

ISOBEL ROMERO-SHAW

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HIGHER EDUCATION

Nov. 2018-21	Ph.D. Astrophysics, <i>Monash University</i> . Thesis topic: <i>Eccentricity in Gravitational-Wave Transients</i> . Supervisors: Assoc. Prof. Paul Lasky & Prof. Eric Thrane (expected November 2021)
2014-18	B.A. and M.Sci. Physics with Honours, Class I, <i>University of Birmingham</i> . Thesis topic: <i>Numerical Simulation of Gravitational-Wave Detector Noise Profiles</i> . Supervisor: Prof. Andreas Freise
2013-14	Engineering & Physical Sciences Foundation Year, <i>University of Birmingham</i>

RELEVANT EMPLOYMENT

2018-	Teaching Assistant, <i>Monash University</i>
2016-18	Software Engineer/Consultant, <i>Altran Intelligent Systems</i> . Three summer placements: 2016 (4 months), 2017 (2 months), 2018 (5 months)
2017	Astrophysics & Space Research Student, <i>University of Birmingham</i> . Summer placement. Theme: <i>Competing Models of Stellar Evolution</i> . Supervisor: Prof. Ilya Mandel

TALKS & SEMINARS

2021	CSIRO Australia Telescope National Facility, <i>Invited Seminar</i>
-	OzGrav Centre of Excellence for Gravitational-Wave Discovery, <i>Invited Talk</i>
-	Oxford University, <i>GalNUC Group, Contributed Talk</i>
-	Massachusetts Institute of Technology, <i>Invited Talk</i>
-	California Institute of Technology, <i>TAPIR Group, Invited Seminar</i>
-	Edoaro Amaldi Conference on Gravitational Waves, <i>Conference Talk</i>
-	Astronomical Society of Australia, <i>Conference Talk</i>
-	Australian National Institute for Theoretical Astrophysics, <i>Conference Talk</i>
-	Royal Astronomical Society Ordinary Meeting, <i>Invited Talk</i>
-	University of Queensland, <i>Invited Seminar</i>
-	Astro3D Centre of Excellence for All Sky Astrophysics in 3 Dimensions, <i>Seminar Series Talk</i>
2020	OzGrav Centre of Excellence for Gravitational-Wave Discovery, <i>Invited Talk</i>
-	University of Santiago de Compostela, <i>Invited Seminar</i>
-	Australian National Institute for Theoretical Astrophysics, <i>Conference Talk</i>
-	Monash University, <i>Invited Seminar</i>
2019	Astronomical Society of Australia, <i>Conference Talk</i> . Awarded “Best Student Talk” prize for the conference

PRIZES, AWARDS & SCHOLARSHIPS

2021	Norris Family Award, <i>Monash University, Faculty of Science</i> . Awarded for “Outstanding Author Contribution by a Graduate Research Student to a Published Scholarly Research Output”
2020	Homeward Bound Membership, <i>Transformational Leadership Initiative for Women in STEMM</i>
-	Outreach Award, <i>OzGrav Centre of Excellence for Gravitational Wave Discovery</i>
-	ECR Poster Prize, <i>Royal Astronomical Society</i>
2019	Student Poster Award, <i>OzGrav Centre of Excellence for Gravitational Wave Discovery</i>
-	Student Talk Award, <i>Astronomical Society of Australia</i>
2018	J.L. William International Scholarship, <i>Monash University</i>

PRIZES, AWARDS & SCHOLARSHIPS - CONT.

- RTP International Postgraduate Research Scholarship, *Monash University*
- Nolan Merril Prize, *University of Birmingham*. Awarded for “the highest-scoring M.Sci. project in the School of Physics & Astronomy”
- M.Sci. Student Poster Prize, School of Physics & Astronomy, *University of Birmingham*

ACADEMIC SERVICE

- 2020- Steering Committee Member, *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

- 2020 *Planetymology: Why Uranus is not called George and other facts about space and words*, *Children’s book*, etymology, ancient history and astronomy
- 2020 *The CO2 Elephant in the Room: Curbing the Carbon Footprint of Astronomy*, *Astro-bites article*

Talks

- 2021 Royal 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

RESEARCH PUBLICATIONS: SHORT-AUTHOR

- [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
- [7] [Implications of Eccentric Observations on Binary Black Hole Formation Channels](#) — *M. Zevin, IRS, K. Kremer, E. Thrane, P. D. Lasky*. Accepted for publication in *ApJ Letters*, October 2021
- [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
- [5] [An Interactive Gravitational-Wave Detector Model for Museums and Fairs](#) — *S. Cooper et al. (incl. IRS)*. Published in *Am. J. Phys.*, July 2021
- [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
- [3] [Bayesian Inference for Compact Binary Coalescences with BILBY: Validation and Application to the Lead LIGO-Virgo Gravitational-Wave Transient Catalogue](#) — **IRS**, *C. Talbot, S. Biscoveanu, V. D'Emilio, G. Ashton et al.* Published in *MNRAS*, September 2020
- [2] [On the origin of GW190425](#) — **IRS**, *N. Farrow, S. Stevenson, X-J. Zhu, E. Thrane*. Published in *MNRAS Letters*, May 2020
- [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

RESEARCH PUBLICATIONS: COLLABORATION PAPERS

I am an author on many LIGO-Virgo-KAGRA Collaboration papers and OzGrav papers. I list here collaboration publications that I have contributed to significantly in writing and analysis. 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 LIGO-Virgo-KAGRA Collaboration (incl. IRS)*. Submitted for publication in *ApJ Letters*, November 2021
- [4] [GWTC-3: Compact Binary Coalescences Observed by LIGO and Virgo During the Second Part of the Third Observing Run](#) — *The LIGO-Virgo-KAGRA Collaboration (incl. IRS as a member of the paper-writing team)*. Submitted for publication in *PRX*, November 2021
- [3] [Population Properties of Compact Objects from the Second LIGO-Virgo Gravitational-Wave Transient Catalog](#) — *The LIGO-Virgo-KAGRA Collaboration (incl. IRS)*. Published in *ApJ Letters*, May 2021
- [2] [GWTC-2: Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run](#) — *The LIGO-Virgo-KAGRA Collaboration (incl. IRS)*. Published in *PRX*, April 2021
- [1] [Neutron Star Extreme Matter Observatory: A Kilohertz-Band Gravitational-Wave Detector in the Global Network](#) — *The OzGrav Collaboration: K. Ackley et al. (incl. IRS)*. Published in *PASA*, November 2020