

LUCAS PORTH

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

✉ [Mail](#) 🖥 [Website](#) 🔗 [Code](#)

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 *since September 2021*
Postdoctoral researcher

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)

Gymnasium Gröbenzell, Gröbenzell *July 2011*
German Abitur (IB equivalent)
Overall Grade: 1.3 (A)

PUBLICATIONS

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

First Autor

3. **L. Porth**, S. Heydenreich, P. Burger, L. Linke, P. Schneider, *Astronomy & Astrophysics* **689**, A227 (Sept. 2024).
9. **L. Porth**, G. M. Bernstein, R. E. Smith, A. J. Lee, *Monthly Notices of the Royal Astronomical Society* **518**, 3344–3356 (Jan. 2023).
10. **L. Porth**, R. E. Smith, *Monthly Notices of the Royal Astronomical Society* **508**, 3474–3494 (Dec. 2021).
11. **L. Porth**, R. E. Smith, P. Simon, L. Marian, S. Hilbert, *Monthly Notices of the Royal Astronomical Society* **499**, 2474–2492 (Dec. 2020).

Substantial Contributions

1. R. Reischke, ..., **L. Porth**, et al., *submitted to Astronomy & Astrophysics*, arXiv:2409.17377 (Oct. 2024).
6. P. A. Burger, **L. Porth**, et al., *Astronomy & Astrophysics* **683**, A103 (Mar. 2024).
8. Euclid Collaboration, V. Ajani, ..., **L. Porth**, et al., *Astronomy & Astrophysics* **675**, A120 (July 2023).

Minor Contributions

2. H. Johnston, ..., **L. Porth**, et al., *submitted to Astronomy & Astrophysics*, arXiv:2409.17377 (Sept. 2024).
4. A. H. Wright, ..., **L. Porth**, et al., *Astronomy & Astrophysics* **686**, A170 (June 2024).
5. Euclid Collaboration, Y. Mellier, ..., **L. Porth**, et al., *submitted to Astronomy & Astrophysics*, arXiv:2405.13491 (May 2024).
7. L. Linke, ..., **L. Porth**, et al., *Astronomy & Astrophysics* **681**, A33 (Jan. 2024).

SELECTED TALKS AND POSTER PRESENTATIONS

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| 12/2023 | University of Innsbruck , <i>Astrophysics and Cosmology seminar</i> , Innsbruck, AT.
<i>"Efficient Estimation of Higher-Order Cosmic Shear Statistics"</i> |
| 01/2023 | DESC Collaboration , <i>Forward Modelling WG</i> (virtual).
<i>"The Information Content of Projected Galaxy Fields "</i> |
| 10/2022 | University of Hull , <i>KiDS Collaboration</i> , Hull, UK.
<i>"Efficient Estimation of Third Order Shear Correlation Functions"</i> |
| 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>AIa Lens Seminar</i> , Bonn, DE (virtual).
<i>"Fast and Efficient Estimators for Weak Lensing Surveys"</i> |
| 07/2021 | University of Munich , <i>USM Cosmomlogy Journal Club</i> , Bonn, DE (virtual).
<i>"Fast Estimation of Aperture Mass Statistics"</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

06/2024	Euclid Consortium Meeting Sapienza University of Rome, Rome, IT
02/2024	Euclid Consortium WLSWG and OU Shear Meeting University of Innsbruck, Innsbruck, AT
06/2023	Euclid Consortium Meeting CPH Conference, Copenhagen, DK
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 (<i>virtual</i>) 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 <i>General event organization, bookkeeping, moderation.</i>
11/2024	Astronomy on Tap Bonn , outreach talk on Cosmology (<i>in german</i>) <i>"Ein Bissen Kosmologie: Wie bestimmen wir die Zutaten des Kosmos?"</i>
10/2024	jDPG Meeting , invited talk on Gravitational Lensing (<i>in german</i>) <i>"Von krummen Lichtstrahlen zur dunklen Seite des Universums"</i>
05/2023	Unbiased Cosmology , talk on challenges of the Λ CDM model <i>"Our Standard Model: Current Challenges"</i>
10/2022	Astro-Club , talk on Gravitational Lensing (<i>in german</i>) <i>"Gravitationslinsen"</i>
03/2022	Astronomy on Tap Bonn , outreach talk on Gravitational Lensing (<i>in german</i>) <i>"Von krummen Lichtstrahlen zur dunklen Seite des Universums"</i>

TEACHING EXPERIENCE

AT work at Bonn	2023/2024	Cosmology
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)

SUPERVISION

J. Muench: Mass Reconstruction for Cosmic Shear Surveys <i>University of Bonn, Bachelor thesis</i>	<i>since 12/2024</i>
M. Larma: The Effect of Inhomogeneous Source Distributions on the Covariance of Second-Order Shear Correlation Functions <i>University of Bonn, Master Thesis</i>	<i>since 10/2024</i>
M. Larma: The Covariance of Fourth-Order Aperture Statistics <i>University of Bonn, Internship</i>	<i>05/2024-08/2024</i>
J. Oel: Galaxy-Galaxy-Galaxy-Galaxy-Lensing <i>University of Bonn, Master thesis</i>	<i>since 02/2024</i>
E. Silvestre-Roselló: Fourth-Order Aperture Statistics <i>University of Bonn, Master thesis</i>	<i>12/2023-09/2024</i>
S. Hegenbarth: The Impact of Masking on the Covariance of Cosmic Shear Statistics <i>University of Bonn, Bachelor thesis</i>	<i>04/2023-09/2023</i>
7 Master Students: Presentation of scientific papers <i>University of Bonn, AstroSem</i>	<i>since 2022</i>

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