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EMPLOYMENT

2022-	Herchel Smith Research Fellow	<i>University of Cambridge (Darwin College)</i>
2021-22	Research Fellow	<i>Monash University</i>
2016-18	Software Engineer/Consultant,	<i>Altran Intelligent Systems</i>
2017	Astrophysics & Space Research,	<i>University of Birmingham</i>

EDUCATION

Nov. 2018-21	Ph.D.: <i>Eccentricity in Gravitational-Wave Transients.</i> Supervisors: Assoc. Prof. Paul Lasky & Prof. Eric Thrane	<i>Monash University</i>
2014-18	B.A. and M.Sci. Physics with Honours, Class I, Supervisor: Prof. Andreas Freise	<i>University of Birmingham</i>

INVITED TALKS

2023	Northwestern University	<i>CIERA Group</i>
-	National Observatory (Brazil)	<i>Webinar Series</i>
2022	GWPAW 2022	<i>Conference Talk & Panel Discussion</i>
-	University of Cambridge	<i>Data Intensive Science Group</i>
-	-	<i>Cosmology Group</i>
-	-	<i>Kavli Institute for Cosmology Mini Symposium</i>
-	University of Amsterdam	<i>Anton Pannekoek Institute Colloquium</i>
-	University of Warwick	<i>National Astronomy Meeting (UK)</i>
-	Niels Bohr Institute	<i>Conference on Dynamical Binary Black Hole Formation</i>
-	Eliiza Artificial Intelligence	<i>Seminar Co-Presented with Paul Lasky</i>
-	CSIRO Australia Telescope National Facility	<i>Seminar</i>
-	OzGrav Centre of Excellence for Gravitational-Wave Discovery	<i>Seminar</i>
-	Massachusetts Institute of Technology	<i>Seminar</i>
-	California Institute of Technology	<i>TAPIR Group Seminar</i>
-	Royal Astronomical Society Ordinary Meeting	<i>Poster Prize Acceptance & Explainer</i>
-	University of Queensland	<i>Seminar</i>
2020	OzGrav Centre of Excellence for Gravitational-Wave Discovery	<i>Seminar</i>
-	University of Santiago de Compostela	<i>Seminar</i>
-	Monash University	<i>Astrophysics Seminar</i>

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>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, School of Physics and Astronomy</i>
-	Dean's International Postgraduate Research Scholarship,	<i>Monash University, Faculty of Science</i>
-	International Postgraduate Research Scholarship,	<i>Monash University</i>
-	Nolan Merrill Prize,	<i>University of Birmingham.</i>
	Awarded for "the highest-scoring M.Sci. project in the School of Physics & Astronomy"	
-	M.Sci. Poster Prize, School of Physics & Astronomy,	<i>University of Birmingham</i>

ACADEMIC SERVICE

2022-	Organiser: GR Seminar, GR Journal Club, DAMTP Colloquia	<i>University of Cambridge</i>
2020-22	Steering Committee,	<i>Australian National Institute for Theoretical Astrophysics</i>
2019-	Referee,	<i>Physical Review D, Monthly Notices of the Royal Astronomical Society</i>
		<i>Astrophysical Journal, Astrophysical Journal Letters</i>
-	Women in Physics & Astronomy Student Co-Chair,	<i>Monash University</i>
2018	Board of Misconduct Student Rep.,	<i>University of Birmingham</i>

SUPERVISION & TEACHING

- ▷ Undergraduate Supervision:
 - Teagan Clarke (Monash University). Honours Project: *Gravitational Waves from Eccentric Binary Black Holes*
 - Daniel Gibson (University of Cambridge). Part III Master's Project: *Understanding Neutron Stars with Future Gravitational-Wave Detector Networks*
- ▷ Teaching Assistant (Monash University):
 - 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 [Planetyymology: 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](#), *Astrobytes article*

Talks and Interactive Visits

- 2023 Astronomy on Tap Chicago (USA)
- 2022 U3A Deepdene (Australia; virtual)
 - Casey Tech School (Australia)
 - Haileybury Middle School (Australia)
- 2021 Astronomical Society of Victoria (Australia)
 - Cambridge Festival (UK; virtual)
 - Denver Astronomical Society (US; virtual)
- 2020 Girlguiding (UK; virtual)
 - Mount Burnett Observatory (Australia)
 - OzGrav Public Lecture Series (Australia)
- 2019 Mount Burnett Observatory (Australia)

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

- [17] [Rapid population synthesis of black-hole high-mass X-ray binaries: implications for binary stellar evolution](#) — **IRS**, R. Hirai, A. Bahramian, R. Willcox, I. Mandel. Submitted to *MNRAS*, March 2023
- [16] [Eccentricity or spin precession? Distinguishing subdominant effects in gravitational-wave data](#) — **IRS**, D. Gerosa, N. Loutrel. Published in *MNRAS*, January 2023
- [15] [Inferring Interference: Identifying a Perturbing Tertiary with Eccentric Gravitational Wave Burst Timing](#) — **IRS**, N. Loutrel, M. Zevin. Submitted to *PRD*, November 2022
- [14] [General-relativistic precession in a black-hole binary](#) — M. Hannam et al. (incl. **IRS**). Published in *Nature*, October 2022
- [13] [Four eccentric mergers increase the evidence that LIGO–Virgo–KAGRA’s binary black holes form dynamically](#) — **IRS**, P. D. Lasky, E. Thrane. Published in *ApJ*, October 2022
- [12] [A Rosetta Stone for Eccentric Gravitational Waveform Models](#) — A. Knee, **IRS**, P. D. Lasky, J. McIver, E. Thrane. Published in *ApJ*, September 2022
- [11] [Subtracting glitches from gravitational-wave detector data during the third observing run](#) — D. Davis, T. B. Littenberg, **IRS**, M. Millhouse, J. McIver, F. Di Renzo, G. Ashton. Submitted to *Class. Quant. Grav.*, July 2022
- [10] [Gravitational-wave inference for eccentric binaries: the argument of periapsis](#) — T. A. Clarke, **IRS**, P. D. Lasky, E. Thrane. Accepted for publication in *MNRAS*, June 2022
- [9] [When models fail: an introduction to posterior predictive checks and model misspecification in gravitational-wave astronomy](#) — **IRS**, P. D. Lasky, E. Thrane. Published in *PASA*, June 2022
- [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. Published in *ApJ Letters*, November 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 First 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: LARGE COLLABORATION

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](#).

- [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.
- [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.
- [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.
- [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.
- [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.