

Curriculum Vitae of Patrick Barth

Contact

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Work experience

Since 2019 **Postgraduate Researcher**
University of St Andrews, School for Physics and Astronomy & School for Earth
and Environmental Sciences, UK
St Andrews Centre for Exoplanet Science
Feb. - July 2017 **Student Research Assistant**
Max Planck Institute for Astronomy, Heidelberg, Germany

Education

Since 2019 **PhD in Astronomy**
University of St Andrews, School for Physics and Astronomy & School for Earth
and Environmental Sciences, UK
St Andrews Centre for Exoplanet Science
Supervisor: Dr. Christiane Helling & Dr. Eva Stüeken
2017 - 2018 **International Student**
University of Washington, Seattle, United States of America
2017 - 2019 **Master of Science in Physics** (2-year program)
Final Grade: 1.1 (very good), University of Heidelberg, Department of Physics and
Astronomy, Germany
2013 - 2017 **Bachelor of Science in Physics**
Final grade: 1.7 (good), University of Heidelberg, Department of Physics and As-
tronomy, Germany
2013 **Abitur**
Final grade: 1.1 (very good), Karl-Friedrich-Gymnasium Mannheim, Germany

Awards

2019 **St Leonard's Interdisciplinary Doctoral Scholarship**
University of St Andrews, UK
2017 - 2018 **Baden-Württemberg-Stipendium**
Scholarship for distinguished students studying abroad
2013 High School Graduation Award of the German Physical Society (DPG)

Teaching

Autumn 2020	Demonstrator for "Astronomy and Astrophysics 1" lab held by Dr. Alexander Scholz, School of Physics and Astronomy, University of St Andrews, UK
Spring 2020	Tutor for "Computational Astrophysics" lecture held by Dr. Peter Voitke, Dr. Christiane Helling, and Dr. Martin Dominik, School of Physics and Astronomy, University of St Andrews, UK

Publications

- **Barth, P.** et al., *MOVES IV. Modelling the influence of stellar XUV-flux, cosmic rays, and stellar energetic particles on the atmospheric composition of the hot Jupiter HD 189733b*, submitted to MNRAS
- **Barth, P.** et al., *Magma Ocean Evolution of the TRAPPIST-1 planets*, submitted to Astrobiology, [arXiv](#).
- Voitke, P., et al., incl. **Barth, P.**, 2020, *Coexistence of CH₄, CO₂ and H₂O in exoplanet atmospheres*, accepted by A&A [arXiv](#).
- Barnes, R., et al., incl. **Barth, P.**, 2020, *VPLanet: The Virtual Planet Simulator*, PASP, 132, 024502. [DOI](#).
- Carone, L., Baeyens, R., Mollière, P., **Barth, P.**, et al., *Equatorial retrograde flow in WASP-43b elicited by deep wind jets?*, MNRAS, 496, 3582. [DOI](#).

Talks

- 26 November 2020 **"Modelling the influence of high-energy radiation on the atmospheric composition of HD 189733b"**
CHAMELEON kick-off meeting, University of St Andrews, UK
- 17 November 2020 **"What's the role of lightning in the origin of life"**
Out Thinkers (LGBT+ STEM Week 2020), University of St Andrews, UK
- 21 October 2020 **"Modelling the influence of high-energy radiation on the atmospheric composition of HD 189733b"**
Scottish Exoplanet and Brown Dwarf Meeting, University of Edinburgh, UK
- 24 July 2020 **"MOVES IV: Modelling the influence of high-energy radiation on the atmospheric composition of HD 189733b"**
NOVO Nordisk Meeting, Niels Bohr Institute, University of Copenhagen, Denmark
- 23 June 2020 **"MOVES IV: Modelling the influence of high-energy radiation on the atmospheric composition of HD 189733b"**
Summer Meeting, St Andrews Centre for Exoplanet Science, UK
- 18 Dec 2019 **"Magma Ocean Model for Terrestrial (Exo)Planets"**
PSF-Coffee, MPIA, Heidelberg, Germany
- 10 Oct 2019 **"Magma Ocean Model for Terrestrial (Exo)Planets"**
VPL Meeting, University of Washington, Seattle, US
- 23 Aug 2019 **"Magma Ocean Model for Terrestrial (Exo)Planets"**
Summer Meeting, St Andrews Centre for Exoplanet Science, UK
- 27 March 2019 **"Coupled Atmosphere-Interior Model for Terrestrial Planets - Application to Early Earth"**
General Meeting SPP 1833 Habitable Earth, DFG, Cologne, Germany
- 30 April 2017 **"Zirkulation mit Wolkenbildung in planetaren Atmosphären"**
(G)Astro-Seminar, jDPG, Bad Kreuznach, Germany
- 11 Jan. 2017 **"Large-Scale Circulation with Cloud Formation in Planetary Atmospheres"**
PSF-Coffee, MPIA, Heidelberg, Germany

Posters

Sept. 2020	"X-rays, UV, and co: detrimental or beneficial to the origin of life?" Royal Astronomical Society Early Career Poster Exhibition 2020
26 Aug. 2020	"X-rays, UV, and co: detrimental or beneficial to the origin of life?" The STEM Village Virtual Symposium 2020
27-31 July 2020	"MOVES IV: Modelling the influence of high-energy radiation on the atmospheric composition of HD 189733 b" Exoplanet 3, Heidelberg, Germany (online)
6-8 April 2020	"MOVES IV: Modelling the influence of stellar XUV-flux and cosmic rays on the atmospheric composition of HD 189733 b" UKEXOM, Birmingham, UK (cancelled due to COVID-19)
9-13 March 2020	"MOVES IV: Modelling the influence of stellar XUV-flux and cosmic rays on the atmospheric composition of HD 189733 b" Cloud Academy II, Les Houches, France (cancelled due to COVID-19)
15-20 Sept. 2019	"Desiccation of the TRAPPIST-1 Planets During Their Magma Ocean Phase" EPSC-DPS Joint Meeting, Geneva, Switzerland (presented by Ludmila Carone)
24-28 June 2019	"Desiccation of the TRAPPIST-1 Planets During Their Magma Ocean Phase" Astrobiology Science Conference, Seattle, WA, USA (presented by Rory Barnes)
24-28 June 2019	"Desiccation of the TRAPPIST-1 Planets During Their Magma Ocean Phase" "Star-planet interaction" workshop, Ringberg, Germany (presented by Ludmila Carone)

Outreach

Since 2019	Mobile Planetarium University of St Andrews, School for Physics and Astronomy
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Programming Skills

- Intermediate: Python, C
- Basics: Fortran

Languages

- Native language: German
- Fluent: English
- Basics: Spanish, French

Volunteer Experience

	University of St Andrews Liberal Democrats
Since 2020	Treasurer
	SaintsLGBT+, University of St Andrews Student Association
Since 2019	Postgraduate Officer
	Hector-Seminar Alumni Association
Since 2019	Vice President
2015 - 2019	Secretary
2013 - 2019	Election Worker in Mannheim, Germany