

STORM COLLOMS

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EDUCATION

University of Glasgow, PhD Student **Oct 2022-Current**

- Understanding the Populations of Compact Objects with Gravitational Wave Detections and Machine Learning
- Supervisors: Christopher Berry and John Veitch
- Funded by the STFC

University of Edinburgh, MPhys in Astrophysics (first class) **Sept 2017-May 2022**

PUBLICATIONS

Exploring the evolution of gravitational-wave emitters with efficient emulation: Constraining the origins of binary black holes using normalising flows

S. Colloms, C. P. L. Berry, J. Veitch, and M. Zevin (2025) Submitted to ApJ, arXiv:2503.03819

Communicating the gravitational-wave discoveries of the LIGO-Virgo-KAGRA Collaboration

H. Middleton, C. P. L. Berry, et al. (incl. **S. Colloms**) (2024) JCOM 23(07), N03. arXiv:2407.18638

AWARDS AND FUNDING

STFC Long Term Attachment 2024, awarded for 4 month trip to Northwestern University.

MacRobertson Travel Scholarship 2024, awarded additional funding to supplement Long Term Attachment.

Institute of Physics Research Student Conference Fund 2023, awarded contribution towards travel expenses for Gravitational-wave populations: what's next?

STFC Scholarship 2022-2026

PRESENTATIONS

- ‘Normalising Flows for Data Inference’ (tutorial); **Challenges and future perspectives in GW astronomy: O4 and beyond**, 17th October 2024
- ‘Normalising Flows and their Applications to Population Inference’; **CITA group meeting**, 26th June 2024
- ‘Can Heavy Primary Black Holes Pair with Light Secondary Black Holes?’; **Chicagoland LVK meeting**, 13th May 2024
- ‘Uncovering the Origins of Binary Black Holes with Normalising Flows’; **Caltech LIGO Lab Seminars**, 12th April 2024
- ‘Uncovering the Origins of Binary Black Holes with Normalising Flows’; **APS April meeting**, 4th April 2024
- ‘Highlighting the Humans Behind the LIGO Collaboration’; **APS April meeting**, 3th April 2024
- ‘Inferring the Origins of Binary Black Holes with Machine Learning’; **SUPA Cormack Astronomy Meeting**, 5th December 2023

- ‘Emulating Stellar-Mass Compact Object Populations with Machine Learning’; **West Virginia University Journal Club**, 20th October 2023
- ‘Emulating Synthesised Populations of BBHs with Neural Networks’; **Gravitational-wave populations: what’s next?**, 10th-14th July 2023
- ‘Emulating Gravitational Wave Populations with Neural Networks’; **BritGrav**, 13th-14th April 2023

OTHER RESEARCH EXPERIENCE

MPhys Project: The Statistical Nature of Quasar Variability **Sept 2021-April 2022**
 Supervisor: Prof Andy Lawrence

LIGO SURF 2021: Searching for Sub-threshold Lensed Gravitational Waves **June-Aug 2021**
California University of Technology
 Supervisors: Prof Alan Weinstein and Dr Alvin Li

UTRIP: The Effect of Planet-Planet Tides on 2-planet Scattering Events **June-Aug 2019**
University of Tokyo
 Supervisors: Prof Michiko Fujii and Dr Alessandro Alberto Trani

TEACHING

Graduate Student Demonstrator, University of Glasgow

- Astronomy 1 (2023-Present), 1st year tutorial class. Aided first year undergraduate astronomy students with weekly problem sets and marked weekly assignments.
- Exploring the Cosmos (2022-23), 1st year lecture class. Facilitated technical set-up and engaged with questions from students.

Tutorials

- [An interactive guide to Conditional Normalising Flows](#), Introduction to Machine Learning Series at University of Glasgow, 28/11/2023

Mentorship

- Worked with Master’s student to generate population of GW signals for Gravity Spy (2023-2024)
- Mentor for LSC Mentorship Program (2023-2024)

PUBLIC AND ACADEMIC ENGAGEMENT

[Astrobites](#) Author (2023-2025)

- Wrote and edited astrophysics paper summaries written at undergraduate level as part of a collaboration of global astrophysics graduate students.

Illustrator and Editor for [LIGO magazine](#) (2023-Present)

- Illustrated of several graphics per issue since magazine issue 22.
- Provided direction for article ideas and edited several articles per issue.

Lead curator of [Humans of LIGO](#) (2023-Present)

- Identified interested participants and held interviews from which to highlight the personal experiences of LIGO collaboration members in a short blog post.

Science Outreach Events and Festivals

- Glasgow Science Lates (Oct 2024)
- Tactile Universe visit to Uddingston Grammar School (March 2024)
- Glasgow Explorathon (June 2023)
- Outreach Event at Cardonald Primary School (3rd May, 2nd June 2023)

COMMITTEES

Astrobites DEI Committee (2023-2025)

- Engaged in a subgroup of Astrobites writers to write posts focusing on equality, diversity and inclusion issues.

LIGO magazine editorial Committee (2023-Present)

- Collaborated with the editorial committee to come up with ideas for new issues, follow up with potential authors, and edit articles for publication.

AFFILIATIONS

- American Physical Society, member
- Institute of Physics, associate member
- LIGO-Virgo-KAGRA (LVK) Collaboration member since 2021

OTHER SKILLS

Programming Skills Languages

Python (numpy, pandas, bilby, matplotlib), git, LaTeX, HTML, CSS
English (native), Japanese (conversational), several words in many others