

CONTACT INFORMATION

<i>Institute</i>	Institute for Astronomy (IfA), University of Edinburgh
<i>Address</i>	The Royal Observatory, Blackford Hill, Edinburgh EH9 3HJ
<i>Email</i>	sam.brieden@roe.ac.uk
<i>Website</i>	https://SamuelBrieden.github.io/
<i>ORCID</i>	https://orcid.org/0000-0003-3896-9215

RESEARCH INTERESTS

Cosmology: large-scale structure, galaxy surveys, gravitational lensing, dark energy and dark matter, relativistic effects, primordial non-Gaussianity, neutrino physics, non-linear structure formation, halo model, cosmological tensions, model-agnostic data analysis, blinding methods.

ACADEMIC POSITIONS

Postdoctoral Research Associate **October 2022 - present**
University of Edinburgh

- Line Manager: Prof. Florian Beutler
- Institute: Institute for Astronomy, Royal Observatory Edinburgh

EDUCATION

Ph.D. in Physics **October 2018 - September 2022**
University of Barcelona

- Thesis: From the Precision Era towards the Accuracy Era of Cosmology with DESI (excellent *Summa Cum Laude*)
- Advisors: Dr. Héctor Gil-Marín and Prof. Licia Verde
- Institute: Quantum Physics and Astrophysics Department, Institute of Cosmos Sciences

MSc. Physics **October 2016 - September 2018**
RWTH Aachen University

- Thesis: Accurate Non-Linear Corrections Including Baryonic Feedback in Boltzmann Codes
- Advisors: Dr. Maria Archidiacono and Prof. Julien Lesgourgues
- Institute: Institute for theoretical particle physics and cosmology

Exchange Student **October 2016 - March 2017**
Autonomous University of Madrid

- Erasmus scholarship at Institute of theoretical physics
- Participation in master courses of cosmology, astronomy and particle physics.

BSc. Physics **October 2012 - September 2016**
RWTH Aachen University

- Thesis: Dark Matter Constraints from AMS-02 Antiprotons
- Advisors: Dr. Alessandro Cuoco and Prof. Julien Lesgourgues
- Institute: Institute for theoretical particle physics and cosmology

AWARDS AND GRANTS

Spanish Astronomy Society Thesis Prize **2023**
For the best Doctoral Thesis of the year in Astronomy and Astrophysics in Spain.

La Caixa doctoral fellowship **2018**
Granted in context of the la Caixa Junior Leader fellowship by Héctor Gil Marín.

COLLABORATION MEMBERSHIP

Dark Energy Spectroscopic Instrument (DESI) **October 2018 - present**

Euclid Consortium **June 2023 - present**

OUTREACH ACTIVITIES

- Member (2021-2024) and Co-chair (2023-2024) of the DESI Education and Public Outreach Committee (2023-2024). Handling DESI social media accounts (2021-2024). Written Blog article about DESI ambassador BaoBan (May 2023).
- “Astronomy for All” Outreach talk at Royal Observatory Edinburgh on “The universe in a soup bowl”. (March 2024)
- Coordinated German translation of DESI planetarium film “5000 Eyes” (Feb. 2023).
- Volunteering work at Royal Observatory Edinburgh Open Days (Sep. 2023) and at primary school with mobile planetarium of the ROE visitor’s center (March 2023).
- Participation in artistic project “The ends of everythings” in collaboration with the ICC and artist Andy Gracie (2021-2022).

SERVICE

- Referee for *Monthly Notices of the Royal Astronomical Society* (MNRAS), the *Journal of Cosmology and Astroparticle Physics* (JCAP), and for the *Astrophysical Journal* (ApJ) of the American Astronomical Society (AAS).
- Co-organizer of “Theoretical Modeling of Large-Scale Structure of the Universe” workshop at The Higgs Centre for Theoretical Physics, Edinburgh, UK (June 2024).

MENTORING

- Marnix Looijmans, graduate student at University of Edinburgh, Mphys project “*Testing the halo model in 1D and 2D*”, (September 2023 - May 2024)
- Sophia Schubert, undergraduate student at University of Edinburgh, summer project “*The universe in a soup plate*”, (June 2023 - August 2023)

SKILLS

Languages German (native), English (fluent), Spanish (fluent)

Programming PYTHON, C, C++, FORTRAN, MATLAB, MATHEMATICA

INVITED TALKS AND CONFERENCE CONTRIBUTIONS

1. Invited seminar talk at Universität Zürich - *“From the precision era towards the accuracy era of cosmology with DESI”* - July 2024.
2. Invited talk at SEA 2024 meeting in Granada - *“From the Precision Era, towards the Accuracy Era of Cosmology with DESI. Premio tesis SEA 2023, modalidad Astrofísica (ex aequo)”* - July 2024.
3. Invited talk at Early Universe and AliCPT Forum - *“A tale of two (or more) h 's”* - October 2023.
4. Invited talk at CosmoPalooza virtual webinar - *“DESI: Cosmology beyond BAO on large scales”*, recording available on YouTube - October 2023.
5. Invited talk at EAS 2023 conference within Session S10c - Kraków - *“Cosmology with the Dark Energy Spectroscopic Instrument (DESI)”* - July 2023.
6. Invited talk - University College London - *“A tale of two (or more) h 's”* - May 2023.
7. Invited seminar talk - Institut d'Astrophysique de Paris, Sorbonne Université - *“A tale of two (or more) h 's”* - March 2023.
8. Contributed talk at DEX-XIX Workshop - University of Edinburgh - *“A tale of two (or more) h 's”* - January 2023.
9. Contributed talk at Essential Cosmology for the Next Generation conference - Cancún (Mexico) - *“From the Precision Era towards the Accuracy Era of Cosmology with DESI”* - December 2022.
10. Contributed talk at “Cosmology from Home” conference with Héctor Gil-Marín - *“Model-agnostic interpretation of 10 billion years of cosmic evolution traced by BOSS and eBOSS data”* - pre-recorded talk available on YouTube - July 2022.
11. Plenary talk (virtual) at DESI Collaboration Meeting - Berkeley Lab - *“Re analysis of BOSS and eBOSS data including the Shape information”* - June 2022.
12. Contributed talk at IberiCOS conference - Universidad Autónoma de Barcelona - *“Bridging the divide between theoretical and observational cosmology: ShapeFit results from the BOSS+eBOSS legacy.”* - May 2022.
13. Invited talk (virtual) - University of Edinburgh, Royal Observatory Edinburgh - *“ShapeFit. Model-independent versus model-dependent interpretation of galaxy power spectra: Bridging the divide”* - November 2021.
14. Poster (virtual) at Cosmo'21 conference - University of Illinois - *“Model independent vs Model dependent Interpretation of galaxy power spectra”* - August 2021.
15. Invited talk (virtual) - Universidad Nacional Autónoma de México (UNAM), *“ShapeFit: Bridging the divide between model-independent vs. model-dependent interpretation of galaxy power spectra”* - June 2021.
16. Invited talk (virtual) - University of Milan, *“HMcode-2020: Improved modelling of non-linear cosmological power spectra with baryonic feedback.”* - November 2020.
17. Invited talk (virtual) - Euclid Collaboration meeting - *“Blinding redshift surveys at the catalog level”* - February 2020
18. Invited talk (virtual) - Universidad Nacional Autónoma de México (UNAM) - *“Cosmology with CLASS.”* - December 2019.