

# ISOBEL ROMERO-SHAW

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## HIGHER EDUCATION

- Nov. 2018-21 **PhD Astrophysics**, MONASH UNIVERSITY. Thesis title: *Eccentricity in Gravitational-Wave Transients*. Supervisors: Assoc. Prof. Paul Lasky & Prof. Eric Thrane (expected Nov. 2021)
- 2014-18 **M.Sci. Physics with Honours, Class I**, UNIVERSITY OF BIRMINGHAM. Supervisor: Prof. Andreas Freise
- 2013-14 **Engineering & Physical Sciences Foundation Year**, UNIVERSITY OF BIRMINGHAM

## RELEVANT EMPLOYMENT

- Nov. 2018- **Teaching Assistant** MONASH UNIVERSITY
- 2016-18 **Software Engineer/Consultant**, ALTRAN INTELLIGENT SYSTEMS. Summer work
- 2017 **Astrophysics & Space Research Student**, UNIVERSITY OF BIRMINGHAM. Summer placement. Supervisor: Prof. Ilya Mandel

## PRIZES, AWARDS & SCHOLARSHIPS

- 2020-23 **Homeward Bound Membership** TRANSFORMATIONAL LEADERSHIP INITIATIVE FOR WOMEN IN STEMM
- 2020 **Outreach Award** OZGRAV CENTRE OF EXCELLENCE FOR GRAVITATIONAL WAVE DISCOVERY
- 2020 **Early Career Researcher Poster Prize** ROYAL ASTRONOMICAL SOCIETY
- 2019 **Student Poster Award** OZGRAV CENTRE OF EXCELLENCE FOR GRAVITATIONAL WAVE DISCOVERY
- 2019 **Student Talk Award** ASTRONOMICAL SOCIETY OF AUSTRALIA
- 2018-21 **J.L. William International Scholarship** MONASH UNIVERSITY
- 2018-21 **RTP International Postgraduate Research Scholarship** MONASH UNIVERSITY
- 2018-21 **Dean's Postgraduate Research Scholarship** MONASH UNIVERSITY FACULTY OF SCIENCE
- 2018 **Nolan Merrill Prize** UNIVERSITY OF BIRMINGHAM, awarded for highest-scoring Physics & Astronomy MSci project
- 2018 **MSci Student Poster Prize, School of Physics & Astronomy** UNIVERSITY OF BIRMINGHAM

## RESEARCH PUBLICATIONS

I list here academic papers to which I (**IRS**) have contributed significantly. For a full list including LIGO-Virgo collaboration papers, please see my [Google Scholar](#) profile.

- 2021 **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. Submitted to *ApJ Letters*
- 2021 **Implications of Eccentric Observations on Binary Black Hole Formation Channels** — M. ZEVIN, IRS, K. KREMER, E. THRANE, P. D. LASKY. Submitted to *Physical Review Letters*.
- 2020 **Gravitational Waves as a Probe of Globular Cluster Formation and Evolution** — IRS, K. KREMER, P. D. LASKY, E. THRANE, J. SAMSING. Published in *MNRAS*
- 2020 **GW190521: Orbital Eccentricity and Signatures of Dynamical Formation in a Binary Black Hole Merger Signal** — IRS, P. LASKY, E. THRANE, J. CALDERON BUSTILLO. Published in *ApJ Letters*
- 2020 **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*
- 2020 **On the origin of GW190425** — IRS, N. FARROW, S. STEVENSON, X-J. ZHU, E. THRANE. Published in *MNRAS Letters*
- 2019 **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*

## TALKS & SEMINARS

- 2021 **CSIRO Australia Telescope National Facility**, INVITED SEMINAR
- 2021 **Massachusetts Institute of Technology**, INVITED TALK
- 2021 **California Institute of Technology**, INVITED SEMINAR
- 2021 **Edoardo Amaldi Conference on Gravitational Waves**, CONFERENCE TALK
- 2021 **Astronomical Society of Australia**, CONFERENCE TALK
- 2021 **Australian National Institute for Theoretical Astrophysics**, CONFERENCE TALK
- 2021 **Royal Astronomical Society Ordinary Meeting**, INVITED TALK
- 2021 **University of Queensland**, INVITED SEMINAR
- 2021 **Astro3D Centre of Excellence for All Sky Astrophysics in 3 Dimensions**, SEMINAR SERIES TALK
- 2020 **University of Santiago de Compostela** INVITED SEMINAR
- 2020 **Australian National Institute for Theoretical Astrophysics**, CONFERENCE TALK
- 2020 **Monash University**, INVITED SEMINAR
- 2019 **Astronomical Society of Australia**. CONFERENCE TALK, awarded “Best Student Talk” prize for the conference

## SUPERVISION & TEACHING

- **Final-year 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

## ACADEMIC SERVICE

- 2020- **Steering Committee Member**, AUSTRALIAN NATIONAL INSTITUTE FOR THEORETICAL ASTROPHYSICS Services include co-organising yearly ANITA summer school and conference
- 2019- **Reviewer**, ASTROPHYSICAL JOURNAL, ASTROPHYSICAL JOURNAL LETTERS, MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, PHYSICAL REVIEW D
- 2019-21 **Women in Physics and Astronomy Student Co-Chair**, MONASH UNIVERSITY
- 2019-21 **Optics Society of Australia Chapter Treasurer**, MONASH UNIVERSITY
- 2018 **Board of Misconduct Student Representative**, UNIVERSITY OF BIRMINGHAM

## PUBLIC SOFTWARE PROJECTS

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

## 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***, ASTROBITES ARTICLE

### Public Talks

- 2021 **Cambridge Festival (UK); Denver Astronomical Society (US)**
- 2020 **Girlguiding (UK); Mount Burnett Observatory; OzGrav Public Lecture Series**
- 2019 **Mount Burnett Observatory**

### Media Interviews

- 2021 **Podcasts** ASTROPHIZ; STORYTELLERS OF STEMM; LISTENING TO THE COSMOS (LIGO INDIA)
- 2021 **Radio** EINSTEIN A GO-GO, TRIPLE R; THE SPACE SHOW, SOUTHERN FM