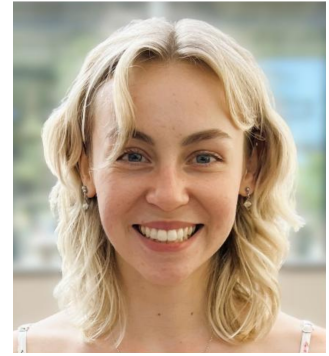


# Saphira Natalie Brandenberger

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🌐 LinkedIn S. Brandenberger



## Education

- 2026 – present **Ph.D. Candidate in Astronomy, Kapteyn Astronomical Institute, University of Groningen**  
**Supervisor:** Dr. Tim Lichtenberg  
*Research focus: planetary core evolution and composition.*
- 2024 – 2026 **M.Sc. Astronomy Research, Leiden University**  
Graduated *summa cum laude*; GPA: 9.15/10 (incl. two 30-EC research projects, both graded 9.5; NL scale: 10 = highest)
- 2021 – 2024 **B.Sc. Astronomy, University of Vienna**  
GPA: 1.66/5.00 (AT scale: 1 = highest; incl. a 10-EC research project graded 1.0)

## Research Experience

- 2025 – 2026 **Master's Thesis, Leiden University**  
*FROH – A Framework for Ranking the Observability and Habitability of Cold Sub-Neptune Exoplanets*  
**Supervisor:** Dr. Yamila Miguel  
Building a modular Python framework (interior inference, water liquidity assessment, observability assessment) to rank cold sub-Neptune targets for spectroscopic follow-up.
- 2024 – 2025 **First-Year Research Project, Leiden University**  
*Understanding the formation of ultra-short period planets around late M dwarfs*  
**Supervisors:** Dr. Nienke van der Marel, Dr. Mariana Sánchez  
Modified MERCURY (Fortran) core to include time-evolving inner disk edge prescriptions; ran 50+ N-body integrations on HPC; analyzed outputs (Python).
- 2023 – 2024 **Bachelor's Thesis, University of Vienna**  
*Habitability of Exoplanets: Exploring the Habitable Zone, Alternative Solvents and Assessment Criteria*  
**Supervisor:** Dr. Richard Schwarz  
Computed HZs (Kopparapu 2014) for nearby hosts; flagged candidates from NASA Exoplanet Archive; synthesized criteria across water-based and exotic solvent scenarios.
- Jul – Aug 2023 **FemTech Research Intern, Institute of High Energy Physics (HEPHY), Vienna**  
*DANA Dark-Matter Detector Analysis*  
**Supervisors:** Dr. Holger Kluck, Dr. Wolfgang Treberer-Treberspurg  
Used ROOT and C++ scripts to fit Landau–Gaussian energy-loss distributions; explored Bethe–Bloch parameterizations; delivered analysis scripts and accuracy assessment.

## Conferences & Presentations

- September 2026     **EPSC Europlanet Science Congress 2026, The Hague (NL)**  
Oral presentation: *Following the Edge: How Inner Disk Edges Shape Ultra-Short-Period Planet Formation.*
- May 2026     **NAC Netherlands Astronomy Conference 2026, Egmond aan Zee (NL)**  
Attendee.
- April 2026     **Kaiser Spring Lectures: "One in a Million: Looking for a second Earth", Old Observatory, Leiden (NL)**  
Outreach Lecture: *Ocean Worlds Beyond Earth: Could They Be Habitable?*
- 2024–2026     **Leiden Observatory (NL), Research Talks**  
Oral presentations on Research Projects in different research groups.
- May 2025     **ASES Exoplanet Summer School, Vietri sul Mare (IT)**  
Poster presentation: *Formation of USP Planets around M Dwarfs: The Role of the Inner Disk Edge.*
- 2024     **Vienna Observatory (AT), Bachelor thesis presentation**  
Oral presentation of Bachelor thesis in front of a committee.

## Teaching & Outreach

- 2024 – 2026     **Writer, Leiden Science Magazine** – Leiden, NL
- 2018 – 2026     **Private Tutor (High School and Undergraduate Level)** – AT and NL
- 2022 – 2024     **Instructor of Observational Tours ("Himmelsblicke"), Die Wiener Volkshochschulen GmbH** – Observatory Urania, Vienna, AT

## Publications & Manuscripts

Brandenberger, S. N., Sánchez, M., van der Marel, N., Vidotto, A. A., & Miguel, Y. (2026), *Astronomy & Astrophysics*, **709**, A115, "The role of inner disk edges in shaping ultra-short-period planet systems around late M dwarfs", <https://doi.org/10.1051/0004-6361/202558380>

Brandenberger, S. N., & Miguel, Y. **in preparation** (target: MNRAS): "Ranking cold sub-Neptunes for habitability-motivated atmospheric follow-up"

## Skills

- Languages     English (C2), German (C2), Dutch (B1)
- Programming     Python (proficient), Fortran (working), C++ (familiar)
- Tools      $\LaTeX$ , Git, ROOT, SLURM/HPC
- Methods     N-body simulations, interior modeling, Habitable Zone calculations, exoplanet databases, Bayesian inference

## Miscellaneous Experience

### Scholarships

- 2024–2025     **Merit-based academic scholarship & network**, e-fellows.net Scholarship (DE)
- 2022 and 2024     **Merit-based scholarship**, University of Vienna

## Miscellaneous Experience (continued)

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### Certification

2024



**Cambridge Certificate in Advanced English.** Awarded by Cambridge Institute Vienna. Grade A (C2).