskungdom.se/knut-lundmark-dagarna>
-  **Monthly meeting of ASTB at Lund University**
"Genom teleskopet: utforskning av andra världars atmosfärer", talk for the monthly meeting of the astronomiska sällskap Tycho Brahe
<https://www.astb.se/index.php/aktiviteter/m-och-frag-mainmenu-38/600-utforskningen-av-andra-varldars-atmosfarer>
-  **NMT Days at Lund University**
Lectures about exoplanets for high-school students during the NMT (naturvetenskap, medicin, teknik) days at Lund University
<https://www.nmt.lu.se/app/?nav>
- 2022  **ALVA at Lund University**
Outreach talk to the astronomy club at Lund University about "The planets beyond our solar system"
<https://www.astro.lu.se/ALVA>
-  **The Interplanetary Podcast**
Guest on a podcast, talking about Ultra-hot Jupiters
<https://www.interplanetary.org.uk/>


Outreach Activities (continued)

 **NMT Days at Lund University**
Lectures about exoplanets for high-school students during the NMT (naturvetenskap, medicin, teknik) days at Lund University
<https://www.nmt.lu.se/app/?nav>

2021  **The Meridian Podcast**
Field reporter on the podcast of Lund Observatory during season 2
<https://www.astro.lu.se/TheMeridian>

 **Outreach Talk at Polhemskola, Lund**
Invited talk at a high school in Lund
<https://www.astro.lu.se/TheMeridian>

2021 – present  **Skype A Scientist**
Talks to several school classes
<https://www.skypeascientist.com/>

2020 – present  **Outreach activities at the telescope**
Visits to our telescopes with school classes and interested groups, public observing