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EMPLOYMENT

2022-	Herchel Smith Research Fellow	University of Cambridge
2021-22	Research Fellow	Monash University
2016-18	Summer Intern '16 & '17, Software Engineer/Consultant '18	Altran Intelligent Systems

EDUCATION

Nov. 2018-21	Ph.D.: <i>Eccentricity in Gravitational-Wave Transients</i> . 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

INVITED TALKS

2024	University of Cambridge, Kavli Institute for Cosmology	Seminar
-	University of Wisconsin-Milwaukee	Seminar
2023	COSMO'23, Madrid, Instituto de Física Teórica	Plenary talk
-	Gravity Exploration Centre, Cardiff University	Seminar
-	Albert Einstein Institute, Max Planck Institute, Potsdam	Seminar
-	CIERA, Northwestern University	Seminar
-	Queen Mary University of London	Seminar
-	National Observatory (Brazil)	Webinar
2022	GWPAW 2022	Conference Talk & Panel Discussion
-	University of Cambridge	(Data Intensive Science, Cosmology, KICC Frontiers) Seminars
-	University of Amsterdam	Anton Pannekoek Institute Colloquium
-	University of Warwick	National Astronomy Meeting (UK)
-	Niels Bohr Institute	Conference on Dynamical Binary Black Hole Formation
-	Eliiza Artificial Intelligence	(Co-Presented with Paul Lasky) Seminar
-	CSIRO Australia Telescope National Facility	Seminar
-	OzGrav Centre of Excellence for Gravitational-Wave Discovery	Seminar
-	Massachusetts Institute of Technology	Seminar
-	California Institute of Technology	TAPIR Group Seminar
-	Royal Astronomical Society Ordinary Meeting	Poster Prize Acceptance & Explainer
-	University of Queensland	Seminar
2020	OzGrav Centre of Excellence for Gravitational-Wave Discovery	Seminar
-	University of Santiago de Compostela	Seminar
-	Monash University School of Physics and Astronomy	Seminar

PRIZES, AWARDS & SCHOLARSHIPS

2023	Honourable Mention: Charlene Heisler Prize	Astronomical Society of Australia
-	Rising Star Award	OzGrav Centre of Excellence for Gravitational Wave Discovery
2022	Honourable Mention: GWIC-Braccini Prize	Gravitational Wave International Committee
-	Robert Street Prize	Monash University, School of Physics & Astronomy
	Awarded for "the best PhD thesis awarded through the School of Physics and Astronomy at Monash University"	
2021	Norris Family Award	Monash University, Faculty of Science.
	Awarded for "outstanding author contribution by a graduate research student to a published scholarly research output"	
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 Scholarship	Monash University, Faculty of Science
-	International Postgraduate Research Scholarship	Monash University
-	Nolan Merrill Prize	University of Birmingham
	Awarded for "the highest-scoring M.Sci. project in the School of Physics & Astronomy"	
-	M.Sci. Poster Prize, School of Physics & Astronomy	University of Birmingham

SUPERVISION & TEACHING

- ▷ Supervision:
 - Daniel Gibson (University of Cambridge). Part III master's project: *Understanding Neutron Stars with Future Gravitational-Wave Detector Networks*
 - Joshua Sharkey (University of Cambridge). Summer student project: *Wrong Model, Right Answer: Recovering traces of dynamical binary black hole formation from gravitational-wave data*
 - Teagan Clarke (Monash University). Honours project: *Gravitational Waves from Eccentric Binary Black Holes*
- ▷ Teaching Assistance (Monash University):
 - Introductory Astronomy, Introduction to Astrophysics, Computational Astrophysics & the Extreme Universe

ACADEMIC SERVICE

2019-	Referee	<i>Nature Astronomy, PRD, MNRAS, ApJ, ApJ Letters</i>
2018-	Internal paper reviews, paper writing, eccentricity advisory team	<i>LVK Collaboration</i>
2023	Gravitational Waves Session Co-convener	<i>National Astronomy Meeting (UK)</i>
2023	LOC, Conferences: Rubin/LSST, Astrostats/ML	<i>Kavli Institute Cambridge</i>
2022-2023	Organiser: GR Seminar, GR Journal Club, Theory Colloquia	<i>University of Cambridge</i>
2020-22	Steering Committee	<i>Australian National Institute for Theoretical Astrophysics</i>
2019	Women in Physics & Astronomy Student Co-Chair	<i>Monash University</i>

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*

Media Interviews

- PODCASTS *The Science Pawdcast*
- *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 Talks

- 2024 Bath Royal Literary & Scientific Institution
- 2023 Astronomy on Tap Chicago
- 2022 U3A Deepdene (Australia; virtual)
- 2021 Astronomical Society of Victoria (Australia)
- Denver Astronomical Society (US; virtual)
- 2020 Mount Burnett Observatory (Australia)
- OzGrav Public Lecture Series (Australia)
- 2019 Mount Burnett Observatory (Australia)

Kid's Talks & Outreach Visits

- 2022 Casey Tech School (Australia)
- Haileybury Middle School (Australia)
- 2021 Girlguiding (UK; virtual talk)
- Cambridge Festival (UK; virtual)

STATEMENT ON LEADERSHIP FOR SUSTAINABILITY, EQUITY & DIVERSITY

I am the first in my family to go to University, and my experience of academia as a state-school educated female has motivated me to continually advocate for historically marginalised groups in Physics and Mathematics. Through the Homeward Bound program I am part of a network of 800+ women and non-binary leaders in STEMM committed to shaping a more sustainable and equitable future, and I have completed three years of training in leadership and strategy for multiple contexts.

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	CITATIONS
[19] Blind Spots and Biases: The dangers of ignoring eccentricity in gravitational-wave signals from binary black holes — <i>Divyajyoti, S. Kumar, S. Tibrewal, IRS, C. Mishra.</i> Published in <i>PRD</i> , February 2024	7
[18] Double black hole mergers in nuclear star clusters: eccentricities, spins, masses, and the growth of massive seeds — <i>D. Chattopadhyay, J. Stegmann, F. Antonini, J. Barber, IRS</i> Published in <i>MNRAS</i> , December 2023	7
[17] Inferring Interference: Identifying a Perturbing Tertiary with Eccentric Gravitational Wave Burst Timing — <i>IRS, N. Loutrel, M. Zevin.</i> Published in <i>PRD</i> , June 2023	5
[16] Rapid population synthesis of black-hole high-mass X-ray binaries: implications for binary stellar evolution — <i>IRS, R. Hirai, A. Bahramian, R. Willcox, I. Mandel.</i> Published in <i>MNRAS</i> , September 2023	2
[15] Eccentricity or spin precession? Distinguishing subdominant effects in gravitational-wave data — <i>IRS, D. Gerosa, N. Loutrel.</i> Published in <i>MNRAS</i> , January 2023	29
[14] Four eccentric mergers increase the evidence that LIGO–Virgo–KAGRA’s binary black holes form dynamically — <i>IRS, P. D. Lasky, E. Thrane.</i> Published in <i>ApJ</i> , December 2022	48
[13] General-relativistic precession in a black-hole binary — <i>M. Hannam et al. (incl. IRS).</i> Published in <i>Nature</i> , October 2022	61
[12] A Rosetta Stone for Eccentric Gravitational Waveform Models — <i>A. Knee, IRS, P. D. Lasky, J. McIver, E. Thrane.</i> Published in <i>ApJ</i> , September 2022	18
[11] Subtracting glitches from gravitational-wave detector data during the third observing run — <i>D. Davis, T. B. Littenberg, IRS, M. Millhouse, J. McIver, F. Di Renzo, G. Ashton.</i> Published in <i>Class. Quant. Grav.</i> , December 2022	30
[10] Gravitational-wave inference for eccentric binaries: the argument of periapsis — <i>T. A. Clarke, IRS, P. D. Lasky, E. Thrane.</i> Published in <i>MNRAS</i> , December 2022	11
[9] When models fail: an introduction to posterior predictive checks and model misspecification in gravitational-wave astronomy — <i>IRS, P. D. Lasky, E. Thrane.</i> Published in <i>PASA</i> , June 2022	14
[8] Signs of Eccentricity in Two Gravitational-Wave Signals may Indicate a Sub-Population of Dynamically Assembled Binary Black Holes — <i>IRS, P. D. Lasky, E. Thrane.</i> Published in <i>ApJ Letters</i> , November 2021	54
[7] Implications of Eccentric Observations on Binary Black Hole Formation Channels — <i>M. Zevin, IRS, K. Kremer, E. Thrane, P. D. Lasky.</i> Published in <i>ApJ Letters</i> , November 2021	52
[6] Gravitational Waves as a Probe of Globular Cluster Formation and Evolution — <i>IRS, K. Kremer, P. D. Lasky, E. Thrane, J. Samsing.</i> Published in <i>MNRAS</i> , July 2021	16
[5] An Interactive Gravitational-Wave Detector Model for Museums and Fairs — <i>S. Cooper et al. (incl. IRS).</i> Published in <i>Am. J. Phys.</i> , July 2021	1
[4] GW190521: Orbital Eccentricity and Signatures of Dynamical Formation in a Binary Black Hole Merger Signal — <i>IRS, P. Lasky, E. Thrane, J. Calderón Bustillo.</i> Published in <i>ApJ Letters</i> , October 2020	191
[3] Bayesian Inference for Compact Binary Coalescences with BILBY: Validation and Application to the First LIGO–Virgo Gravitational-Wave Transient Catalogue — <i>IRS, C. Talbot, S. Biscoveanu, V. D’Emilio, G. Ashton et al.</i> Published in <i>MNRAS</i> , September 2020	278
[2] On the origin of GW190425 — <i>IRS, N. Farrow, S. Stevenson, X-J. Zhu, E. Thrane.</i> Published in <i>MNRAS Letters</i> , May 2020	57
[1] Searching for Eccentricity: Signatures of Dynamical Formation in the First Gravitational-Wave Transient Catalogue of LIGO and Virgo — <i>IRS, P. Lasky, E. Thrane.</i> Published in <i>MNRAS</i> , October 2019	107

RESEARCH PUBLICATIONS: LARGE COLLABORATION

CITATIONS

I list here publications to which I have actively contributed.

To see all papers upon which I am listed as an author, please visit my [ADS bibliography](#).

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| [5] | Population of Merging Compact Binaries Inferred using Gravitational Waves through GWTC-3 — <i>The LVK Collaboration (incl. IRS)</i> . Published in <i>PRX</i> , March 2023. Contribution: Internal review of population spin analysis. | 672 |
| [4] | GWTC-3: Compact Binary Coalescences Observed by LIGO and Virgo During the Second Part of the Third Observing Run — <i>The LVK Collaboration (incl. IRS)</i> . Published in <i>PRX</i> , December 2023. Contribution: Member of the paper-writing team. Event analysis, writing, result presentation. | 1507 |
| [3] | Population Properties of Compact Objects from the Second LIGO-Virgo Gravitational-Wave Transient Catalog — <i>The LVK Collaboration (incl. IRS)</i> . Published in <i>ApJ Letters</i> , May 2021. Contribution: Internal review of population spin analysis. | 713 |
| [2] | GWTC-2: Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run — <i>The LVK Collaboration (incl. IRS)</i> . Published in <i>PRX</i> , April 2021. Contribution: Analysis of strain data surrounding one event trigger. | 1640 |
| [1] | Neutron Star Extreme Matter Observatory: A KiloHertz-Band Gravitational-Wave Detector in the Global Network — <i>OzGrav: K. Ackley et al. (incl. IRS)</i> . Published in <i>PASA</i> , November 2020. Contribution: Research into efficacy of GW detector network including Australian instrument for observing binary neutron stars. | 142 |