

Philipp Baumeister – Curriculum Vitae

Name Philipp Baumeister
Date of birth October 31, 1992
in Boston, Massachusetts
Nationality German, American
Email philipp.baumeister@tu-berlin.de

Education

2018 - 2021 (expected) Technische Universität Berlin (Technical University of Berlin, Germany)
PhD in Physics
Dissertation working title: Interior-atmosphere feedbacks in super-Earths and sub-Neptunian exoplanets

2015 - 2017 Technische Universität Berlin (Technical University of Berlin, Germany)
M.Sc. in Physics
Thesis title: Influence of heat-piping on the Earth's interior evolution

2011 - 2015 Technische Universität Berlin (Technical University of Berlin, Germany)
B.Sc. in Physics
Thesis title: In-situ Raman-Spektroskopie der Synthese von Silikat-Hüllen um CdSe/CdS-Nanopartikel (In situ Raman spectroscopy of the synthesis of silica shells around CdSe/CdS nanoparticles)

Research experience

01/2018 - present Technische Universität Berlin, Department of Astronomy und Astrophysics
Graduate Research Assistant

- Application of neural networks to exoplanetary science
- Interior-atmosphere feedbacks for sub-Neptunian exoplanets
- Thermal evolution of exoplanet interiors

04/2014 - 12/2017 Sample environment of the Helmholtz-Zentrum Berlin für Materialien und Energie
Student assistant

- Development and programming of software drivers for measurement instruments
- Development of software for managing and monitoring scientific experiments

Publications

- **P. Baumeister**, S. Padovan, N. Tosi, G. Montavon, N. Nettelmann, Jasmine MacKenzie, Mareike Goldt, “*Machine learning inference of the interior structure of low-mass exoplanets*“, Astrophysical Journal (in press, 2019)

- S. Padovan, T. Spohn, **P. Baumeister**, N. Tosi, D. Breuer, Sz. Csizmadia, H. Hellard and F. Sohl, “*Matrix-propagator approach to compute fluid Love numbers and applicability to extrasolar planets*“, Astronomy & Astrophysics 620, A178 (2018)
- A. Biermann, T. Aubert, **P. Baumeister**, E. Drijvers, Z. Hens and J. Maultzsch, “*Interface formation during silica encapsulation of colloidal CdSe/CdS quantum dots observed by in situ Raman spectroscopy*“, The Journal of Chemical Physics 146, 134708 (2017)

Scholarships and awards

- 07/2019** Best poster award (Artificial Intelligence in Astronomy Workshop 2019)
- 10/2011 - 10/2015** Deutschlandstipendium (Germany Scholarship) at the Technische Universität Berlin

Conferences and presentations

- 09/2019** “*Using Machine Learning to infer the interior structure of exoplanets*“
Presentation at the EPSC-DPS Joint Meeting 2019.
- 07/2019** “*Using Mixture Density Networks to infer the interior structure of exoplanets*“
Poster presented at the Artificial Intelligence in Astronomy Workshop 2019.
- 12/2018** “*Using Deep Learning neural networks to predict the interior composition of exoplanets*“
Poster presented at the PLATO Theory Workshop 2018.
- 10/2018** “*Effects of different equations of state on interior structure models of exoplanets*“
Presentation at the 7th Joint Workshop on High Pressure, Planetary and Plasma Physics (HP4).
- 09/2018** “*Effects of different equations of state on interior structure models of exoplanets*“
Presentation at the European Planetary Science Congress 2018.
- 03/2017** “*Influence of heat-piping on the onset of plate tectonics*“
Poster presented at the Annual Meeting of the German Geophysical Society (DGG).
- 04/2016** Early Career Scientist Week 2016 of the DLR Berlin-Adlershof

Relevant skills and qualifications

- Programming languages** Python, C#, Delphi, C/C++, MatLab, Fortran
- Markup languages** LaTeX
- Operating Systems** Linux, Windows
- Language skills** German (native language), English (fluent), French (intermediate)