

Bibiana Prinoth

PhD Student in Astronomy & Astrophysics at Lund University

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Education

- 2020 – 🎓 **Ph.D. in Astronomy & Astrophysics, Lund University & European Southern Observatory**
Thesis title: *Comparative Transmission Spectroscopy of Hot Exoplanet Atmospheres*
Advisors: H. Jens Hoeijmakers (LU), Elyar Sedaghati (ESO) & Julia V. Seidel (ESO)
Note: ESO Studentship in Santiago, Chile for a year
- 2018 – 2020 🎓 **M.Sc. ETH in Physics, ETH Zürich**
Thesis title: *Detectability of Radial Velocity Planets with ELT / METIS*
Advisor: Sascha Quanz
- 2015 – 2019 🎓 **B.Sc. ETH in Physics, ETH Zürich**
Thesis title¹: *An Attempt to Calculate the Disc Fractional Polarisation of HD 142169.*
Advisor: Hans-Martin Schmid

Research Publications

First-authored

- 1 **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*, 2022. 🌐 DOI: 10.1038/s41550-021-01581-z.

Co-authored

- 1 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*, 🌐 DOI: 10.1093/mnras/stac2246.
- 2 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*, Apr. 2023. 🌐 DOI: 10.1051/0004-6361/202245121.
- 3 H. J. Hoeijmakers, D. Kitzmann, B. M. Morris, **B. Prinoth**, *et al.*, “The Mantis Network III: A titanium cold-trap on the ultra-hot Jupiter WASP-121 b,” 2022. 🌐 DOI: 10.48550/arXiv.2210.12847.
- 4 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.
- 5 D. Kitzmann, J. H. 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,” 2021. 🌐 URL: <https://ui.adsabs.harvard.edu/abs/2021arXiv211211380K>.

Seminars, Talks and Presentations

- 2023 ♦ **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>

¹At ETH Zurich there is no Bachelor's thesis in physics, but a semester project, which accounts for 9 ECTS.

Seminars, Talks and Presentations (continued)

- 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>

Observational Experience and Proposals

- 2023
- ◇ **HRS @ the Southern African Large Telescope**
Transit in Service Mode (SM) during semester 23B, PI: Prinoth
- 2022
- ◇ **HRS @ the Southern African Large Telescope**
Transit in Service Mode (SM) during semester 23A, PI: Prinoth
 - ◇ **HRS @ the Southern African Large Telescope**
Transit in Service Mode (SM) during semester 22B, PI: Prinoth
 - ◇ **FIES @ the Nordic Optical Telescope**
Two transit observations in designated Visitor Mode (dVM) during semester 22B, PI: Johansen
- 2021
- ◇ **ESPRESSO the Very Large Telescope**
Transit observation in designated Visitor Mode (dVM) during SC107, PI: Prinoth, PID: 107.22QF
 - ◇ **FIES @ the Nordic Optical Telescope**
Two transit observations in Visitor Mode (VM) during semester 21B, PI: Johansen

Awards and Grants

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

Work Experience and Teaching

- 2022 – 2023 ♦ **Teaching assistant in ASTBo1 - 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 – 2023 ♦ **Teaching assistant in ASTCo1 - 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





- 2022 📖 **Main Organiser and Host of the Källén Seminars for Young Astronomers**
Lund Observatory, Jan 2022 – present
- 📖 **Founding Member of SENECA — The Swedish Network for Early Career Astronomers**
<https://bprinoth.github.io/seneca/>
- 2022 – 2023 📖 **NDR Working Committee Member**
Naturvetenskapliga Doktorandrådet (NDR), Jul 2022 – Jun 2023
- 2021 – 2023 📖 **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



Outreach Activities


- 2023 🌐 **Knut Lundmark-dagarna Lund University**
Lectures about exoplanets for high-school students organised by Astronomisk Ungdom
<https://www.astronomiskungdom.se/knut-lundmark-dagarna>
- 🌐 **Monthly meeting of ASTB 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>


Outreach Activities (continued)

- 2022

 -  **NMT Days 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>
 -  **ALVA 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/>
 -  **NMT Days 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 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