

LUCAS PORTH

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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

- 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>
- 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>

Submitted

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

SELECTED TALKS AND POSTER PRESENTATIONS

01/2022	University of Chicago , <i>KICP lunch discussion</i> , Chicago, IL (virtual). <i>"The Information Content of Projected Galaxy Fields"</i>
11/2021	University of Bonn , <i>AlfA Lens Seminar</i> , Bonn, DE (virtual). <i>"Fast and Efficient Estimators for Weak Lensing Surveys"</i>
12/2020	Euclid consortium , <i>Euclid UK Meeting</i> (virtual). <i>"Fast and Efficient Estimators for Weak Lensing Surveys"</i>
11/2020	University of Sussex , <i>Extragalactic Seminar</i> , Brighton, UK (virtual). <i>"Fast and Efficient Estimators for Weak Lensing Surveys"</i>
11/2020	University of Portsmouth , <i>South Coast Cosmology</i> , Portsmouth, UK (virtual). <i>"Fast and Efficient Estimators for Weak Lensing Surveys"</i>
02/2020	University of Sussex , <i>Extragalactic Seminar</i> . <i>"Bayesian Mass Reconstruction"</i>
07/2018	University College London , <i>STFC Summer School</i> , London, UK. <i>Poster presentation on "Weak Gravitational Lensing"</i>
05/2018	University of Sussex , <i>Extragalactic Seminar</i> (virtual). <i>"Weak Gravitational Lensing"</i>

SELECTED CONFERENCES/MEETINGS ATTENDED

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

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