MARIE-LUISE STEINMEYER

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EMPLOYMENT

Postdoctoral fellow, *Institute for Particle Physics and Astrophysics, ETH Zurich*, Switzerland *since 04/24*
Member of the Exoplanet interior group
Supervisor: Prof. Dr. Caroline Dorn

EDUCATION

Ph.D. in Planetary Science, *GLOBE institute, University of Copenhagen*, Denmark *since 10/20*
Topic: The role of pebble sublimation during the formation of rocky planets
Supervisor: Prof. Dr. Anders Johansen

M.Sc. in Physics, *Ruprecht Karl University*, Heidelberg, Germany *10/18 - 09/20*
Final grade: 1.3 - very good
Master's Thesis: Formation of planetesimals by gravitational collapse using the PENCIL-Code
Supervisors: Prof. Dr. Hubert Klahr, Prof. Dr. Anders Johansen
Thesis Grade: 1.3 - very good

B.Sc. in Physics, *Ruprecht Karl University*, Heidelberg, Germany *10/14 - 09/18*
Final grade: 1.3 - very good
Bachelor's Thesis: The Impact of Temperature Evolution on Planetesimal Formation
Supervisor: Prof. Dr. Hubert Klahr
Thesis Grade: 1.0 - very good

PUBLICATIONS

First-authored

Steinmeyer M.-L., Dorn C., Weerlen A., Grimm S. L. 2025, *Coupled thermal-chemical evolution models of sub-Neptunes reveal atmospheric signatures of their formation location*, in review

Steinmeyer, M.-L., Noack L., Baumeister P., Hamano K., Way M. J., Breuer D., Seki K., et al., 2025, *Evolution and observable properties of rocky planet atmospheres*, in review

Steinmeyer, M.-L. and Johansen, A., 2024, *Vapor equilibrium models of accreting rocky planets demonstrate direct core growth by pebble accretion*, A&A 683, doi:10.1051/0004-6361/202349052

Steinmeyer, M.-L., Woitke, P., Johansen, A., 2023, *Sublimation of refractory minerals in the gas envelopes of accreting rocky planets*, A&A 677, doi:10.1051/0004-6361/202245636

Co-authored

Naponiello L., Leonardi P., Damasso M., **Steinmeyer M.-L.**, Stalport M., Dorn C., Bonomo A. S., et al., 2025, *A 34.6-day transiting sub-Neptune in the TOI-1422 planetary system* , arXiv, arXiv:2511.11492. doi:10.48550/arXiv.2511.11492

Baumeister P., Miozzi F., Guimond C. M., **M.-L. Steinmeyer**, Dorn C., Karato S.-I., Bolmont É., et al., 2025, *Fundamentals of Interior Modelling and Challenges in the Interpretation of Observed Rocky Exoplanets*, Space Science Reviews 221 123. doi:10.1007/s11214-025-01248-5

Bonomo A. S., Naponiello L., Sozzetti A., Benatti S., Carleo I., Biazzo K., Cubillos P. E., et al., 2025, *The GAPS programme at TNG XYZ. A sub-Neptune suitable for atmospheric characterization in a multiplanet and mutually inclined system orbiting the bright K dwarf TOI-5789 (HIP 99452)*, arXiv, arXiv:2510.11490. doi:10.48550/arXiv.2510.11490

Naponiello L., Vissapragada S., Bonomo A. S., **Steinmeyer M.-L.**, Filomeno S., D'Orazi V., Dorn C., et al., 2025, *The Hot-Neptune Initiative (HONEI): I. Two hot sub-Neptunes on a close-in eccentric orbit (TOI-5800 b) and a farther-out circular orbit (TOI-5817 b)*, A&A, 701, A79. doi:10.1051/0004-6361/202555523
Naponiello L., Bonomo A. S., Mancini L., **Steinmeyer M.-L.**, Biazzo K., Polychroni D., Dorn C., et al., 2025, *The GAPS programme at TNG: LXIV. An inner eccentric sub-Neptune and an outer sub-Neptune-mass candidate around BD+00 444 (TOI-2443)* A&A, 693, A7. doi:10.1051/0004-6361/202451859

PRESENTATIONS

EPSC-DPS Joint Meeting 2025, Helsinki, Finland *09/25*
Contributed talk: Water worlds or Gas Dwarfs? Coupled Interior-Atmosphere Models Blur the Lines in Sub-Neptune Radius Evolution
Exoplanet Journal club, University of Chicago, Chicago, USA *06/25*
Blurring the line: Evolution of sub-Neptunes using coupled interior-atmosphere models
EUROBIG Scientific Kick-off Meeting, Bratislava, Slovakia *06/25*
Invited talk: The nature of super-Earths & sub-Neptunes
Rocky Worlds III, Zurich, Switzerland *01/24*
Sublimation of refractory minerals and the (compositional) consequences for rocky planets
ExOresund, Copenhagen, Denmark *10/23*
Invited Talk: Pebble sublimation and its (compositional) consequences
Annual Danish Astronomy Meeting, Fredericia, Denmark *06/23*
Contributed Talk: Sublimation of refractory minerals in the gas envelopes of accreting rocky planets
CELS start-up meeting, Copenhagen, Denmark *09/21*
Contributed Talk: Primordial atmosphere of a protoplanet during pebble accretion
Ringberg Workshop: Pebbles, Planetesimals and Protoplanets, Schloss Ringberg, Germany *03/20*
Contributed Talk: Gravitational Collapse of Dust Filaments
`http://www.mpia.de/homes/klahr/PPP2020.html`

POSTERS

Exoclimes VII, Montreal, Canada *07/25*
Atmospheric composition not radius is the key to identify the bulk compositions of sub-Neptunes
Exoplanets V, Leiden, Netherlands *06/24*
Vapor equilibrium models of rocky planets growing by pebble accretion
Goldschmidt 2023, Lyon, France *07/23*
Sublimation of refractory minerals in the gas envelopes of accreting rocky planets
Protostars & Protoplanets VII, Kyoto, Japan *04/23*
Sublimation of refractory minerals in the gas envelopes of accreting rocky planets
Rocky Worlds II, Oxford, UK *07/22*
The role of envelopes of rocky planets during pebble accretion
Exoplanets IV, Las Vegas, USA *05/22*
The role of envelopes of rocky planets during pebble accretion
Planetesimal Formation meeting, virtual *11/20*
Evolution and Collapse of Particle Filaments
`https://michiellambrechts.bitbucket.io/pfmeet.html`

SUPERVISION AND TEACHING

Co-Supervision of Naima Schmutz *2025*
during her Bachelor's project titled *Improving the computational efficiency of thermal evolution models*
Co-Supervision of Amelie Pressel *2025*

during her Bachelor's project titled *Water evolution in the atmospheres of sub-Neptune planets*

Teaching Assistant in Physics I *09/25 - 12/25*
Teaching Assistant in Astrophysics III *02/25 - 06/25*
Teaching Assistant in Physics I *09/24 - 12/24*

ROLES OF RESPONSIBILITIES & OUTREACH

Reviewer *since 2025*
Monthly Notices of the Royal Astronomical Society
Planetary Science Seminar, ETH Zurich *since 01/25*
Co-organizer and host
Astronomy on Tap, Copenhagen, Denmark *09/23*
Speaker: The where and how of planet formation
Astronomy on Tap, Copenhagen, Denmark *01/22 - 02/24*
Volunteer
GLOBE Diversity Allies Program
Steering Committee Core Member *01/21 - 02/24*
Interdisciplinary Workshop on Star and Planet Formation
Co-organizer of journal club at Globe Institute, University of Copenhagen *09/21 - 06/22*