Dr Vanessa Graber

Curriculum Vitae

Contact Details

Department of Physics
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Research Interests

Neutron Stars: macroscopic quantum states, rotational and magnetic field evolution, pulsar glitches, pulsar population synthesis, laboratory analogues, superfluidity's impact on cooling, continuous gravitational-wave emission, precession

Machine Learning: deep / multi-modal / active learning for parameter estimation in astrophysics, simulation-based inference, deep learning for pulsar detection and classification, interpretability and insights into decision making of deep learning algorithms

Superfluidity: multi-fluid magnetohydrodynamics, mesoscopic vortex physics, Gross–Pitaevskii and Ginzburg–Landau-type models, phase transitions, superfluid helium, ultra-cold gases

Academic History

- **Future Leaders Fellow and Associate Professor in Physics**, RHUL, Egham, UK (since Feb 2026)
- **Future Leaders Fellow and Senior Lecturer in Physics**, RHUL, Egham, UK (Oct 2024 – Jan 2026)
- **Senior Lecturer in Data Science**, University of Hertfordshire, Hatfield, UK (Feb – Sept 2024)
- **Juan de la Cierva Incorporación Fellow**, Inst. of Space Sciences, Barcelona, ES (May 2022 – Feb 2024)
- **Senior Postdoctoral Researcher**, Institute of Space Sciences, Barcelona, ES (Jan 2020 – Feb 2024)
- **McGill Space Institute Fellow**, McGill University, Montréal, CA (Oct 2016 – Dec 2019)

Education

PhD, Mathematical Sciences, University of Southampton, UK (Sept 2016)

- *Advisor*: Prof. Nils Andersson
- *Thesis Title*: Cosmic Condensates – Vortex, Fluxtube and Neutron Star Dynamics

Diplom (MPhys), Physics, University of Tübingen, DE (Mar 2012)

- *Advisors*: Dr. Kostas Glampedakis, Prof. Kostas Kokkotas
- *Major, Minor*: Astronomy & Astrophysics, Quantum Optics
- *Thesis Title*: Dynamics of Superfluid Neutron Stars

Research Experience

Future Leaders Fellow and Proleptic Senior Lecturer in Physics, RHUL, Egham, UK (since Oct 2024)

- Principal Investigator of Future Leaders Fellowship grant
- Simulation-based inference for pulsar glitches in the Square Kilometre Array era
- Exploring laboratory condensates as analogues for cosmic superfluidity
- Development of reproducible, open-source scientific software tools

Senior Lecturer in Data Science, University of Hertfordshire, Hatfield, UK (Feb – Sept 2024)

- Sequential simulation-based inference approaches for pulsar population synthesis
- 3D computational fluid dynamics simulations of neutron star interiors

Juan de la Cierva Incorporación Fellow, Inst. of Space Sciences, Barcelona, ES (May 2022 – Feb 2024)

- *Advisor*: Dr. Nanda Rea
- Macroscopic and mesoscopic magnetic field evolution approaches for neutron star interiors
- Ginzburg–Landau models for magnetic flux distributions in superconducting neutron star cores

Research Experience (Continued)

Senior Postdoctoral Researcher, Institute of Space Sciences, Barcelona, ES (Jan 2020 – Feb 2024)

- *Advisor*: Dr. Nanda Rea
- Leading the *Pulsar Population Synthesis* work package for the ERC project MAGNESIA
- Developing a new population synthesis framework for isolated pulsars in Python
- Implementing neural networks for population synthesis including simulation-based inference
- Multi-wavelength analyses and simulations of ultra-long period radio pulsars

McGill Space Institute Fellow, McGill University, Montréal, CA (Oct 2016 – Dec 2019)

- *Advisors*: Prof. Andrew Cumming, Prof. Vicky Kaspi
- Working at the interface of astrophysics and condensed-matter physics
- Developing macroscopic models for pulsar glitches with consistent crustal microphysics
- Bayesian approaches for astrophysical parameter inferences

Doctoral Researcher, General Relativity, University of Southampton, UK (Oct 2012 – Aug 2016)

- *Advisor*: Prof. Nils Andersson
- Superfluid and superconducting neutron star core physics
- Generalised magneto-hydrodynamics models for superconducting neutron star interiors
- Analysing terrestrial quantum condensates as versatile neutron star analogues

Undergraduate Researcher, Theor. Astrophysics, University of Tübingen, DE (Mar 2011 – Mar 2012)

- *Advisors*: Dr. Kostas Glampedakis, Prof. Kostas Kokkotas
- Modelling the post-glitch response based on viscous, magnetic and mutual friction coupling

Intern, Inst. of Planetary Research, German Aerospace Center (DLR), Berlin, DE (July – Aug 2009)

- *Advisor*: Dr. Ute Böttger
- Recording and analysing Raman spectra of rock samples to assess spectrometer stability
- Developing criteria for a database of Mars analogue material

Undergraduate Researcher, Solid State Physics, University of Tübingen, DE (June 2009 – Dec 2010)

- *Advisor*: Prof. Thomas Dahm
- Conformal mapping to determine magnetic field distributions of rectangular superconductors
- Optimising the designs of microtraps for ultra-cold atomic gases

Intern, EADS Astrium GmbH (now Airbus Defence & Space), Friedrichshafen, DE (Aug – Sept 2006)

- *Advisor*: Dr. Achim Seidel
- Calculating the Earth's magnetic field to study its influence on atomic clocks on satellites

Visiting Scientist Positions

- **Sept 2019:** Aspen Center for Physics, Aspen, Colorado, US
- **Nov – Dec 2018:** OzGrav Visitor, Monash University / University of Melbourne, AU
- **Jan & Apr 2018:** School of Mathematics, Statistics and Physics, Newcastle University, UK

Research Grants, Fellowships, and Scholarships (£3,029,500 in Total)

- **Oct 2025 – Sept 2029:** *COST Action*, European Cooperation in Science and Technology; £525k (Co-I)
- **Oct 2024 – Sept 2028:** *Future Leaders Fellowship*, UK Research and Innovation, UK; £2.18M (PI)
- **May 2022 – Apr 2025:** *Juan de la Cierva Fellowship*, Agencia Estatal de Investigación, ES; £85k (PI)
- **Apr 2023 – Dec 2024:** *SGR-Cat 2021*, Generalitat de Catalunya, ES; £53k (PI)
- **Oct 2016 – Aug 2019:** *McGill Space Inst. Postdoctoral Fellowship*, McGill Space Inst., CA; £115k (PI)
- **Jan 2013 – Dec 2015:** *PhD Scholarship*, Evangelisches Studienwerk e.V. Villigst, DE; £40k (PI)

Research Grants, Fellowships, and Scholarships (Continued)

- **Oct 2012 – Sept 2015:** *Vice Chancellor Scholarship*, University of Southampton, UK; £18.5k
- **Nov 2012 – Oct 2013:** *PhD Scholarship*, German Academic Exchange Service (DAAD), DE; £13k (PI)

Additional Awards, Grants, and Funding (£95,700 in Total)

- **Aug 2025:** *DiRAC Seedcorn Funding* for new code development, UK; Corehrs 100,000
- **June 2025:** *Perren Fund for Astronomy* to purchase radio telescope for outreach and teaching, UK; £88k
- **May 2025:** *Conference organisation support* for SPINS-UK 2025 from Institute of Physics; UK £1.5k
- **May 2025:** *Conference organisation support* for SPINS-UK 2025 from Royal Astronomical Society; UK £2k
- **July 2019:** *Travel grant* for the 69th Lindau Nobel Laureate Meeting dedicated to Physics, CA; £2.2k (nominated by Nobel Laureate Dr. Arthur McDonald and selected in a worldwide competition)
- **July 2019:** *First Poster Prize*, voted by the participants of the 69th Lindau Nobel Laureate Meeting, DE
- **Nov – Dec 2018:** *International Visitor Grant*, OzGrav, AU; £2k
- **June 2015:** *Best Student Talk Prize*, Annual NewCompStar Conference, Budapest, HU

Invited Colloquia, Seminars, and Talks (36 in Total)

- **Mar 2026:** *Seminar*, MSSL, University College London, UK
- **Feb 2026:** *Astrophysics Colloquium*, University of Oxford, UK
- **May 2025:** *Talk*, ECT* Workshop, Trento, IT
- **Mar 2025:** *Gravity Seminar*, University of Southampton, UK
- **Mar 2025:** *Particle Physics and Astronomy Seminar*, RHUL, UK
- **Jan 2025:** *Webinar*, UK Quantum Fluids Network, UK
- **Jan 2025:** *Panellist*, GW Analysis in the Era of ML, RAS Specialist Discussion Workshop, London, UK
- **July 2024:** *Plenary Talk*, General Meeting, Spanish Astronomical Society, Granada, ES
- **June 2024:** *Talk*, XMM-Newton 2024 Science Workshop, Madrid, ES
- **Nov 2023:** *Astrophysics Seminar*, Centre for Astrophysics Research, University of Hertfordshire, UK
- **Nov 2023:** *Astrophysics Seminar*, Institute for Astronomy, University of Tübingen, DE
- **Oct 2023:** *Geo/Astrophysical Fluid Dynamics Seminar*, University of Colorado Boulder, US (online)
- **June 2023:** *Seminar*, Physics, Royal Holloway, University of London, UK (online)
- **May 2023:** *Astronomy Seminar*, University of East Anglia, UK
- **July 2022:** *Seminar*, Fluid Dynamics, Newcastle University, UK (online)
- **May 2021:** *Talk*, Journal Club, CAMK, Warsaw, PL (online)
- **Mar 2021:** *Seminar*, Hadronic, Nuclear & Atomic Physics Group, University of Barcelona, ES (online)
- **Nov 2020:** *Talk*, Neutron Star Group Meeting, University of Southampton, UK (online)
- **Nov 2020:** *Webinar*, Fluids ECR Forum, University of Leeds, UK (online)
- **Nov 2020:** *Astronomy Seminar*, Stony Brook University, New York, US (online)
- **July 2020:** *Colloquium*, Research Training Group – Models of Gravity, Oldenburg, DE (online)
- **June 2020:** *Astrophysics Seminar*, IRAP, Toulouse, FR (online)
- **Feb 2020:** *Physics Colloquium*, Texas A&M Commerce, Texas, US
- **Apr 2019:** *Talk*, ICONS, JINA – CEE Workshop, University of Amsterdam, NL
- **Apr 2019:** *Talk*, Quantum Turbulence, INT Workshop, Seattle, Washington, US
- **Jan 2019:** *Talk*, Mini-Symposium on GWs and QCD, Goethe University, Frankfurt, DE
- **Nov 2018:** *Astrophysics Colloquium*, Swinburne University, Melbourne, AU
- **Nov 2018:** *Astrophysics Seminar*, University of Melbourne, AU
- **Nov 2018:** *Talk*, GW UniversityGroup Meeting, Monash University, Melbourne, AU
- **Apr 2018:** *Superfluid Seminar*, Newcastle University, UK
- **Apr 2018:** *MHD Seminar*, Durham University, UK
- **Mar 2018:** *Astrophysics Seminar*, McGill University, Montréal, CA

Invited Colloquia, Seminars, and Talks (Continued)

- **Jan 2018:** *Astrophysics Seminar*, Newcastle University, UK
- **Jan 2018:** *Gravity Seminar*, University of Southampton, UK
- **Nov 2017:** *Condensed Matter & Astrophysics Seminar*, Northwestern University, Evanston, Illinois, US
- **Nov 2017:** *Physics Colloquium*, Kent State University, Ohio, US

Contributed Seminars, Talks, and Posters (28 in Total)

- **June 2025:** *Talk*, SKAO Science Meeting, Görlitz, DE
- **Jan 2025:** *Poster*, Quantum Technologies for Fundamental Physics (QTFP) Meeting, Glasgow, UK
- **Sept 2024:** *Talk*, Extreme Matter in Extreme Stars Workshop, Leiden, NL
- **Sept 2024:** *Talk*, SPINS-UK, University of Southampton, UK
- **July 2024:** *Talk*, International Conference on Quarks and Nuclear Physics, Barcelona, ES
- **Nov 2023:** *Talk*, SPINS-UK, University of Oxford, UK
- **Jan 2023:** *Talk*, Institute of Space Sciences Strategy Retreat, Montserrat, ES
- **June 2022:** *Talk*, EAS Meeting 2022, Valencia, ES
- **June 2021:** *Talk*, EAS Meeting 2021, Leiden, NL (online)
- **Nov 2020:** *Pizza Seminar*, Institute of Space Sciences, Barcelona, ES (online)
- **July 2020:** *Talk*, Physics of Neutron Stars 2020, St. Petersburg, RU (cancelled due to Covid-19)
- **Mar 2020:** *Talk*, Annual PHAROS Conference, Patras, GR (cancelled due to Covid-19)
- **Nov 2019:** *Talk*, MAGNESIA Kick-Off Meeting, Institute of Space Sciences, Barcelona , ES
- **July 2018:** *Talk*, COSPAR 42nd Assembly, Pasadena, California, US
- **Apr 2018:** *Talk*, PHAROS WG2 Meeting, CAMK, Warsaw, PL
- **Nov 2017:** *Talk*, Neutron Star Crusts, JINA – INT Workshop, Seattle, Washington, US
- **Oct 2017:** *Talk*, New Perspectives on Neutron Star Interiors, ECT* Workshop, Trento, IT
- **Sept 2017:** *Talk*, Trottier Family Foundation Showcase, McGill University, Montréal, CA
- **May 2017:** *Talk*, SMFNS2017, Havana/Varadero, CU
- **June 2016:** *Talk*, AstroGrav Pizza Lunch, University of Southampton, UK
- **June 2015:** *Talk*, Annual NewCompStar Conference, Budapest, HU
- **Apr 2015:** *Talk*, BritGrav15, University of Birmingham, UK
- **Jan 2015:** *Talk*, Observations & Theory in the Dynamics of NS, ECT* Workshop, Trento, IT
- **Dec 2014:** *Applied Maths Postgraduate Seminar*, University of Southampton, UK
- **Mar 2014:** *Talk*, BritGrav14, University of Cambridge, UK
- **July 2013:** *Poster*, School on Gravitational Waves, Banach Center, Warsaw, PL
- **June 2013:** *Applied Maths Postgraduate Seminar*, University of Southampton, UK
- **Apr 2012:** *GR & Astrophysics Seminar*, University of Tübingen, DE

Teaching (210 Lecture Hours in Total)

RHUL, Department of Physics, UK

- *Sept 2025*: STFC *Introduction to Astronomy Summer School* at UCL (PhD level; lecturer)
- *Dec 2024*: Hands-on Workshop on Scientific Computing Skills (PhD level; instructor)

University of Hertfordshire, Department of Physics, Astronomy and Mathematics, UK

- *Spring & summer 2024*: 7PAM2002 Data Science Project (MSc level; supervisor)
- *Summer 2024*: 7PAM2015 Research Methods in Data Science (MSc level; lecturer)
- *Spring 2024*: 7PAM2016 Advanced Research Topics in Data Science (MSc level; lecturer)

Institute of Space Sciences & Autonomous University of Barcelona, Department of Physics, ES

- *Spring 2021/2022/2023*: Neutron Stars, Black Holes & Gravitational Waves (MSc level; lecturer)
- *July 2021*: ICE Annual Summer School on *AI for Astronomy* (MSc/PhD level; lecturer)

Teaching (Continued)

McGill University, Department of Physics, Montréal, CA

- *June 2019*: CRAQ Annual Summer School on *Stellar Astrophysics* (MSc/PhD level; lecturer)
- *Spring 2019*: PHYS 434 Optics (BSc level; module leader & lecturer)
- *Autumn 2018*: PHYS 352 Electromagnetic Waves, PHYS 521 Astrophysics (BSc level; guest lecturer)
- *Autumn 2017*: PHYS 632 Seminar in Astrophysics (MSc/PhD level; module leader & instructor)
- *Spring 2017*: PHYS 432 Physics of Fluids (BSc level; guest lecturer)

University of Southampton, Mathematical Sciences, UK

- *Spring 2014/2015*: MATH1007 Mathematical Methods For Physicists (BSc level; teaching assistant)
- *Autumn 2012/2013/2014/2015*: MATH1052 Differential Equations (BSc level; teaching assistant)
- *Autumn 2012/2013*: MATH2045 Vector Calculus & Complex Variables (BSc level; teaching assistant)
- *Spring 2014*: MATH3006 Relativity, Black Holes & Cosmology (BSc level; teaching assistant)

University of Tübingen, Department of Physics, DE

- *2008 – 2012*: PP2 Experimental Physics II (BSc level; instructor & lecturer)
- *Spring 2012*: VFKOS Observational Cosmology (MSc level; teaching assistant)
- *Autumn 2011*: VFHAP High Energy Astrophysics (MSc level; teaching assistant)

Supervision and Line Management

Postdoctoral Researchers

- Dr Joanna Berteaud, RHUL, UK (since 2026)
- Dr Gary Liu, RHUL, UK (since 2026)
- Dr Michele Ronchi (co-supervised with N. Rea), Institute of Space Sciences, ES (2024 – 2025)

PhD Students

- Rebecca McShane, RHUL, UK (since 2026)
- Lowri Mathias (co-supervised with D. Tsang and W. Newton), University of Bath, UK (since 2024)
- Celsa Pardo Araujo (co-supervised with N. Rea), Institute of Space Sciences, ES (since 2021)
- Michele Ronchi (*cum laude*; co-supervised with N. Rea), Institute of Space Sciences, ES (2020 – 2023)

MSc Students

- Zoë Fowler, Institute of Space Sciences, ES (2022/2023)
- Marco Ermolli (co-supervised with D. Viganò), Institute of Space Sciences, ES (2020/2021)
- Étienne Camphius, McGill University, CA (2019)

BSc Project and Summer Students

- Olivia West, RHUL, UK (summer 2025)
- Nora Malgeri, RHUL, UK (spring 2025)
- Eric Amill Ferré, Institute of Space Sciences, ES (spring 2021)
- Claudia Bielecki, McGill University, CA (2019)
- Aveen Mahon, McGill University, CA (spring 2019)
- Jean-Michel Cauchy-Delli Gatti, McGill University, CA (summer 2017)

Professional Services and Departmental Leadership

- **since 2020:** *Mentor*, Evangelisches Studienwerk e.V. Villigst, DE
- **Sept 2025:** *Mock interview panel member*, EPSRC Open Fellowship, RHUL, UK
- **Oct 2020 – Feb 2024:** *Chair*, Pizza Seminars, Institute of Space Sciences, ES
- **Sept 2020 – Sept 2023:** *Member (chair 2022/2023)*, Equity Committee, Institute of Space Sciences, ES
- **Oct – Nov 2022:** *Organiser/instructor*, ECR Workshop on Postdoc Application Writing, ICE, ES

Professional Services and Departmental Leadership (Continued)

- **July 2020 – Aug 2022:** *Organiser*, Machine Learning Journal Club, Institute of Space Sciences, ES
- **Oct 2016 – Dec 2019:** *Member*, AstroMcGill (McGill Space Institute Outreach Team), CA
- **May – Aug 2019:** *Instructor*, McGill Space Institute Student Workshops, McGill University, CA
- **June 2017 – May 2019:** *Co-organiser*, McGill Space Institute Seminars, McGill University, CA
- **Aug – Dec 2018:** *Organiser*, Postdoctoral Personal Development Workshops, McGill University, CA
- **May – Aug 2018:** *Instructor*, McGill Space Institute Student Workshops, McGill University, CA
- **Oct 2014 – Aug 2016:** *Organiser*, Applied Maths Postgraduate Seminar, University of Southampton, UK

Reviewing and Refereeing Activities

- **since 2017:** *Reviewer* for scientific journals (A&A, ApJ, APSS, MNRAS, Nature, PASA, PRD, PRL)
- **Sept 2025:** *Panel member*, STFC Astronomy Large Awards, UK Research and Innovation, UK
- **Mar 2025:** *Observer*, Cross Research Council Responsive Mode, UK Research and Innovation, UK
- **Feb – Mar 2025:** *Evaluator*, FLF Selection Panel Member for Round 9, RHUL, UK
- **Nov 2022:** *PhD thesis committee*, Ricard Aguilera-Miret, University of the Balearic Islands, ES
- **Sept 2022:** *PhD thesis committee*, Laura Cabayol García, Autonomous University of Barcelona, ES
- **2021:** *External reviewer*, Early Career Scheme, Research Grants Council of Hong Kong, CN
- **2020:** *External reviewer*, OPUS Funding Scheme, National Science Center, PL
- **2017:** *External reviewer* Junior Leader Grant Competition, BASIS Foundation, RU

Scientific Meeting Organisation

- **Sept 2025:** *LOC & SOC*, SPINS-UK Meeting, RHUL, UK
- **July 2024:** *Invited Convener*, 10th International Conference on Quarks & Nuclear Physics, Barcelona, ES
- **Nov 2022:** *LOC*, 3rd ATHENA Conference, Barcelona, ES
- **May 2022:** *LOC & SOC*, Annual PHAROS Conference, Rome, IT
- **July 2021:** *LOC & SOC*, Institute of Space Sciences 4th International Summer School on AI, ES (online)
- **Mar 2020:** *SOC*, Annual PHAROS Conference, Patras, GR
- **Dec 2019:** *Invited Convener*, 30th Texas Symposium on Relativistic Astrophysics, Portsmouth, UK

Membership and Leadership Roles in Large Collaborations

- **since Sept 2025:** SCALES (European COST Action CA24139)
  Elected Co-chair and UK Management Committee representative
- **since Mar 2025:** New Athena Collaboration, Compact Objects & Transients Working Groups
- **since Sept 2024:** Extreme Matter in Extreme Stars (XMXS) Collaboration
  Co-lead of "Neutron Star Theory" White Book chapter
- **since June 2024:** BRIDGCE, UK Galactic Chemical Potential and Nuclear Astrophysics network
- **since Sept 2022:** Einstein Telescope (ET) Collaboration, Nuclear Physics & Transient Sources Divisions
- **since Aug 2022:** Center for Nuclear Astrophysics across Messengers (CeNAM)
- **since Feb 2020:** International Research Network for Nuclear Astrophysics (IReNA)
- **since Jan 2018:** Square Kilometre Array (SKA) Pulsar Science Working Group (Associate Member)
  Co-lead of "Pulsar Census" and "Equation of State in the SKAO Era" 2025 SKAO Science Book chapters
- **Feb 2019 – Sept 2025:** Joint Institute for Nuclear Astrophysics (JINA – CEE)
- **Mar 2022 – Feb 2024:** AIHUB, Artificial Intelligence initiative of Spain's National Research Council
- **Nov 2017 – May 2022:** PHAROS (European COST Action CA16214)
- **Nov 2013 – Nov 2017:** NewCompStar (European COST Action MP1304)

Membership in Scientific Societies

- **since Mar 2025:** *Elected Member*, Royal Astronomical Society (RAS)
- **since June 2022:** *Junior Member*, International Astronomical Union (IAU)

Membership in Scientific Societies

- **since Mar 2021:** *Ordinary Member*, European Astronomical Society (EAS)
- **since Oct 2014:** *Member*, Institute of Physics (IoP)
- **since Jan 2010:** *Member*, German Physical Society (DPG)
- **Feb 2021 - June 2025:** *Leadership Team*, Inclusion, Diversity & Equity in European Astronomy (IDEEA)
- **Oct 2016 – Dec 2019:** *Member*, Le Centre de recherche en astrophysique du Québec (CRAQ)

Outreach

- **Sept 2025:** Collaboration with RHUL social media team to produce reel on pulsar glitches, RHUL, UK
- **Aug 2025:** Interview on pulsars for long-standing BBC 4 Science Programme The Sky At Night, UK
- **Mar 2025:** Public lecture on *Neutron Star Hiccups & the Secrets They Reveal*, Science Week, RHUL, UK
- **Mar 2025:** Talk on *How to Become an Astrophysicist* at Women in Physics Plus meeting, RHUL, UK
- **Jan 2024:** Virtual interview on *Neutronensterne* with German Year 11 high school students
- **Apr 2022:** Interview on *Neutronensterne* for the German Astronomy and Space Science podcast raumzeit
- **Mar – Aug 2021:** Scientific advisor for the short film *Pulsars: A tale of cosmic clocks*, which highlights the work of Dame Jocelyn Bell Burnell and won the first prize at the Science in Action 2022 competition
- **Feb 2021:** Virtual secondary school talk on *Being a Theoretical Astrophysicist* for the 100tífiques initiative on the International Day of Girls and Women in Science, Barcelona, ES (online)
- **Oct 2020:** Webinar on *Neutron Stars – The Strongest Magnets in the Universe* as part of NASA's Universe of Learning program, USA (online)
- **July 2020:** Public lecture on *Wenn Neutronensterne Schluckauf haben* (in German) as part of the Faszination Astronomie Online series, Haus der Astronomie, Heidelberg, DE (online)
- **July 2020:** Public lecture on *Neutron Stars – Extraordinary Cosmic Laboratories* for SEDS Celestia (Astronomy & Astrophysics Club, BITS Pilani - K. K. Birla Goa Campus), Goa, IN (online)
- **Dec 2018:** Public lecture on *Neutron Stars – Extraordinary Cosmic Laboratories* as part of the Public AstroNight series, AstroMcGill, Montréal, CA
- **Nov 2018:** Science Storytelling Slam hosted by the Broad Science Initiative, Montréal, CA
- **Nov 2018:** Mentor and judge at the 3rd Annual McGill Physics Hackathon, Montréal, CA
- **Oct 2018:** Secondary school talk on *Our Solar System*, Schillerschule, Tuttlingen, DE
- **Sept 2017:** Astronomy on Tap talk on *Neutron Stars – A Space Odyssey*, Montréal, CA
- **Aug 2017:** Solar eclipse viewing for thousands of spectators, McGill University, Montréal, CA
- **Mar 2016:** Southampton Science and Engineering Festival, University of Southampton, UK
- **Nov 2015:** Einstein's Legacy (outreach event for college students), QMUL, UK
- **Mar 2015:** Southampton Science and Engineering Day, University of Southampton, UK
- **Mar 2014:** The Big Bang Fair (science fair for secondary school students), Birmingham, UK
- **Mar 2013:** Southampton Science and Engineering Day, University of Southampton UK

Additional Writing

- **Blog post**, *'A Truly Unique Experience' – Review of #LINO19*, Lindau Nobel Laureate Meetings (Sept 2019) https://www.lindau-nobel.org/blog-review-of-lino19-by-vanessa-graber/
- **Blog post**, *10 Questions with Vanessa Graber*, Women in Research (June 2019) https://womeninresearchblog.wordpress.com/2019/06/26/vanessa-germany/

Selected Press

- **Nov 2024:** *Physicists Spot Quantum Tornadoes Twirling in a 'Supersolid'*, Quanta Magazine
- **Aug 2024:** *A team of astronomers offer new insights into the evolution of pulsars*, ICE Press Release
- **Feb 2024:** *The 80s called, they want their ultra-long period radio transient back*, astrobites
- **June 2023:** *Probing the mysteries of neutron stars with a surprising earthly analog*, Knowable Magazine
- **Sept 2022:** *How (S)low Can You Go: Pulsar Edition*, AAS Nova

Selected Press (Continued)

- **June 2020:** *NASA discovers youngest 'cosmic baby' neutron star*, Independent
- **June 2020:** *Astronomers just discovered the youngest ever 'baby' dead star*, CNet
- **June 2020:** *Astronomers find baby pulsar – a rare magnetar – born just 240 years ago*, Astronomy Now
- **June 2020:** *Astronomers Discover Youngest Magnetar Ever*, Sci News
- **June 2020:** *Hallan estrella 'bebé' que explica origen de las explosiones en el universo*, La Vanguardia
- **Aug 2019:** *Pulsar glitch suggests superfluid layers lie within neutron star*, Physics World
- **Aug 2019:** *Wenn Neutronensterne aus dem Takt geraten*, Spektrum
- **Aug 2019:** *A Glitch In A Neutron Star Allowed Astronomers To 'Peek' At Its Interior*, IFL Science
- **Aug 2019:** *A Radio Glitch Reveals The Structure Of A Neutron Star*, Forbes
- **Aug 2019:** *Patient astronomers crack the code of super-dense spinning stars*, The Age

Additional Training

360 Feedback and Coaching, FLF Development Network, UK (summer 2025)

- *Details:* Survey-based feedback programme for colleagues/collaborators with 1:1 coaching session
- *Topics:* Clarifying strengths, understanding the impact we have on those around us, and identifying areas of further development through a standardised, balanced feedback process.

FLF Leadership Retreat, FLF Development Network, Manchester, UK (July 2025)

- *Details:* Three-day cross-disciplinary residential event for 20 Future Leaders Fellows
- *Topics:* Creating strategies for effective leadership, learning about personal leadership preferences, values and strengths to better support teams to thrive, focus, and be productive.

Online Training, The Race Institute at Leeds Trinity University and Universities UK (spring 2025)

- *Details:* Four-part webinar series open to all UK higher education staff
- *Topics:* Empowering and equipping staff at all levels with knowledge to champion anti-racist transformation and foster equity, inclusion, and justice.

Teaching Techniques for Instructors Workshop, McGill University, Montréal, CA (Sept 2017)

- *Details:* One-day workshop organised by the Faculty of Science Peer Mentoring Program
- *Topics:* Writing course syllabi, organising content, creating learning objectives, giving feedback.

Career and Leadership Development Course, University of Southampton, UK (Feb 2015)

- *Details:* Two-day intensive residential course run by the University's Doctoral College
- *Topics:* Developing a personal leadership style, improving understanding of career planning.

Management and Leadership Course, Furtwangen University, DE (Apr – Sept 2009)

- *Details:* Initiative by the Ba-Wü Foundation to support 20 outstanding female STEM students
- *Topics:* Improving management, communication and leadership skills through online training modules and on-site seminars, completing a marketing project in collaboration with a local company.

Publications

Below, I list 25 articles to which I have made significant personal contributions. 21 have been published in international peer-reviewed journals. I also provide current citation counts for each publication according to NASA's Astrophysics Data System (ADS). The **total citation count for all papers is 618**. Publication details are available at the ADS and ORCiD databases, while preprints are publicly accessible on the arXiv preprint server. Those papers that were led by PhD students are highlighted with an asterisk (⋆).

[25] L. Levin, M. Bagchi, M. Burgay, A. Deller, **V. Graber**, A. Igoshev, D. Lorimer, B. Posselt, T. Prabu, K. Rajwade, N. Rea, B. Stappers, T. M. Tauris, P. Weltevrede, and The SKAO Pulsar Science Working Group, *Understanding the Neutron Star Population with the SKAO telescopes*, submitted to Open J. Astrophys (2025)

[24] A. Basu, **V. Graber**, M. E. Lower, M. Antonelli, D. Antonopoulou, M. Bagchi, P. Char, P. C. C. Freire, B. Haskell, H. Hu, D. I. Jones, B. Mukhopadhyay, M. Oertel, N. Rea, V. Sagun, B. Shaw, J. Singha, B. W. Stappers, T. Thongmeearkom, A. Watts, P. Weltevrede, and The SKA Pulsar Science Working Group, *Probing neutron star interiors and the properties of cold, ultra-dense matter with the SKA*, accepted at Open J. Astrophys (2025)

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