lartin **Schlecker**

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Education and Experience

ESO Fellow Garching, Germany since 2025

EUROPEAN SOUTHERN OBSERVATORY

Independent research fellowship (25% observatory operations support) Conduct trade studies for Extremely Large Telescope instrumentation

Postdoctoral Researcher Tucson, AZ, USA

University of Arizona

Study planetary habitability in the context of planet formation and exoplanet demographics Inform next-generation exoplanet missions via statistical hypothesis testing Contribute to a scalable solution for atmospheric CO₂ removal

PhD (Dr. rer. nat.) in Astronomy

MAX PLANCK INSTITUTE FOR ASTRONOMY/UNIVERSITY OF HEIDELBERG

Thesis: The Architectures of Planetary Systems: Population Synthesis Meets Observations

Advisors: Thomas Henning, Hubert Klahr

Fellow of the International Max Planck Research School (IMPRS) for Astronomy and Cosmic Physics

Master of Science (MSc) in Nuclear, Particle and Astrophysics

TECHNICAL UNIVERSITY OF MUNICH

Thesis @European Southern Observatory (ESO): Irregular Variability in Kepler Photometry Discovered and characterized a new exoplanet candidate

Bachelor of Science (BSc) in Physics

TECHNICAL UNIVERSITY OF MUNICH

Thesis @Max-Planck Institute for Extraterrestrial Physics: Alignment and Calibration of the X-Ray Telescope μ ROSI

Heidelberg, Germany

Munich, Germany

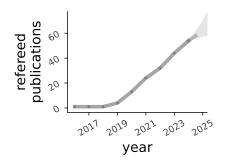
2013 - 2017

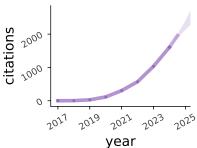
2022-2025

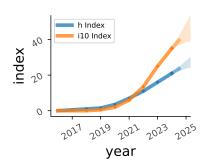
2017 - 2021

Munich, Germany 2010 - 2013

Metrics







Teaching, Leadership, and Outreach

Founder: Space Night Augsburg

Initiated science communication and charity event (>100 in-person participants)

Guest lecturer: Astrobiology

Held a lecture on rocky planet habitability

Popular science article: Kleine M-Sterne überraschen mit Gasriesen

Authored popular science article on giant planets around M dwarfs (in German)

Guest lecturer: Introduction to Space Travel

Held a lecture on Solar System formation

Augsburg

since Mar. 2024

University of Arizona

Apr. 2024

Sterne und Weltraum (printed circulation: 16'000)

Aug. 2022

University of Applied Sciences Upper Austria Steyr

Nov. 2021

Research Advisor MPIA Heidelberg

Designed and guided Bachelor project (Antonia Seifert, Uni Heidelberg) Primary advisor for summer project (Dang Pham, Cornell. See *paper*)

Team Lead: EDEN Transit Survey

Coordinated a team of 14 observers; managed ∼180 nights (CAHA 1.23m)

Teaching Assistant: Numerical Methods Block Course

Held lectures and tutorials on numerical methods for BSc/MSc students

Author: Q&A feature

Wrote a short article about planet formation around Population III stars

Invited Speaker: Student Information Day

Advised senior grade students on perspectives in the natural sciences

Team Lead: MOVE II Cubesat

Head of communications and ground control; successful launch in Dec. 2018

Tutor: Math Prep Course for Physics Students

Taught 30 first year students in mathematical concepts in physics

Jul. 2019 - Jul. 2021

MPIA Heidelberg/University of Arizona

Jun. 2018 – Jan. 2021

Heidelberg University

Feb. 2018, Feb. 2020

All About Space Magazine

Nov. 2019

Berufsoberschule Technik, Augsburg

Apr. 2017

Scientific Workgroup for Rocketry and Spaceflight

Jan. 2011 – Apr. 2015

Technical University of Munich

Sep. 2011

Selected Presentations

Centre for Origin and Prevalence of Life Seminar

INVITED SEMINAR

Center for Integrative Planetary Science (CIPS) Seminar

INVITED SEMINAR

Density Matters Ringberg Meeting

CONFERENCE TALK

Exoplanet Team Meeting

INVITED SEMINAR

Stellar Coffee and Planetary Tea

INVITED SEMINAR

TOP Seminar

INVITED SEMINAR

ROCKE-3D Journal Club INVITED SEMINAR

ISM Seminar

INVITED SEMINAR Institutsseminar

INVITED COLLOQUIUM

Origins Seminar INVITED SEMINAR

AstroBio23: Oxygen in Planetary Biospheres CONFERENCE TALK

ET Science Seminar Series

INVITED SEMINAR

CONFERENCE TALK JPL Astrophysics Luncheon Seminar

Forming and Exploring Habitable Worlds

INVITED SEMINAR

Königstuhl Colloquium

INVITED COLLOQUIUM

MIT Exoplanet Tea

INVITED SEMINAR

ETH Zürich

Aug. 2024

UC Berkeley (virtual) Mar. 2024

Ringberg Castle

Feb 2024

Universitäts-Sternwarte München, LMU

Feb. 2024

ESO Garching

Feb. 2024

Observatoire de la Côte d'Azur. Nice Feb. 2024

NASA Goddard Institute for Space Studies (virtual)

Dec. 2023

University of Groningen

Jul. 2023

DI R Berlin Jul. 2023

University of Arizona May 2023

Green Bank Observatory

May 2023

Shanghai Astronomical Observatory (virtual)

Jan. 2023

University of Edinburgh

Nov. 2022

NASA JPL (virtual) Apr. 2022

MPIA (virtual)

Jun. 2021

MIT Kavli Institute (virtual)

Nov. 2020

Exoplanet Demographics Conference

CONFERENCE TALK

NExScI, IPAC/Caltech (virtual)

Nov. 2020

CfA Stars & Planets Seminar

INVITED SEMINAR

Harvard & Smithsonian (CfA) (virtual)

Nov. 2020

Institute Colloquium

INVITED COLLOQUIUM

Tautenburg Observatory
Jun. 2019

Japanese-German Meeting on Exoplanets and Planet Formation

CONFERENCE TALK

Edesheim Sep. 2018

Ad Valvas Seminar

KU Leuven

Invited Seminar Jul. 2018

Community Services _____

2025	Reviewer for the University Research Fellowship, The Royal Society
2023	Speaker: "How to PhD", Lunch with a Steward Scientist

University of Arizona

2023 **Reviewer for a graduate research fellowship (New Frontiers Initiative),** NSF/University of Illinois 2023 **EDEN Science Workshop: SOC+LOC,** Organized an international conference

virtual

2022 Subject-matter expert panelist for a research program review, NASA

since 2022 **Lead developer of the python package** arxiv-scan, personalized literature recommendations

since 2021 **Journal Referee**, A&A, AJ, ApJS

2021	Science Data Officer for a Mars analog mission, Austrian Space Forum	Innsbruck/Negev
2017-202	21 PhD Student Representative , Intl. Max Planck Research School	Heidelberg
2017-202	21 Fellowship Selection Board , Intl. Max Planck Research School	Heidelberg
2020	Co-organized Climate Hackathon, Scientists for Future	virtual
2019	MPIA Half Marathon Fundraise, Raised 2000+ EUR for rare disease research (Milly's Mission)	Heidelberg
2019	HGSFP Winter School: SOC+LOC , Co-organized a winter school for 60 participants	Obergurgl
2018	Japanese-German Meeting on Planet Formation: SOC+LOC, Co-organized an international workshop	Edesheim

Observing Experience _____

Accepted PI proposal:

31 nights 2.2 m MPG/ESO telescope

La Silla Observatory

Observations:

18 nights 1.23 m telescope	Calar Alto Observatory
13 nights 2.2 m MPG/ESO telescope	La Silla Observatory
12 nights 61 " Kuiper telescope	Mount Bigelow Observatory
8 nights 1.8 m Vatican Advanced Technology Telescope	Mount Graham International Observatory
4 nights 1.22 m telescope	Asiago Astrophysical Observatory
2 nights 1.8 m telescope	Asiago Astrophysical Observatory
1 night 92 cm telescope	Asiago Astrophysical Observatory

Awards

2024	Research grant (USD 15,200), JWST Cycle 2 program JWST-GO-03731.009-A (PI: M. Schlecker)	Baltimore, USA
2023	NASA PI Launchpad, Competitive mission development program and travel grant	U Michigan, USA
2016	Mobility grant, TUM Physics Department	Garching, Germany
2013	Travel Award, TUMexchange Program	Munich/Singapore
2012	Best Business Plan, UnternehmerTUM Business Plan Seminar	Garching, Germany
2007	Outstanding Performance Award, MAN Training Center	Augsburg, Germany
2007	Talent Promotion , "Begabtenförderung Berufliche Bildung", Chamber of Trade and Industry	Augsburg, Germany

Publications

refereed: 63 — first author: 6 — citations: 1906 — h-index: 24 (2025-08-04) — ads search

Lead Author

- 6 **Schlecker, M.**; Apai, D.; Affholder, A.; Ranjan, S. et al., Bioverse: Potentially Observable Exoplanet Biosignature Patterns under the UV Threshold Hypothesis for the Origin of Life, ApJ, 987, 24, 2025 (arXiv:2504.04261)
- 5 **Schlecker, M.**; Apai, D.; Lichtenberg, T.; Bergsten, G. et al., Bioverse: The Habitable Zone Inner Edge Discontinuity as an Imprint of Runaway Greenhouse Climates on Exoplanet Demographics, PSJ, 5, 3, 2024 (arXiv:2309.04518) [15 citations]
- 4 **Schlecker, M.**; Burn, R.; Sabotta, S.; Seifert, A. et al., RV-detected planets around M dwarfs: Challenges for core accretion models, A&A, 664, 2022 (arXiv:2205.12971) [48 citations]
- 3 **Schlecker, M.**; Pham, D.; Burn, R.; Alibert, Y. et al., The New Generation Planetary Population Synthesis (NGPPS). V. Predetermination of planet types in global core accretion models, A&A, 656, 2021 (arXiv:2104.11750) [48 citations]
- 2 **Schlecker, M.**; Mordasini, C.; Emsenhuber, A.; Klahr, H. et al., The New Generation Planetary Population Synthesis (NGPPS). III. Warm super-Earths and cold Jupiters: a weak occurrence correlation, but with a strong architecture-composition link, A&A, 656, 2021 (arXiv:2007.05563) [78 citations]
- 1 **Schlecker, M.**; Kossakowski, D.; Brahm, R.; Espinoza, N. et al., A Highly Eccentric Warm Jupiter Orbiting TIC 237913194, AJ, 160, 275, 2020 (arXiv:2010.03570) [30 citations]

Co-Author

- 57 Eberhardt, J. et al., TOI-6695: A Pair of Near-resonant Massive Planets Observed with TESS from the WINE Survey, AJ, 169, 298, 2025
- Kaminski, A. et al., The CARMENES search for exoplanets around M dwarfs: Occurrence rates of Earth-like planets around very low-mass stars, A&A, 696, 2025 (arXiv:2504.03364)
- 55 Hardegree-Ullman, K. K.; Apai, D.; Haffert, S. Y.; **Schlecker, M.** et al., Bioverse: Giant Magellan Telescope and Extremely Large Telescope Direct Imaging and High-resolution Spectroscopy Assessment—Surveying Exo-Earth O₂ and Testing the Habitable Zone Oxygen Hypothesis, AJ, 169, 171, 2025 (arXiv:2405.11423) [4 citations]
- 54 Tala Pinto, M. *et al.*, *Three warm Jupiters orbiting TOI-6628, TOI-3837, and TOI-5027 and one sub-Saturn orbiting TOI-2328*, A&A, 694, 2025 (arXiv:2412.02069) [2 citations]
- Heidari, N. et al., Characterization of seven transiting systems, including four warm Jupiters from SOPHIE and TESS, A&A, 694, 2025 (arXiv:2412.08527) [5 citations]
- 52 Rodríguez Martínez, R. et al., Discovery and Characterization of an Eccentric, Warm Saturn Transiting the Solar Analog TOI-4994, AJ, 169, 72, 2025 (arXiv:2412.02769)
- 51 Barnes, R. et al., History and Habitability of the LP 890-9 Planetary System, PSJ, 6, 25, 2025 (arXiv:2412.02743)
- 50 Vítková, M. et al., TOI-4504: Exceptionally Large Transit Timing Variations Induced by Two Resonant Warm Gas Giants in a Three-planet System, ApJ, 978, 2025 (arXiv:2412.05609) [2 citations]
- 49 Cesario, L. et al., Large Interferometer For Exoplanets (LIFE): XIV. Finding terrestrial protoplanets in the galactic neighborhood, A&A, 692, 2024 (arXiv:2410.13457) [5 citations]
- 48 Carleo, I. et al., Mass determination of two Jupiter-sized planets orbiting slightly evolved stars: TOI-2420 b and TOI-2485 b, A&A, 690, 2024 (arXiv:2408.05612) [2 citations]
- 47 Mallorquín, M. et al., Revisiting the dynamical masses of the transiting planets in the young AU Mic system: Potential AU Mic b inflation at 20 Myr, A&A, 689, 2024 (arXiv:2407.16461) [9 citations]

- 46 Gill, S. et al., Correction to: TOI-2447 b / NGTS-29 b: a 69-day Saturn around a Solar analogue, MNRAS, 533, 109, 2024 (arXiv:2405.07367) [3 citations]
- 45 Glauser, A. M. et al., The Large Interferometer For Exoplanets (LIFE): a space mission for mid-infrared nulling interferometry, SPIE, 13095, 2024 [5 citations]
- 44 Gill, S. et al., TOI-2447 b / NGTS-29 b: a 69-day Saturn around a Solar analogue, MNRAS, 532, 1444, 2024
- Kuzuhara, M. et al., Gliese 12 b: A Temperate Earth-sized Planet at 12 pc Ideal for Atmospheric Transmission Spectroscopy, ApJ, 967, 2024 (arXiv:2405.14708) [8 citations]
- 42 Goffo, E. et al., TOI-4438 b: a transiting mini-Neptune amenable to atmospheric characterization, A&A, 685, 2024 (arXiv:2403.09833) [9 citations]
- 41 Murgas, F. et al., Wolf 327b: A new member of the pack of ultra-short-period super-Earths around M dwarfs, A&A, 684, 2024 (arXiv:2401.12150) [8 citations]
- ⁴⁰ Jones, M. I. et al., A long-period transiting substellar companion in the super-Jupiters to brown dwarfs mass regime and a prototypical warm-Jupiter detected by TESS, A&A, 683, 2024 (arXiv:2401.09657) [10 citations]
- 39 Mallorquín, M. et al., TOI-1801 b: A temperate mini-Neptune around a young M0.5 dwarf, A&A, 680, 2023 (arXiv:2310.10244) [9 citations]
- Desgrange, C. et al., Planetary system architectures with low-mass inner planets. Direct imaging exploration of mature systems beyond 1 au, A&A, 680, 2023 (arXiv:2310.06035) [3 citations]
- 37 Eberhardt, J. et al., Three Warm Jupiters around Solar-analog Stars Detected with TESS, AJ, 166, 271, 2023 (arXiv:2402.17592) [11 citations]
- 36 Hobson, M. J. et al., TOI-199 b: A Well-characterized 100 day Transiting Warm Giant Planet with TTVs Seen from Antarctica, AJ, 166, 201, 2023 (arXiv:2309.14915) [13 citations]
- Palle, E. et al., GJ 806 (TOI-4481): A bright nearby multi-planetary system with a transiting hot low-density super-Earth, A&A, 678, 2023 (arXiv:2301.06873) [15 citations]
- 34 Murgas, F. et al., Two super-Earths at the edge of the habitable zone of the nearby M dwarf TOI-2095, A&A, 677, 2023 (arXiv:2304.09220) [17 citations]
- 33 Gupta, A. F. et al., A High-Eccentricity Warm Jupiter Orbiting TOI-4127, AJ, 165, 234, 2023 (arXiv:2303.14570) [10 citations]
- 32 Brahm, R. et al., Three Long-period Transiting Giant Planets from TESS, AJ, 165, 227, 2023 (arXiv:2304.02139) [15 citations]
- 31 Trifonov, T. et al., TOI-2525 b and c: A Pair of Massive Warm Giant Planets with Strong Transit Timing Variations Revealed by TESS, AJ, 165, 179, 2023 (arXiv:2302.05694) [20 citations]
- Dietrich, J.; Apai, D.; **Schlecker, M.**; Hardegree-Ullman, K. K. et al., EDEN Survey: Small Transiting Planet Detection Limits and Constraints on the Occurrence Rates of Planets around Late-M Dwarfs within 15 pc, AJ, 165, 149, 2023 (arXiv:2302.04138) [9 citations]
- 29 Ribas, I. et al., The CARMENES search for exoplanets around M dwarfs. Guaranteed time observations Data Release 1 (2016-2020), A&A, 670, 2023 (arXiv:2302.10528) [65 citations]
- 28 Kossakowski, D. et al., The CARMENES search for exoplanets around M dwarfs. Wolf 1069 b: Earth-mass planet in the habitable zone of a nearby, very low-mass star, A&A, 670, 2023 (arXiv:2301.02477) [28 citations]
- 27 Chaturvedi, P. et al., TOI-1468: A system of two transiting planets, a super-Earth and a mini-Neptune, on opposite sides of the radius valley, A&A, 666, 2022 (arXiv:2208.10351) [24 citations]

- ²⁶ Ulmer-Moll, S. et al., Two long-period transiting exoplanets on eccentric orbits: NGTS-20 b (TOI-5152 b) and TOI-5153 b, A&A, 666, 2022 (arXiv:2207.03911) [24 citations]
- 25 Luque, R. et al., The HD 260655 system: Two rocky worlds transiting a bright M dwarf at 10 pc, A&A, 664, 2022 (arXiv:2204.10261) [25 citations]
- Mollière, P. et al., Interpreting the Atmospheric Composition of Exoplanets: Sensitivity to Planet Formation Assumptions, ApJ, 934, 74, 2022 (arXiv:2204.13714) [132 citations]
- 23 Kemmer, J. et al., Discovery and mass measurement of the hot, transiting, Earth-sized planet, GJ 3929 b, A&A, 659, 2022 (arXiv:2202.00970) [20 citations]
- Espinoza, N. et al., A Transiting, Temperate Mini-Neptune Orbiting the M Dwarf TOI-1759 Unveiled by TESS, AJ, 163, 133, 2022 (arXiv:2202.01240) [24 citations]
- 21 González-Álvarez, E. et al., A multi-planetary system orbiting the early-M dwarf TOI-1238, A&A, 658, 2022 (arXiv:2111.14602) [11 citations]
- 20 Kossakowski, D. et al., TOI-1201 b: A mini-Neptune transiting a bright and moderately young M dwarf, A&A, 656, 2021 (arXiv:2109.09346) [35 citations]
- 19 Burn, R.; **Schlecker, M.**; Mordasini, C.; Emsenhuber, A. et al., The New Generation Planetary Population Synthesis (NGPPS). IV. Planetary systems around low-mass stars, A&A, 656, 2021 (arXiv:2105.04596) [162 citations]
- 18 Trifonov, T. et al., A Pair of Warm Giant Planets near the 2:1 Mean Motion Resonance around the K-dwarf Star TOI-2202, AJ, 162, 283, 2021 (arXiv:2108.05323) [22 citations]
- 17 Sabotta, S.; **Schlecker, M.**; Chaturvedi, P.; Guenther, E. W. et al., The CARMENES search for exoplanets around M dwarfs. Planet occurrence rates from a subsample of 71 stars, A&A, 653, 2021 (arXiv:2107.03802) [129 citations]
- 16 Lin, C. et al., EDEN: Flare Activity of the Nearby Exoplanet-hosting M Dwarf Wolf 359 Based on K2 and EDEN Light Curves, AJ, 162, 11, 2021 [20 citations]
- 15 Amado, P. J. et al., The CARMENES search for exoplanets around M dwarfs. Two terrestrial planets orbiting G 264-012 and one terrestrial planet orbiting Gl 393, A&A, 650, 2021 (arXiv:2105.13785) [23 citations]
- 14 Hobson, M. J. et al., A Transiting Warm Giant Planet around the Young Active Star TOI-201, AJ, 161, 235, 2021 (arXiv:2103.02685) [40 citations]
- 13 Addison, B. C. *et al.*, *TOI-257b (HD 19916b): a warm sub-saturn orbiting an evolved F-type star*, MNRAS, 502, 3704, 2021 (arXiv:2001.07345) [51 citations]
- 12 Dreizler, S. et al., The CARMENES search for exoplanets around M dwarfs. LP 714-47 b (TOI 442.01): populating the Neptune desert, A&A, 644, 2020 (arXiv:2011.01716) [38 citations]
- 11 Stock, S. et al., The CARMENES search for exoplanets around M dwarfs. Three temperate-to-warm super-Earths, A&A, 643, 2020 (arXiv:2010.00474) [45 citations]
- ¹⁰ Brahm, R. et al., TOI-481 b and TOI-892 b: Two Long-period Hot Jupiters from the Transiting Exoplanet Survey Satellite, AJ, 160, 235, 2020 (arXiv:2009.08881) [36 citations]
- 9 Kemmer, J. et al., Discovery of a hot, transiting, Earth-sized planet and a second temperate, non-transiting planet around the M4 dwarf GJ 3473 (TOI-488), A&A, 642, 2020 (arXiv:2009.10432) [37 citations]
- 8 Nowak, G. et al., The CARMENES search for exoplanets around M dwarfs. Two planets on opposite sides of the radius gap transiting the nearby M dwarf LTT 3780, A&A, 642, 2020 (arXiv:2003.01140) [68 citations]

- 7 Jahnke, K. et al., An astronomical institute's perspective on meeting the challenges of the climate crisis, Nature Astronomy, 4, 812, 2020 (arXiv:2009.11307) [35 citations]
- 6 Bluhm, P. et al., Precise mass and radius of a transiting super-Earth planet orbiting the M dwarf TOI-1235: a planet in the radius gap?, A&A, 639, 2020 (arXiv:2004.06218) [43 citations]
- 5 Gibbs, A. et al., EDEN: Sensitivity Analysis and Transiting Planet Detection Limits for Nearby Late Red Dwarfs, AJ, 159, 169, 2020 (arXiv:2002.10017) [24 citations]
- 4 Espinoza, N. et al., HD 213885b: a transiting 1-d-period super-Earth with an Earth-like composition around a bright (V = 7.9) star unveiled by TESS, MNRAS, 491, 2982, 2020 (arXiv:1903.07694) [59 citations]
- 3 Kossakowski, D. et al., TOI-150b and TOI-163b: two transiting hot Jupiters, one eccentric and one inflated, revealed by TESS near and at the edge of the JWST CVZ, MNRAS, 490, 1094, 2019 (arXiv:1906.09866) [27 citations]
- 2 Morales, J. C. et al., A giant exoplanet orbiting a very-low-mass star challenges planet formation models, Science, 365, 1441, 2019 (arXiv:1909.12174) [114 citations]
- 1 Luque, R. et al., Planetary system around the nearby M dwarf GJ 357 including a transiting, hot, Earth-sized planet optimal for atmospheric characterization, A&A, 628, 2019 (arXiv:1904.12818) [127 citations]

Preprints & Other

- 7 Geraldía-González, S. et al., Discovery of a transiting hot water-world candidate orbiting Ross 176 with TESS and CARMENES, ArXiv, 2025 (arXiv:2507.15763)
- 6 Ranjan, S.; Adams, D.; Wong, M.; **Schlecker, M.** et al., *Prebiosignatures with the Habitable Worlds Observatory (HWO)*, ArXiv, 2025 (arXiv:2507.00165)
- 5 Ranjan, S.; **Schlecker, M.**; Wogan, N.; Wong, M., *Testing Origin-of-Life Theories with the Habitable Worlds Observatory (HWO)*, ArXiv, 2025 (arXiv:2507.00164)
- 4 **Schlecker, M.**, The architectures of planetary systems: Population synthesis meets observations, Ph.D. Thesis, 2021
- 3 Schlecker, M., lcps: Light curve pre-selection, Astrophysics Source Code Library, 2018
- 2 **Schlecker, M.**, *Irregular Variability in Kepler Photometry*, Master's Thesis, 2016 [3 citations]
- 1 Tiedemann, L. et al., The development of the μROSI X-ray telescope, SPIE, 8859, 885905, 2013