ISOBEL ROMERO-SHAW isobelmarguarethe.github.io/Website

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EMPLOYMENT

2022-	Herchel Smith Research Fellow	*University of Cambridge*
2021-22	Research Fellow, with Prof. Ilya Mandel	*Monash University*
2016–18	Software Engineer/Consultant, Three summer placements, 11 months overall	*Altran Intelligent Systems*
2017	Astrophysics & Space Research Student, Ilya Mandel	*University of Birmingham* Supervisor: Prof.

EDUCATION

NOV. 2018-21	Ph.D.: *Eccentricity in Gravitational-Wave Transients.* Supervisors: Assoc. Prof. Paul Lasky & Prof. Eric Thrane	*Monash University*
2014–18	B.A. and M.Sci. Physics with Honours, Class I, Supervisor: Prof. Andreas Freise	*University of Birmingham* M. Sci.
2013–14	Engineering & Physical Sciences Foundation,	*University of Birmingham*

TALKS

2022	Niels Bohr Institute,	*Conference on Dynamical Binary Black Hole Formation, Invited Talk*
-	Eliiza Artificial Intelligence,	*Invited Talk Co-Presented with Paul Lasky*
2021	Cambridge University,	*DAMTP Group, Invited Talk*
-	Columbia University,	*THEA Group, Contributed Talk*
-	ACAMAR7,	*Conference Talk on behalf of OzGrav*
-	CSIRO Australia Telescope National Facility,	*Invited Seminar*
-	OzGrav Centre of Excellence for Gravitational-Wave Discovery,	*Invited Talk*
-	Oxford University,	*GalNUC Group, Contributed Talk*
-	Massachusetts Institute of Technology,	*Invited Talk*
-	California Institute of Technology,	*TAPIR Group, Invited Seminar*
-	Edoardo Amaldi Conference on Gravitational Waves,	*Conference Talk*
-	Astronomical Society of Australia,	*Conference Talk*
-	Australian National Institute for Theoretical Astrophysics,	*Conference Talk*
-	Royal Astronomical Society Ordinary Meeting,	*Invited Talk*
-	University of Queensland,	*Invited Seminar*
-	Astro3D Centre of Excellence for All Sky Astrophysics in 3D,	*Seminar Series Talk*
2020	OzGrav Centre of Excellence for Gravitational-Wave Discovery,	*Invited Talk*
-	University of Santiago de Compostela,	*Invited Seminar*
-	Australian National Institute for Theoretical Astrophysics,	*Conference Talk*
-	Monash University,	*Invited Seminar*
2019	Astronomical Society of Australia, Awarded "Best Student Talk" for the conference	*Conference Talk.*

PRIZES, AWARDS & SCHOLARSHIPS

2021	Norris Family Award, Awarded for "Outstanding Author Contribution by a Graduate Research Student to a Published Scholarly Research Output"	*Monash University, Faculty of Science.*
2020	Homeward Bound Membership,	*Leadership Initiative for Women in STEMM*
-	Outreach Award,	*OzGrav Centre of Excellence for Gravitational Wave Discovery*
-	ECR Poster Prize,	*Royal Astronomical Society*
2019	Student Poster Award,	*OzGrav Centre of Excellence for Gravitational Wave Discovery*
-	Student Talk Award,	*Astronomical Society of Australia*
2018	J.L. William International Scholarship,	*Monash University, School of Physics and Astronomy*
-	Dean's International Postgraduate Research Scholarship,	*Monash University, Faculty of Science*
-	International Postgraduate Research Scholarship,	*Monash University*
-	Nolan Merril Prize, Awarded for "the highest-scoring M.Sci. project in the School of Physics & Astronomy"	*University of Birmingham.*
-	M.Sci. Poster Prize, School of Physics & Astronomy,	*University of Birmingham*

Academic Service

2020-22	Steering Committee,	*Australian National Institute for Theoretical Astrophysics*
2019-	Referee,	*Physical Review D, Monthly Notices of the Royal Astronomical Society Astrophysical Journal, Astrophysical Journal Letters*
-	Women in Physics & Astronomy Student Co-Chair,	*Monash University*
2018	Board of Misconduct Student Rep.,	*University of Birmingham*

Supervision & Teaching

- ▷ Undergraduate Supervision:
  - Teagan Clarke. Honours Project: *Gravitational Waves from Eccentric Binary Black Holes*
- ▷ Teaching Assistant:
  - ASP1010: Introductory Astronomy
  - ASP2062: Introduction to Astrophysics
  - ASP3162: Computational Astrophysics & the Extreme Universe

Outreach

Publications & Articles

2021	*Women in Physics*, *Colouring book;* co-author, editor, and illustrator
2020	*Planetymology: Why Uranus is not called George and other facts about space and words*, *Children's non-fiction book;* author, editor, and illustrator
-	*The CO2 Elephant in the Room: Curbing the Carbon Footprint of Astronomy*, *Astrobites article*

Talks and Interactive Visits

2022	Casey Tech School
-	Haileybury Middle School
2021	Astronomical Society of Victoria
-	Cambridge Festival (UK)
-	Denver Astronomical Society (US)
2020	Girlguiding (UK)
-	Mount Burnett Observatory
-	OzGrav Public Lecture Series
2019	Mount Burnett Observatory

Media Interviews

Podcasts	*Astrophiz*
-	*Storytellers of STEMM*
-	*Listening to the Cosmos (LIGO India)*
Radio	*Einstein A Go-Go, Triple R*
-	*The Space Show, Southern FM*
Articles	*Space Australia*
-	*Monash University Science*

Public Software Projects

- ▷ MAGIC: Gravitational-wave interferometer noise simulation. pypi.org/project/ifomagic
- ▷ Space Py Quest: Toy model of gravitational-wave interferometer noise profile adjustment & signal detection. github.com/gwoptics/SpacePyQuest, documentation
- ▷ Birds: 3D simulations of birds flocking, fleeing predators and chasing prey. github.com/IsobelMarguarethe/birds

Citation counts on this page are taken from NASA ADS on 20.04.22.

RESEARCH PUBLICATIONS: SHORT-AUTHOR

CITATIONS

[9] When models fail: an introduction to posterior predictive checks and model misspecification in gravitational-wave astronomy — ***IRS***, *P. D. Lasky, E. Thrane.* Accepted for publication in *PASA*, February 2022 — 2

[8] Signs of Eccentricity in Two Gravitational-Wave Signals may Indicate a Sub-Population of Dynamically Assembled Binary Black Holes — ***IRS***, *P. D. Lasky, E. Thrane.* Published in *ApJ Letters*, November 2021 — 13

[7] Implications of Eccentric Observations on Binary Black Hole Formation Channels — *M. Zevin,* ***IRS***, *K. Kremer, E. Thrane, P. D. Lasky.* Published in *ApJ Letters*, November 2021 — 12

[6] Gravitational Waves as a Probe of Globular Cluster Formation and Evolution — ***IRS***, *K. Kremer, P. D. Lasky, E. Thrane, J. Samsing.* Published in *MNRAS*, July 2021 — 4

[5] An Interactive Gravitational-Wave Detector Model for Museums and Fairs — *S. Cooper et al. (incl.* ***IRS****).* Published in *Am. J. Phys.*, July 2021 — 1

[4] GW190521: Orbital Eccentricity and Signatures of Dynamical Formation in a Binary Black Hole Merger Signal — ***IRS***, *P. Lasky, E. Thrane, J. Calderón Bustillo.* Published in *ApJ Letters*, October 2020 — 102

[3] Bayesian Inference for Compact Binary Coalescences with BILBY: Validation and Application to the First LIGO-Virgo Gravitational-Wave Transient Catalogue — ***IRS***, *C. Talbot, S. Biscoveanu, V. D'Emilio, G. Ashton et al.* Published in *MNRAS*, September 2020 — 116

[2] On the origin of GW190425 — ***IRS***, *N. Farrow, S. Stevenson, X-J. Zhu, E. Thrane.* Published in *MNRAS Letters*, May 2020 — 39

[1] Searching for Eccentricity: Signatures of Dynamical Formation in the First Gravitational-Wave Transient Catalogue of LIGO and Virgo — ***IRS***, *P. Lasky, E. Thrane.* Published in *MNRAS*, October 2019 — 63

RESEARCH PUBLICATIONS: COLLABORATION PAPERS

I am an author on LIGO-Virgo-KAGRA (LVK) Collaboration and OzGrav papers. I list here large publications that I have contributed to significantly. To see all papers upon which I am listed as an author, please visit my ADS bibliography.

[5] The Population of Merging Compact Binaries Inferred using Gravitational Waves through GWTC-3 — *The LVK Collaboration (incl.* ***IRS****).* Submitted to *ApJ Letters*, November 2021. Contribution: Internal review of population spin analysis. — 113

[4] GWTC-3: Compact Binary Coalescences Observed by LIGO and Virgo During the Second Part of the Third Observing Run — *The LVK Collaboration (incl.* ***IRS****).* Submitted to *PRX*, November 2021. Contribution: Member of the paper-writing team. Writing, result presentation, analysis. — 268

[3] Population Properties of Compact Objects from the Second LIGO-Virgo Gravitational-Wave Transient Catalog — *The LVK Collaboration (incl.* ***IRS****).* Published in *ApJ Letters*, May 2021. Contribution: Internal review of population spin analysis. — 428

[2] GWTC-2: Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run — *The LVK Collaboration (incl.* ***IRS****).* Published in *PRX*, April 2021. Contribution: Analysis of strain data surrounding one event trigger. — 651

[1] Neutron Star Extreme Matter Observatory: A Kilohertz-Band Gravitational-Wave Detector in the Global Network — *OzGrav: K. Ackley et al. (incl.* ***IRS****).* Published in *PASA*, November 2020. Contribution: Research into efficacy of GW detector network including Australian instrument for observing binary neutron stars. — 62