

LUCAS PORTH

🏠 Argelander-Institut für Astronomie, Auf dem Hügel 71, 53121 Bonn, DE

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RESEARCH INTEREST

Constraining cosmological parameters and testing theories via probes of Weak Gravitational Lensing and Large-Scale-Structure. I am interested in the theoretical, statistical and Bayesian perspective of this challenge.

EMPLOYMENT

Rheinische Friedrich-Wilhelms-Universität Bonn, Bonn, DE
Postdoctoral researcher

since September 2021

EDUCATION

PhD in Physics & Astronomy, University of Sussex, Brighton, UK

July 2021

Thesis: Cosmological information from moments and Bayesian reconstruction methods
(advisors: R. E. Smith, J. Loveday)

M.Sc. in Physics, Ludwig-Maximilians-Universität München, Munich, DE

July 2017

Thesis: Nonlinear structure formation and the Halo Model (advisor: J. Weller)
Overall Grade: 1.3 (GPA 3.7)

B.Sc. in Physics, Ludwig-Maximilians-Universität München, Munich, DE

July 2014

Thesis: The Kerr-Metric: A comprehensive analysis (advisor: H. Lesch)
Overall Grade: 1.3 (GPA 3.7)

SELECTED PUBLICATIONS

For an up-to-date list you can head over to ADS [here](#).

Journal Articles (First/Lead author)

- 1 **Porth, L.**, & Smith, R. E. (2021). Fast estimation of aperture-mass statistics - II. Detectability of higher order statistics in current and future surveys. *Monthly Notices of the Royal Astronomical Society*, 508(3), 3474–3494. [🔗https://doi.org/10.1093/mnras/stab2819](https://doi.org/10.1093/mnras/stab2819)
- 2 **Porth, L.**, Smith, R. E., Simon, P., Marian, L., & Hilbert, S. (2020). Fast estimation of aperture mass statistics - I. Aperture mass variance and an application to the CFHTLenS data. *Monthly Notices of the Royal Astronomical Society*, 499(2), 2474–2492. [🔗https://doi.org/10.1093/mnras/staa2900](https://doi.org/10.1093/mnras/staa2900)

Submitted

- 1 **Porth, L.**, Bernstein, G. M., Smith, R. E., & Lee, A. J. (2021). *The Information Content of Projected Galaxy Fields*. arXiv: [2111.13702](https://arxiv.org/abs/2111.13702) [[astro-ph.CO](#)].

SELECTED TALKS AND POSTER PRESENTATIONS

- 10/2022 **University of Hull**, *KiDS Collaboration*, Hull, UK.
"Efficient Estimation of Third Order Shear Correlation Functions"
- 01/2022 **University of Chicago**, *KICP lunch discussion*, Chicago, IL (virtual).
"The Information Content of Projected Galaxy Fields "
- 11/2021 **University of Bonn**, *AIFA Lens Seminar*, Bonn, DE (virtual).
"Fast and Efficient Estimators for Weak Lensing Surveys"
- 07/2021 **University of Munich**, *USM Cosmomlogy Journal Club*, Bonn, DE (virtual).
"Fast Estimation of Aperture Mass Statistics"
- 12/2020 **Euclid Consortium**, *Euclid UK Meeting* (virtual).
"Fast and Efficient Estimators for Weak Lensing Surveys"
- 11/2020 **University of Sussex**, *Extragalactic Seminar*, Brighton, UK (virtual).
"Fast and Efficient Estimators for Weak Lensing Surveys"
- 11/2020 **University of Portsmouth**, *South Coast Cosmology*, Portsmouth, UK (virtual).
"Fast and Efficient Estimators for Weak Lensing Surveys"
- 02/2020 **University of Sussex**, *Extragalactic Seminar* .
"Bayesian Mass Reconstruction"
- 07/2018 **University College London**, *STFC Summer School*, London, UK.
Poster presentation on "Weak Gravitational Lensing"
- 05/2018 **University of Sussex**, *Extragalactic Seminar* (virtual).
"Weak Gravitational Lensing"

SELECTED CONFERENCES/MEETINGS ATTENDED

- 10/2022 **KiDS Collaboration Meeting**
University of Hull, Hull, UK
- 04/2022 **Euclid Consortium Meeting**
Oslo Conference Center, Oslo, NO
- 11/2020 **South Coast Cosmology**
University of Portsmouth, Portsmouth, UK
- 10/2018 **LSST sprint week**
Royal Observatory Edinburgh, Edinburgh, UK
- 05/2018 **Statistical Challenges in 21st Century Cosmology**
University of Valencia, Valencia, ES
- 04/2018 **Statistical Challenges for Large-Scale Structure in the era of LSST**
University Of Oxford, Oxford, UK

OUTREACH

- since 2022 **Astronomy on Tap Bonn**
Organising monthly outreach events for Astronomy on Tap in Bonn
- 10/2022 **Astro-Club**, talk on Gravitational Lensing (*in german*)
"Gravitationslinsen"
- 03/2022 **Astronomy on Tap Bonn**, outreach talk on Gravitational Lensing (*in german*)
"Von krummen Lichtstrahlen zur dunklen Seite des Universums"

TEACHING EXPERIENCE

AT work at Sussex	2017/2018	Thermal and Statistical Physics
	2018/2019	Properties of Matter
	2018/2019	Our Place in the Universe
	2019/2020	Mathematical Methods 3
Private Tutoring	2015-2017	For undergraduate students in Physics and Mathematics degrees
Commercial Tutoring	2015-2017	Private tutoring and workshops for intermediate sized groups (Company: Lernerfolg3)

SKILLS

Languages	German	Mother Tongue
	English	Fluent
	Spanish	Basic conversation
IT & Programming	Python	Intermediate - advanced usage
	C/C++	Intermediate usage
	Latex	Intermediate usage
	Shell scripting	Basic - intermediate usage
	HPC	Basic - intermediate usage
	SQL	Basic usage
	Git	Basic usage