

Fabian Gittins

CONTACT INFORMATION	Institute for Gravitational and Subatomic Physics Princetonplein 1, Utrecht University 3584 CC Utrecht, The Netherlands	f.w.r.gittins@uu.nl fgittins.github.io +31 6 57 918 906
CITIZENSHIP	United Kingdom	
RESEARCH INTERESTS	Relativistic astrophysics, gravitational-wave astronomy and extreme physics of neutron stars. One major theme is building predictive, physically faithful neutron-star models with realistic microphysics and dynamics. A second major theme is using gravitational waves to extract this physics and constrain dense nuclear matter. Currently, advancing gravitational-wave asteroseismology to probe dense-matter physics through modelling and detection of neutron-star oscillation modes.	
EDUCATION	PhD, Mathematics , University of Southampton, UK Advisor: Prof Nils Andersson Thesis title: <i>Gravitational waves from deformed neutron stars: mountains and tides</i> MSci, Physics , University of Birmingham, UK Grade: First class honours Undergraduate Master's degree with focus on theoretical physics	Sep 2021 Jul 2017
RESEARCH EXPERIENCE	Marie Skłodowska-Curie Postdoctoral Fellow , Utrecht University, NL Research Fellow , University of Southampton, UK PhD Researcher , University of Southampton, UK	Oct 2024–Present Oct 2021–Sep 2024 Sep 2017–Sep 2021
HONOURS AND AWARDS	Marie Skłodowska-Curie Postdoctoral Fellowship , European Union Project lead of <i>DynTideEOS</i> ; €203,464 Gravitational Physics Thesis Prize , Institute of Physics, UK Best Publication in Gravitational Physics , University of Southampton, UK Physics Scholarship , University of Birmingham, UK	Oct 2024–Sep 2026 2021 2021 2013

INVITED TALKS

11. *CoCoNuT Meeting 2025*, Strasbourg University, FR **28 Oct 2025**
10. *High Energy Particle Physics and Cosmology Theory Seminar*,
The Johns Hopkins University, Baltimore, USA **30 Sep 2025**
9. *Institute for Nuclear Theory Program 25-2b*,
University of Washington, Seattle, USA **17 Sep 2025**
8. *Gravitational Wave Meeting*,
National Institute for Subatomic Physics, NL (online) **18 Jun 2025**
7. *Astrophysics Seminar*,
Mullard Space Science Laboratory, University College London, UK **30 May 2024**
6. *Gravitational Wave Group*,
Institute of Cosmology and Gravitation, University of Portsmouth, UK **14 Dec 2023**
5. *SPINS-UK Seminar* (online) **7 Jun 2023**
4. *Symposium on Gravitational Wave Physics and Astronomy: Genesis*,
Kyoto University, JP (online) **28 Apr 2022**
3. *22nd BritGrav Conference*, University of Glasgow, UK (online) **5 Apr 2022**
2. *Colloquium*, Albert Einstein Institute, Hannover, DE (online) **6 Oct 2020**
1. *LIGO-Virgo Collaboration Continuous Waves Working Group* (online) **5 Dec 2018**

CONTRIBUTED TALKS
(SELECTED)

- 24 contributed talks at 22 separate conferences and meetings, including
14. *Joint 24th International Conference on General Relativity and Gravitation* **17 Jul 2025**
and *16th Edoardo Amaldi Conference on Gravitational Waves*, Glasgow, UK
 13. *XV Einstein Telescope Symposium*, Bologna, IT **27 May 2025**
 12. *Institute for Nuclear Theory Workshop 24-89w*,
University of Washington, Seattle, USA **5 Sep 2024**
 11. *XIV Einstein Telescope Symposium*, Maastricht, NL **6–7 May 2025**
 10. *SPINS-UK 2023 meeting*, Magdalen College, University of Oxford, UK **23 Nov 2023**
 9. *SPINS-UK 2022 meeting*, Jodrell Bank Observatory, UK **2 Nov 2022**
 8. *Institute for Nuclear Theory Program 24-89a*,
University of Washington, Seattle, USA **18 Jul 2022**
 7. *23rd International Conference on General Relativity and Gravitation*,
Chinese Academy of Sciences, CN (online) **6 Jul 2022**
 6. *PHAROS Conference 2022*, La Sapienza University, Rome, IT **18 May 2022**
 5. *GWPAW 2021*, Albert Einstein Institute, Hannover, DE (online) **17 Dec 2021**
 4. *21st BritGrav Conference* (online) **15 Apr 2021**
 3. *30th Texas Symposium on Relativistic Astrophysics*,
University of Portsmouth, UK **17 Dec 2019**
 2. *Joint 22nd International Conference on General Relativity and Gravitation* **9 Jul 2019**
and *13th Edoardo Amaldi Conference on Gravitational Waves*, Valencia, ES
 1. *SPINS-UK 2019 meeting*, University College London, UK **31 May 2019**

TEACHING EXPERIENCE	Instructor , University of Southampton, UK	
	MATH1007/1009, Mathematical Methods for Physical Scientists	Feb–May 2024
	Guest Lecturer , University of Southampton, UK	
	MATH3072, Advanced Fluid Dynamics	Oct 2022, Oct 2023
	MATH3006, Relativity, Black Holes and Cosmology	Apr 2022
	Teaching Assistant , University of Southampton, UK	Oct 2017–May 2021
	MATH1054/1055, Mathematics for Engineering and the Environment	
	MATH1057, Dynamics and Relativity	
	MATH1058, Operational Research I and Mathematical Computing	
	MATH2045, Vector Calculus and Complex Variable Theory	
MENTORING AND SUPERVISION	MATH3018, Numerical Methods	
	MATH3087, Maths and Your Future	
	Teaching Assistant , King Edward’s School, Birmingham, UK	Jan–Apr 2016
	Physics (11–16 yr)	
	PhD student mentoring	
	Thibea Wouters, Utrecht University, NL	Oct 2024–Present
	Rahime Matur, University of Southampton, UK	Jan 2023–Sep 2024
	Rhys Counsell, University of Southampton, UK	Sep 2021–Sep 2024
	Shanshan Yin, University of Southampton, UK	Sep 2021–Sep 2024
	Thomas Celora, University of Southampton, UK	Sep 2021–Sep 2023
PROFESSIONAL ACTIVITIES, OUTREACH AND SERVICE	Now postdoc at Institute of Space Sciences, Barcelona, ES	
	Master’s student supervision	
	Tobie Walraven, Utrecht University, NL	Sep 2025–Present
	Virgo Collaboration, Member	Oct 2024–Present
	Cosmic Explorer Consortium, Member	May 2024–Present
	Einstein Telescope Collaboration, Member	Sep 2023–Present
	International Astronomical Union, Junior member	May 2023–Present
	European Astronomical Society, Member	Nov 2024–Present
	Royal Astronomical Society, Elected fellow	Jul 2021–Present
	International Society on General Relativity and Gravitation, Lifetime member	May 2021–Present
	Institute of Physics, Member	Apr 2021–Present
	Gravitational Physics Group, Committee member	Oct 2021–Sep 2025

Conference organiser

- SPINS-UK 2024 meeting**, University of Southampton **10–12 Sep 2024**
Local organising committee, ~ 40 participants
- Continuous gravitational waves and neutron stars workshop**,
Albert Einstein Institute, Hannover, DE **17–20 Jun 2024**
Scientific organising committee, ~ 50 participants
- Gravitational Physics Annual Meeting**, Institute of Physics, UK **18 Jan 2024**
Scientific organising committee, ~ 50 participants
- 23rd BritGrav Conference**, University of Southampton, UK **13–14 Apr 2023**
Scientific and local organising committee, ~ 100 participants

Seminar organiser

- Gravity Seminar, University of Southampton, UK **Oct 2021–Sep 2024**
- Weekly Gravity Reading Group, University of Southampton, UK **Jan–Jul 2021**

Journal referee

Astronomy and Astrophysics, Classical and Quantum Gravity, Journal of Cosmology and Astroparticle Physics, Journal of Physics G, Monthly Notices of the Royal Astronomical Society, Nature Astronomy, Physical Review D, Physical Review Letters, The Astrophysical Journal

Project referee

- Postdoctoral project, University of Namur, BE **2025**
- Open Fellowship, Engineering and Physical Sciences Research Council, UK **2024**

Outreach

- Southampton Science and Engineering Festival **7 May 2022, 18 Mar 2023**
Organised neutron-star exhibit for general public and coordinated team of 10 volunteers
- Mathematical Challenge **Mar–Apr 2020**
Marked over 200 pupil entries
- Maths and Physics Workshop **8 Nov 2017**
Demonstrated for ~ 100 secondary-school pupils

Press (selected)

- Sporen van quarkmaterie in zwaartekrachtgolven?* **1 Oct 2025**
Nederlands Tijdschrift voor Natuurkunde
- Lightest neutron star ever found could contain compressed quarks*, New Scientist **24 Oct 2022**
- Neutron star ‘mountains’ may be blocking our view of mysterious gravitational waves*, Live Science **21 Jul 2021**

Mountains on neutron stars are not even a millimetre tall due to extreme gravity, The Register **21 Jul 2021**

Scientists find tiny mountains on neutron stars that are a fraction of a millimetre tall, The Independent **19 Jul 2021**

Neutron Stars Have Mountains That Are Less Than a Millimeter Tall, Gizmodo **18 Jul 2021**

Neutron stars are remarkably smooth thanks to their intense gravity, New Scientist **24 May 2021**

Why don't they just break up? Astrobit.es **16 Nov 2018**

COMPUTER SKILLS

Advanced in Julia, Python. Intermediate in Bash, C++, Mathematica, MATLAB. Intermediate in high-performance computing (HTCondor, Slurm). Markup languages: L^AT_EX, Markdown.

Software—Most contributions can be found at <https://github.com/fgittins>. Member of the *Bilby* development team (<https://github.com/bilby-dev/bilby>). Contributor to *SciML* (<https://sciml.ai>), in particular *NonlinearSolve.jl* (<https://github.com/SciML/NonlinearSolve.jl>). Author of *RealisticSeismology* Julia code (<https://github.com/fgittins/RealisticSeismology>).

REFERENCES

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