

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 University of Glasgow (STFC scholarship)

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

- Master's Thesis: Modelling Quasar Variability with Shot Noise
- Key modules: General Relativity, Stellar Evolution, Astrophysics, Radiation Processes in Astrophysics, multiple courses using Python.
- Undertook additional research projects in observational astronomy and exoplanet characterisation.
- Completed a year abroad at Waseda University 2019-2020 (Tokyo, Japan).

Hyndland Secondary School **Aug 2011-June 2017**

- 3 Advanced Highers at grade A, 6 Highers at grade A

RESEARCH EXPERIENCE

LIGO SURF 2021: Searching for Sub-threshold Lensed Gravitational Waves **June-Aug 2021**
California University of Technology

Supervisors: Prof Alan Weinstein and Alvin Li

- Refined the GstLAL search pipeline for sub-threshold lensed gravitational waves, introducing a modification to target the search according to the sky location of a super-threshold target event.
- Delivered regular presentations and wrote interim and final reports, while learning about other areas of gravitational wave physics and astrophysics in weekly talks and through my fellow interns' projects.

MPhys Project: The Statistical Nature of Quasar Variability **Sept 2021-April 2022**

Supervisor: Prof Andy Lawrence

- Simulated statistical models of optical quasar variability using shot noise to compare with UV/optical data and constrain the statistical parameters of the noise.
- Demonstrated a strong case for multiple timescales present in the data, constraining physical explanations for the variability.

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

- Simulated n-body systems to investigate the impact of tidal forces between 2 Jupiter-sized planets on the formation of the planetary system, to see if this could have an effect on the observed high proportion of Hot-Jupiter planets.

- Analysed the results and found that the planet-planet tidal forces resulted in significantly more collisions, meaning that these forces could have a significant effect on the outcome of planet-planet scattering events.

PUBLICATIONS

Coming Soon...

TEACHING

Graduate Student Demonstrator, University of Glasgow

- Exploring the Cosmos 2022-23, 1st year lecture class. Facilitated technical set-up and engaged with questions from students at the end of lectures in a secondary lecture theatre.

CONFERENCES

Presentations

- ‘Emulating Gravitational Wave Populations with Neural Networks’; **BritGrav**, 13th-14th April 2023
- ‘Emulating Synthesised Populations of BBHs with Neural Networks’; **Gravitational-wave populations: what’s next?**, 10th-14th July 2023

Attendance

- LGBTQ+ in STEM Community and Careers Conference, 18th November 2022
- SUPA Cormack Meeting 17th December 2022
- WiSTEM 2019, Oxford

AFFILIATIONS

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

OTHER SKILLS

Programming Skills	Python (numpy, pandas, bilby, matplotlib), Git, Latex, HTML, CSS
Software	DS9, IRAF, GAIA
Operating Systems	Windows and Linux
Languages	English (native), Japanese (conversational), several words in many others

AWARDS

UKSEDS Diversity & Inclusion Champion of the Year 2019

Pre-Honours Certificate of Merit 2017 and 2018

Hyndland Secondary School Dux 2016

PUBLIC AND ACADEMIC ENGAGEMENT

Astrobites Author (2023-Present) astrobites.org

- Writer and Editor of astrophysics paper summaries at undergraduate level.

Illustrator for LIGO magazine (2023-Present)

Curator of Humans of LIGO (2023-Present)

Mentor for LSC Mentorship Programme (2023-Present)

Outreach Event at Cardonald Primary School - Making a Collage the Spectrogram of a Gravitational Wave (3rd May, 2nd June 2023)

- Coordinated talks and activities at the school focusing on what gravitational waves are and how we detect them.
- Engaged groups of kids aged 8-11 in an activity surrounding curved spacetime and black holes, before returning to the school to facilitate the creation of a gravitational wave mosaic.

Co-leader of School of Physics and Astronomy's LGBTQ+ network, 2021-2022

- Organised fortnightly lunches.
- Set up and moderated an online community chat to create a welcoming community environment.

Edinburgh University Women in STEM Society, Physics Representative 2018/19

- Hosted a series of academic talks, promoting the work of female physicists at Edinburgh.
- Worked as part of a larger committee to host a 24-hour hackathon, encouraging the participation of STEM students with little to no coding experience.