Dr. Harry A. Ballantyne

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DOB: 14/02/1996 | Nationality: British | Swiss work permit: B

Education

EPFL Extension School *Switzerland*
Certificate of Open Studies (COS) on Applied Data Science: Machine Learning *12/2023 - Present*
- 15 ECTS credits

University of Bern *Switzerland*
PhD in Physics with special qualification in Astronomy *08/2018 - 09/2022*
- Advisor: Dr. Martin Jutzi
- Thesis title: Planetary-scale impacts and their geophysical consequences
- Grade: Summa cum laude honours

University of Sheffield *United Kingdom*
MPhys Physics and Astrophysics with Study Abroad *09/2014 - 06/2018*
- Advisor: Dr. Richard Parker
- Thesis title: The effects of binary evolution on planet formation
- Grade: First class honours

Monash University *Australia*
Exchange Student *07/2016 - 06/2017*
- Average attainment: 79%

Employment

09/2022–12/2022 **Postdoctoral research associate**, University of Bern, Switzerland (Supervisor: Dr. Martin Jutzi)

08/2018–12/2022 **Physics teaching assistant and examiner**, University of Bern, Switzerland

08/2018–09/2022 **PhD student**, University of Bern, Switzerland (Supervisor: Dr. Martin Jutzi)

Skills

Programming Languages:

Python	★★★★★	*C++*	★★★★★	*Bash*	★★★★★
Latex	★★★★☆	*R*	★★★★☆	*Fortran*	★★★★☆
MatLab	★★★☆☆	*Excel*	★★★☆☆	*HTML*	★★☆☆☆
CSS	★★☆☆☆				

Version Control:

Git

Languages:

English (native), German (A2 level)

Publications

Published

Ballantyne, H. A., Jutzi, M., Golabek, G. J., Mishra, L., Cheng, K. W., Rozel, A. B. & Tackley, P. J. (2023). Investigating the feasibility of an impact-induced Martian Dichotomy. Icarus, 392, 115395. doi:10.1016/j.icarus.2022.115395

Ballantyne, H. A., Espaas, T., Norgrove, B. Z., Wootton, B. A., Harris, B. R., Pepper, I. L., Smith, R. D., Dommett, R. E., Parker, R. J. (2021). Long-term stability of planets in and around binary stars. MNRAS, 507, 4507. doi:10.1093/mnras/stab2324

In Review

Ballantyne, H. A., Asphaug, E., Denton, C. A., Emsenhuber, A. & Jutzi, M. Sputnik Planitia as an impactor remnant indicates an ancient rocky mascon in an oceanless Pluto. Nature Astronomy (in review).

Cheng, K. W., Rozel, A. B., Golabek, G. J., **Ballantyne, H. A.**, Jutzi, M. & Tackley, P. J. Mars' crustal and volcanic structure explained by southern giant impact and resulting mantle depletion. Geophysical Research Letters (in review).

Cheng, K. W., **Ballantyne, H. A.**, Golabek, G. J., , Jutzi, M., Rozel, A. B. & Tackley, P. J. Combined impact and interior evolution models in three dimensions indicate a southern impact origin of the Martian Dichotomy. Icarus (in review).

Mentoring

03/2021–09/2021	**Janis Witmer (co-supervised)**, Bachelor's student, Project: *Hit-and-run simulations of the Psyche forming impact*	*University of Bern*

Teaching Experience

09/2022–12/2022	**Physics for medicine majors (bachelor's course)**, Teaching assistant for experiments and seminars
02/2022–05/2022	**Physics practical course for biology majors (bachelor's course)**, Teaching assistant for experiments
02/2021–09/2021	**Advanced statistical methods for physicists (master's course)**, Teaching assistant and examiner
02/2020–05/2020	**Physics I practical course**, Teaching assistant for experiments

Presentations

Extensive experience presenting to a large audience, including international conferences such as:

- Lunar and Planetary Science Conference, Houston, USA (2021, 2022)
- Europlanet Science Congress, Various European Locations (2019, 2020, 2021, 2022)
- European Geosciences Union General Assembly, Vienna, Austria (2019)

Invited talks at various prestigious institutes including:

- University of Zurich (Zurich Planetary Seminar, 2022)
- Deutsches Zentrum für Luft und Raumfahrt, Berlin (3rd Workshop on Giant Collisions, 2022)
- ETH Zurich (ETH Zurich Planetary Geophysics Seminar, 2020)

Referees

Dr. Martin Jutzi, University of Bern, Gesellschaftstrasse 6, 3012 Bern, Switzerland, martin.jutzi@unibe.ch, +41 31 684 85 49

Prof. Erik Asphaug, Lunar and Planetary Laboratory (LPL), University of Arizona, 1629 E. University Boulevard, Tuscon, 85721, Arizona, USA, asphaug@lpl.arizona.edu

Prof. Brice-Olivier Demory, University of Bern, Gesellschaftstrasse 6, 3012 Bern, brice.demory@unibe.ch