

# Dr. Harry A. Ballantyne



Salmenstrasse 13, 4127 Birsfelden, Switzerland

☎ +41 767 990 982 | ✉ [harryballantyne96@gmail.com](mailto:harryballantyne96@gmail.com) | 🏠 [harryballantyne.github.io](https://harryballantyne.github.io) |

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

## Education

### 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 ★★★★★☆

### Version Control:

Git

### Languages:

English (native), German (currently attending an intensive A2 course)

## 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

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

## Teaching Experience

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

## Presentations

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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)

## Awards, Fellowships, & Grants

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03/2022 **LPI Career Development Award**, Lunar and Planetary Institute (LPI), USA \$1,250

## Organisation of Conferences

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01/2019– **Second NCCR PlanetS Junior Researchers' Assembly**, Organising Committee member *Vitznau,*  
*Switzerland*  
09/2019

## Referees

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**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