

Martin Schlecker

POSTDOCTORAL RESEARCHER · EXOPLANETEER · OPEN SCIENCE ENTHUSIAST

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Education

PhD (Dr. rer. nat.) in Astronomy

MAX PLANCK INSTITUTE FOR ASTRONOMY/UNIVERSITY OF HEIDELBERG

[Heidelberg, Germany](#)

2017 – 2021

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

[Munich, Germany](#)

2013 – 2017

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

[Munich, Germany](#)

2010 – 2013

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

Selected Presentations

EDEN Science Workshop

CONTRIBUTED CONFERENCE TALK

[University of Arizona \(virtual\)](#)

Mar. 2023

ET Science Seminar Series

INVITED SEMINAR

[Shanghai Astronomical Observatory \(virtual\)](#)

Jan. 2023

Forming and Exploring Habitable Worlds

CONTRIBUTED CONFERENCE TALK

[University of Edinburgh](#)

Nov. 2022

Lunar and Planetary Laboratory Conference

CONTRIBUTED CONFERENCE TALK

[LPL, Tucson](#)

Aug. 2022

JPL Astrophysics Luncheon Seminar

INVITED SEMINAR

[NASA JPL \(virtual\)](#)

Apr. 2022

Origins Seminar

INVITED SEMINAR

[University of Arizona](#)

Jan. 2022

ESO workshop: The Star-Planet Connection

CONTRIBUTED CONFERENCE TALK

[Santiago de Chile \(virtual\)](#)

Oct. 2021

Königstuhl Colloquium

INVITED COLLOQUIUM

[MPIA \(virtual\)](#)

Jun. 2021

PLATO Extrasolar Planet 2020

CONTRIBUTED CONFERENCE TALK

[DLR Berlin \(virtual\)](#)

Dec. 2020

MIT Exoplanet Tea

INVITED SEMINAR

[MIT Kavli Institute \(virtual\)](#)

Nov. 2020

Exoplanet Demographics Conference

CONTRIBUTED 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

Planet Formation and Evolution Conference

CONTRIBUTED CONFERENCE TALK

[University of Rostock](#)

Mar. 2019

Japanese-German Meeting on Exoplanets and Planet Formation

CONTRIBUTED CONFERENCE TALK

[Edesheim](#)

Sep. 2018

Ad Valvas Seminar

INVITED SEMINAR

[KU Leuven](#)

Jul. 2018

Teaching, Leadership, and Outreach

Popular science article: Kleine M-Sterne überraschen mit Gasriesen

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

[Sterne und Weltraum](#) (Circulation: 16'000 copies)

Aug. 2022

Guest lecturer: Introduction to Space Travel

Held a lecture on Solar System formation

[University of Applied Sciences Upper Austria Steyr](#)

Nov. 2021

Research Advisor: Bachelor Student Antonia Seifert (Uni Heidelberg)

Designed and guided Bachelor project (Planetary systems around M dwarfs)

[MPIA Heidelberg](#)

Apr. 2021 – Jul. 2021

Team Lead: EDEN Transit Survey

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

[MPIA Heidelberg/University of Arizona](#)

Jun. 2018 – Jan. 2021

Research Advisor: Summer Student Dang Pham (Cornell)

Designed and guided summer project (see [paper](#))

[MPIA Heidelberg](#)

Jul. 2019 – Jan. 2021

Teaching Assistant: Numerical Methods Block Course

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

[Heidelberg University](#)

Feb. 2018, Feb. 2020

Author: Q&A feature

Wrote a short article about planet formation around Population III stars

[All About Space Magazine](#)

Nov. 2019

Invited Speaker: Student Information Day

Advised senior grade students on perspectives in the natural sciences

[Berufsoberschule Technik, Augsburg](#)

Apr. 2017

Team Lead: MOVE II Cubesat

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

[Scientific Workgroup for Rocketry and Spaceflight](#)

Jan. 2011 – Apr. 2015

Tutor: Math Prep Course for Physics Students

Taught 30 first year students in mathematical concepts in physics

[Technical University of Munich](#)

Sep. 2011

Community Services

2023 **EDEN Science Workshop: SOC+LOC**, Organized an international conference

[virtual](#)

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

2021 **Science Data Officer for a Mars analog mission**, Austrian Space Forum

[Innsbruck/Negev](#)

2021 **Journal Referee**, Astronomy & Astrophysics

2017–2021 **PhD Student Representative**, Intl. Max Planck Research School

[Heidelberg](#)

2017–2021 **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](#)

Publications

refereed: 33 — first author: 4 — citations: 752 — h-index: 16 (2023-03-07) — [ads search](#)

Lead Author

- 4 **Schlecker, M.**; Burn, R.; Sabotta, S. et al., *RV-detected planets around M dwarfs: Challenges for core accretion models*, A&A, 664, 2022 ([arXiv:2205.12971](#))
- 3 **Schlecker, M.**; Pham, D.; Burn, R. 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](#))
- 2 **Schlecker, M.**; Mordasini, C.; Emsenhuber, A. 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](#))
- 1 **Schlecker, M.**; Kossakowski, D.; Brahm, R. et al., *A Highly Eccentric Warm Jupiter Orbiting TIC 237913194*, AJ, 160, 275, 2020 ([arXiv:2010.03570](#))

Co-Author

- 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](#))
- 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](#))
- 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](#))
- 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](#))
- 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](#))
- 24 Mollière, P. et al., *Interpreting the Atmospheric Composition of Exoplanets: Sensitivity to Planet Formation Assumptions*, ApJ, 934, 74, 2022 ([arXiv:2204.13714](#))
- 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](#))
- 22 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](#))
- 21 González-Álvarez, E. et al., *A multi-planetary system orbiting the early-M dwarf TOI-1238*, A&A, 658, 2022 ([arXiv:2111.14602](#))
- 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](#))
- 19 Burn, R.; **Schlecker, M.**; Mordasini, C. et al., *The New Generation Planetary Population Synthesis (NGPPS). IV. Planetary systems around low-mass stars*, A&A, 656, 2021 ([arXiv:2105.04596](#))
- 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](#))
- 17 Sabotta, S.; **Schlecker, M.**; Chaturvedi, P. 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](#))
- 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

- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)

Preprints & Other

- 7 Trifonov, T. et al., *TOI-2525 b and c: A pair of massive warm giant planets with a strong transit timing variations revealed by TESS*, ArXiv, 2023 (arXiv:2302.05694)
- 6 Dietrich, J.; Apai, D.; **Schlecker, M.** et al., *EDEN Survey: Small Transiting Planet Detection Limits and Constraints on the Occurrence Rates for Late M Dwarfs within 15 pc*, ArXiv, 2023 (arXiv:2302.04138)
- 5 Palle, E. et al., *GJ 806 (TOI-4481): A bright nearby multi-planetary system with a transiting hot, low-density super-Earth*, ArXiv, 2023 (arXiv:2301.06873)
- 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
- 1 Tiedemann, L. et al., *The development of the μ ROSI X-ray telescope*, SPIE, 8859, 885905, 2013