

# 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	<b>PhD, Mathematics</b> , University of Southampton, UK  Advisor: Prof Nils Andersson  Thesis title: <i>Gravitational waves from deformed neutron stars: mountains and tides</i>	<b>Sep 2021</b>
	<b>MSci, Physics</b> , University of Birmingham, UK  Grade: First class honours  Undergraduate Master's degree with focus on theoretical physics	<b>Jul 2017</b>
RESEARCH EXPERIENCE	<b>Marie Skłodowska-Curie Postdoctoral Fellow</b> , Utrecht University, NL <b>Oct 2024–Present</b>	
	<b>Research Fellow</b> , University of Southampton, UK	<b>Oct 2021–Sep 2024</b>
	<b>PhD Researcher</b> , University of Southampton, UK	<b>Sep 2017–Sep 2021</b>
HONOURS AND AWARDS	<b>Marie Skłodowska-Curie Postdoctoral Fellowship (Global)</b> , EU Project lead of <i>QuarkWave</i> ; €454,103	<b>Oct 2026–Sep 2029</b>
	<b>Marie Skłodowska-Curie Postdoctoral Fellowship (European)</b> , EU <b>Oct 2024–Sep 2026</b> Project lead of <i>DynTideEOS</i> ; €203,464	
	<b>Gravitational Physics Thesis Prize</b> , Institute of Physics, UK	<b>2021</b>
	<b>Best Publication in Gravitational Physics</b> , University of Southampton, UK	<b>2021</b>
	<b>Physics Scholarship</b> , University of Birmingham, UK	<b>2013</b>

INVITED TALKS		
	12. <i>International Research Network for Nuclear Astrophysics Seminar</i> (online)	<b>16 Jan 2026</b>
	11. <i>CoCoNuT Meeting 2025</i> , University of Strasbourg, FR	<b>28 Oct 2025</b>
	10. <i>High Energy Particle Physics and Cosmology Theory Seminar</i> , The Johns Hopkins University, Baltimore, USA	<b>30 Sep 2025</b>
	9. <i>Institute for Nuclear Theory Program 25-2b</i> , University of Washington, Seattle, USA	<b>17 Sep 2025</b>
	8. <i>Gravitational Wave Meeting</i> , National Institute for Subatomic Physics, NL (online)	<b>18 Jun 2025</b>
	7. <i>Astrophysics Seminar</i> , Mullard Space Science Laboratory, University College London, UK	<b>30 May 2024</b>
	6. <i>Gravitational Wave Group</i> , Institute of Cosmology and Gravitation, University of Portsmouth, UK	<b>14 Dec 2023</b>
	5. <i>SPINS-UK Seminar</i> (online)	<b>7 Jun 2023</b>
	4. <i>Symposium on Gravitational Wave Physics and Astronomy: Genesis</i> , Kyoto University, JP (online)	<b>28 Apr 2022</b>
	3. <i>22nd BritGrav Conference</i> , University of Glasgow, UK (online)	<b>5 Apr 2022</b>
	2. <i>Colloquium</i> , Albert Einstein Institute, Hannover, DE (online)	<b>6 Oct 2020</b>
	1. <i>LIGO-Virgo Collaboration Continuous Waves Working Group</i> (online)	<b>5 Dec 2018</b>
CONTRIBUTED TALKS (SELECTED)	25 contributed talks at 23 separate conferences and meetings, including	
	13. <i>NNV section for (astro)particle physics fall meeting</i> , Soesterberg, NL	<b>7 Nov 2025</b>
	12. Joint <i>24th International Conference on General Relativity and Gravitation</i> and <i>16th Edoardo Amaldi Conference on Gravitational Waves</i> , Glasgow, UK	<b>17 Jul 2025</b>
	11. <i>XV Einstein Telescope Symposium</i> , Bologna, IT	<b>27 May 2025</b>
	10. <i>Institute for Nuclear Theory Workshop 24-89w</i> , University of Washington, Seattle, USA	<b>5 Sep 2024</b>
	9. <i>XIV Einstein Telescope Symposium</i> , Maastricht, NL	<b>6–7 May 2025</b>
	8. <i>SPINS-UK 2023 meeting</i> , Magdalen College, University of Oxford, UK	<b>23 Nov 2023</b>
	7. <i>Institute for Nuclear Theory Program 22-2a</i> , University of Washington, Seattle, USA	<b>18 Jul 2022</b>
	6. <i>23rd International Conference on General Relativity and Gravitation</i> , Chinese Academy of Sciences, CN (online)	<b>6 Jul 2022</b>
	5. <i>PHAROS Conference 2022</i> , La Sapienza University, Rome, IT	<b>18 May 2022</b>
	4. <i>GWPAW 2021</i> , Albert Einstein Institute, Hannover, DE (online)	<b>17 Dec 2021</b>
	3. <i>21st BritGrav Conference</i> (online)	<b>15 Apr 2021</b>
	2. <i>30th Texas Symposium on Relativistic Astrophysics</i> , University of Portsmouth, UK	<b>17 Dec 2019</b>
	1. Joint <i>22nd International Conference on General Relativity and Gravitation</i> and <i>13th Edoardo Amaldi Conference on Gravitational Waves</i> , Valencia, ES	<b>9 Jul 2019</b>

TEACHING EXPERIENCE	<b>Instructor</b> , University of Southampton, UK MATH1007/1009, Mathematical Methods for Physical Scientists	<b>Feb–May 2024</b>
	<b>Guest Lecturer</b> , University of Southampton, UK MATH3072, Advanced Fluid Dynamics	<b>Oct 2022, Oct 2023</b>
	MATH3006, Relativity, Black Holes and Cosmology	<b>Apr 2022</b>
	<b>Teaching Assistant</b> , University of Southampton, UK MATH1054/1055, Mathematics for Engineering and the Environment	<b>Oct 2017–May 2021</b>
	MATH1057, Dynamics and Relativity MATH1058, Operational Research I and Mathematical Computing MATH2045, Vector Calculus and Complex Variable Theory MATH3018, Numerical Methods MATH3087, Maths and Your Future	
MENTORING AND SUPERVISION	<b>Teaching Assistant</b> , King Edward's School, Birmingham, UK Physics (11–16 yr)	<b>Jan–Apr 2016</b>
	<b>PhD student mentoring</b> Thibeau Wouters, Utrecht University, NL Rahime Matur, University of Southampton, UK Rhys Counsell, University of Southampton, UK Shanshan Yin, University of Southampton, UK Thomas Celora, University of Southampton, UK  Now postdoc at Institute of Space Sciences, Barcelona, ES	<b>Oct 2024–Present</b> <b>Jan 2023–Sep 2024</b> <b>Sep 2021–Sep 2024</b> <b>Sep 2021–Sep 2024</b> <b>Sep 2021–Sep 2023</b>
PROFESSIONAL ACTIVITIES, OUTREACH AND SERVICE	<b>Bachelor's student supervision</b> Tobie Walraven, Utrecht University, NL	<b>Sep 2025–Jan 2026</b>
	<b>Virgo Collaboration, Member</b>	<b>Oct 2024–Present</b>
	<b>Cosmic Explorer Consortium, Member</b>	<b>May 2024–Present</b>
	<b>Einstein Telescope Collaboration, Member</b>	<b>Sep 2023–Present</b>
	<b>International Astronomical Union, Junior member</b>	<b>May 2023–Present</b>
	<b>European Astronomical Society, Member</b>	<b>Nov 2024–Present</b>
	<b>Royal Astronomical Society, Elected fellow</b>	<b>Jul 2021–Present</b>
	<b>International Society on General Relativity and Gravitation, Lifetime member</b>	<b>May 2021–Present</b>
	<b>Institute of Physics, Member</b> Gravitational Physics Group, Committee member	<b>Apr 2021–Present</b>
		<b>Oct 2021–Sep 2025</b>

**Conference organiser**

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

**Seminar organiser**

Gravity Seminar, University of Southampton, UK	<b>Oct 2021–Sep 2024</b>
Weekly Gravity Reading Group, University of Southampton, UK	<b>Jan–Jul 2021</b>

**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	<b>2025</b>
Open Fellowship, Engineering and Physical Sciences Research Council, UK	<b>2024</b>

**Outreach**

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

**Press (selected)**

<i>Sporen van quarkmaterie in zwaartekrachtgolven?</i>	<b>1 Oct 2025</b>
Nederlands Tijdschrift voor Natuurkunde	
<i>Lightest neutron star ever found could contain compressed quarks</i> , New Scientist	<b>24 Oct 2022</b>
<i>Neutron star ‘mountains’ may be blocking our view of mysterious gravitational waves</i> , Live Science	<b>21 Jul 2021</b>
<i>Mountains on neutron stars are not even a millimetre tall due to extreme gravity</i> , The Register	<b>21 Jul 2021</b>
<i>Scientists find tiny mountains on neutron stars that are a fraction of a millimetre tall</i> , The Independent	<b>19 Jul 2021</b>
<i>Neutron Stars Have Mountains That Are Less Than a Millimeter Tall</i> , Gizmodo	<b>18 Jul 2021</b>
<i>Neutron stars are remarkably smooth thanks to their intense gravity</i> , New Scientist	<b>24 May 2021</b>
<i>Why don’t they just break up?</i> Astrobites	<b>16 Nov 2018</b>

**COMPUTER SKILLS**

Advanced in Julia, Python. Intermediate in Bash, C++, Mathematica, MATLAB. Intermediate in high-performance computing (HTCondor, Slurm). Markup languages: L<sup>A</sup>T<sub>E</sub>X, 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**

**Prof Nils Andersson**, Professor of Applied Mathematics  
 School of Mathematical Sciences  
 University of Southampton  
 University Road  
 Southampton, SO17 1BJ  
 United Kingdom  
 email: [n.a.andersson@soton.ac.uk](mailto:n.a.andersson@soton.ac.uk)  
 office phone: +44 23 8059 4551

**Prof Chris van den Broeck**, Professor of Physics  
 Institute for Gravitational and Subatomic Physics  
 Utrecht University  
 Princetonplein 1  
 3584 CC Utrecht  
 The Netherlands  
 email: [c.f.f.vandenbroeck@uu.nl](mailto:c.f.f.vandenbroeck@uu.nl)  
 office phone: +31 6 25 133 968

**Dr David Tsang**, Lecturer in Physics

Department of Physics

University of Bath

Claverton Down

Bath, BA2 7AY

United Kingdom

email: [d.tsang@bath.ac.uk](mailto:d.tsang@bath.ac.uk)

office phone: +44 12 2538 4539