

# Martin Schlecker

PHD CANDIDATE · EXOPLANETEER · STATISTICS ENTHUSIAST

Max Planck Institute for Astronomy, Heidelberg, Germany

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## Education

### Max Planck Institute for Astronomy

PHD CANDIDATE IN ASTRONOMY; IMPRS FELLOW

Advisors: Thomas Henning, Hubert Klahr · Expected Graduation: August 2021

*Heidelberg, Germany*

2017 – Present

### European Southern Observatory

MASTER'S THESIS: IRREGULAR VARIABILITY IN KEPLER PHOTOMETRY

Created the Python package **1cps** for transit detection in *Kepler* photometry

*Garching, Germany*

2015 – 2017

### MSc: Technical University of Munich

MASTER OF SCIENCE IN PHYSICS (NUCLEAR, PARTICLE AND ASTROPHYSICS), MARCH 2017

*Munich, Germany*

2013 – 2017

### BSc: Technical University of Munich

BACHELOR OF SCIENCE IN PHYSICS

Thesis: Alignment and Calibration of the X-Ray Telescope  $\mu$ ROSI · Max-Planck Institute for Extraterrestrial Physics

*Munich, Germany*

2010 – 2013

## Selected Presentations

### PLATO Extrasolar Planet 2020

CONTRIBUTED CONFERENCE TALK

*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

### Exploring the Diversity of Extrasolar Planets

CONTRIBUTED CONFERENCE TALK

*DLR/FU Berlin (virtual)*

Sep. 2020

### Pebbles, Planetesimals, and Protoplanets Conference

CONTRIBUTED CONFERENCE TALK

*Ringberg Castle*

Mar. 2020

### 11th CARMENES Scientific Meeting

CONSORTIUM MEETING

*Jena*

Nov. 2019

### Institute Colloquium

INVITED SEMINAR

*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

### IAU General Assembly

CONFERENCE FLASH TALK

*Vienna*

Aug. 2018

### Ad Valvas Seminar

INVITED SEMINAR

*KU Leuven, Belgium*

Jul. 2018

## Honors & Awards

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*

2011 **Outstanding Performance Award**, MAN Training Center

*Augsburg, Germany*

2007 **Talent Promotion**, "Begabtenförderung Berufliche Bildung", Chamber of Trade and Industry

*Augsburg, Germany*

## Teaching, Leadership, and Outreach

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### Team Lead: EDEN Transit Survey

- + Coordinating a team of 12 student observers; managed ~180 nights (CAHA 1.23m)

[MPIA Heidelberg/University of Arizona](#)

*Jun. 2018 – Present*

### Research Advisor: Summer Student Dang Pham (Cornell)

- + Designed and guided summer project (paper in preparation)

[MPIA Heidelberg](#)

*Jul. 2019 – Present*

### Teaching Assistant: Numerical Methods Block Course

- + Hold 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

[Berufsboberschule 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*

### Invited Speaker: Outreach Talk at VDI/VDE Forum

- + Gave a talk on the supermassive black hole at the Galactic Center

[University of Applied Sciences Augsburg](#)

*Mar. 2009*

## Community Services

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### IMPRS: PhD Student Representative

- + Organized recreational and scientific retreats

[Heidelberg](#)

*2017 – present*

### Scientists for Future: Climathon Organizer

- + Co-organizing a hackathon to tackle climate challenges

[Heidelberg](#)

*2020*

### HGSFP Winter School: SOC+LOC

- + Co-organized a winter school for 60 participants

[Oberurgel](#)

*2018 – 2019*

### Japanese-German Meeting on Planet Formation: SOC+LOC

- + Co-organized an international workshop

[Edesheim](#)

*2018*

### IMPRS: Fellowship Selection Board

[Heidelberg](#)

*2017 – Present*

## Observing Experience

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15 nights **1.23 m telescope**

[Calar Alto Observatory](#)

13 nights **2.2 m MPG/ESO telescope**

[La Silla Observatory](#)

4 nights **1.22 m telescope**

[Asiago Astrophysical Observatory](#)

2 nights **1.8 m telescope**

[Asiago Astrophysical Observatory](#)

1 nights **92 cm telescope**

[Asiago Astrophysical Observatory](#)

## Publications

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first author: 3 — refereed co-author: 10 — citations: 106 (2020-11-05) — [ads search](#)

### First Author

- 3 **Schlecker, M.**; Pham, D.; Alibert, Y.; Mordasini, C.; Emsenhuber, A. et al., *The Determinism of Global Planet Formation Models*, advanced draft in prep.
- 2 **Schlecker, M.**; Kossakowski, D.; Brahm, R.; Espinoza, N.; Henning, T. et al., *A Highly Eccentric Warm Jupiter Orbiting a Solar-Type Star*, AJ, **160**, 275, 2020
- 1 **Schlecker, M.**; Mordasini, C.; Emsenhuber, A.; Klahr, H.; Henning, T. 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 (in press)

### Refereed Co-Author

- 10 Brahm, R. et al. (incl. **Schlecker, M.**), *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. (incl. **Schlecker, M.**), *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. (incl. **Schlecker, M.**), *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. (incl. **Schlecker, M.**), *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. (incl. **Schlecker, M.**), *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.; Bixel, A.; Rackham, B. V.; Apai, D.; **Schlecker, M.** 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. (incl. **Schlecker, M.**), *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. (incl. **Schlecker, M.**), *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. (incl. **Schlecker, M.**), *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. (incl. **Schlecker, M.**), *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

- 5 Dreizler, S. et al. (incl. **Schlecker, M.**), *The CARMENES search for exoplanets around M dwarfs – LP 714-47b (TOI 442.01): Populating the Neptune desert*, ArXiv, 2020 (arXiv:2011.01716)
- 4 Stock, S. et al. (incl. **Schlecker, M.**), *The CARMENES search for exoplanets around M dwarfs. Three temperate to warm super-Earths*, ArXiv, 2020 (arXiv:2010.00474)
- 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. (incl. **Schlecker, M.**), *The development of the  $\mu$ ROSI X-ray telescope*, SPIE, **8859**, 885905, 2013