

JACK THOMPSON

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<http://jthompson.au/>

CURRENT POSITION

- Jul. 2024 – **Associate Lecturer**, *University of Western Australia*
Jun. 2026 Equivalent to a postdoctoral position outside Australia.

EDUCATION

- Feb. 2021 – **Doctorate in Philosophy**, *University of Western Australia*
Dec. 2024 Supervisors: Enrico Valdinoci, Serena Dipierro, and Giorgio Poggesi.
Thesis Title: *Stability results for nonlocal Serrin-type problems, antisymmetric Harnack inequalities, and geometric estimates.*
Included on UWA's Dean's list.
- 2020 **Bachelor of Mathematics (Honours)**, *University of Queensland*
Supervisors: Artem Pulemotov (principal), and Timothy Buttsworth
Thesis Title: *On the Uniqueness of Conformal Metrics with Prescribed Curvature*
GPA: 7/7, First Class Honours
- 2017 – 2019 **Bachelor of Mathematics**, *University of Queensland*
GPA: 6.83/7

AWARDS AND SCHOLARSHIPS

- Dec. 2025 **Commendation for Outstanding Contributions to Student Learning**
An award from the University of Western Australia's School of Physics, Mathematics and Computing for contributions to teaching excellence.
- May 2025 **GRS Dean's List**
An award from the University of Western Australia's Board of the Graduate Research School recognising outstanding theses.
- Mar. 2025 **AustMS Lift-off Fellowship**
A prestigious fellowship to jump-start the careers of young mathematicians by supporting them after submitting their PhD thesis. The Lift-off Fellowships are awarded on academic merit.
- Sep. 2023 **AMSI-AustMS Heidelberg Laureate Forum Travel Support**
- Dec. 2020 **Ethel Raybould Prize in Mathematics**
Awarded to the honours student in the field of mathematics at the University of Queensland with the greatest proficiency for the year.
- Feb. 2021 – **Australian Government RTP Fees Offset Scholarship and RTP Stipend**
Jul. 2024 The RTP Stipend provides a stipend during my PhD candidature and the RTP Fees Offset Scholarship is used by the University to offset tuition fees for the research component of my PhD.

- Feb. 2017– **Seven time recipient of Dean’s Commendation for Academic Excellence**
Nov. 2019 Awarded each semester to a student at the University of Queensland who has displayed outstanding academic achievements.

ARTICLES AND PREPRINTS

9. Volumetric density estimates for nonlocal minimal surfaces
Mateusz Kwaśnicki, Jack Thompson.
arXiv:2605.02176
8. A half-space theorem for nonlocal minimal surfaces
Matteo Cozzi, Jack Thompson.
arXiv:2604.27628
7. Density estimates and the fractional Sobolev inequality for sets of zero s -mean curvature.
Jack Thompson.
Calc. Var. 65, 2 (2026).
6. The nonlocal Harnack inequality for antisymmetric solutions: an approach via Bochner’s relation and harmonic analysis.
Serena Dipierro, Mateusz Kwaśnicki, Jack Thompson, and Enrico Valdinoci.
Comm. Partial Differential Equations 50.8 (2025), pp. 1074–1098
5. Some nonlocal formulas inspired by an identity of James Simon.
Serena Dipierro, Jack Thompson, Enrico Valdinoci.
Münster J. Math. 18 (2025), p.201-226.
4. Quantitative stability for overdetermined nonlocal problems with parallel surfaces and investigation of the stability exponents.
Serena Dipierro, Giorgio Poggesi, Jack Thompson, and Enrico Valdinoci.
J. Math. Pures Appl. (9) 188 (2024), pp. 273–319.
3. Quantitative stability for the nonlocal overdetermined Serrin problem.
Serena Dipierro, Giorgio Poggesi, Jack Thompson, Enrico Valdinoci.
Submitted. Available preprint at arXiv:2309.17119.
2. On the Harnack inequality for antisymmetric s -harmonic functions.
Serena Dipierro, Jack Thompson, and Enrico Valdinoci.
J. Funct. Anal. 285.1 (2023), Paper No. 109917, 49.
1. The role of antisymmetric functions in nonlocal equations.
Serena Dipierro, Giorgio Poggesi, Jack Thompson, and Enrico Valdinoci.
Trans. Amer. Math. Soc. 377.03 (2024), pp. 1671–1692.

INVITED PRESENTATIONS

- Mar. 2026 *University of Sydney PDE seminar, Sydney, Australia.*
Mar. 2026 *ANU PDE and analysis seminar, Canberra, Australia.*
Nov. 2026 *Universität Bonn Oberseminar Analysis, online.*
Oct. 2025 *ESI Thematic Programme on Free Boundary Problems, Vienna, Austria.*
May. 2025 *University of Milan Analysis Seminar, Milan, Italy.*
Jan. 2024 *MATRIX Elliptic Partial Differential Equations, Geometry, and the Calculus of Variations, Creswick, Australia.*

- Dec. 2023 *AustMS Annual Meeting, Brisbane, Australia.*
- Jul. 2023 *International Conference on Nonlinear Partial Differential Equations In Honour of Professor Neil Trudinger's 80th Birthday, Sydney, Australia.*
- May 2023 *Asia-Pacific Analysis and PDE Seminar, online.*
- Jan. 2023 *MATRIX Minimal surfaces and geometric flows: interaction between the local and the nonlocal worlds, Creswick, Australia.*
- Dec. 2022 *AustMS Annual Meeting, Sydney, Australia.*
- Aug. 2022 *Australian Geometric PDE Seminar, online.*
- Dec. 2021 *AustMS Annual Meeting, online.*

TEACHING

- Sem. 2, 2025 **Course coordinator** at the *University of Western Australia*. Taught *MATH1720: Mathematics Fundamentals*.
- Sem. 2, 2024 **Course coordinator** at the *University of Western Australia*. Taught *MATH1720: Mathematics Fundamentals*.
- Sem. 1, 2022 **Assistant to course coordinator** at *University of Western Australia*. Extra responsibilities included organisation of teaching assistants, running of weekly assignments, and involvement in mid-semester/final exam. Taught two classes in this period.
- Sem 2, 2022
- Sem. 1, 2021 **Teaching assistant** at the *University of Western Australia*. Taught 12 classes in this period.
- Sem. 1, 2024 A complete list can be found on my website.
- Sem. 1, 2019 **Teaching assistant** at the *University of Queensland*. Taught 10 classes in this period. A complete list can be found on my website.
- Sem 2, 2021

ORGANISATION

- Feb. 2024 – Organisation committee for 7-th Australian Mathematical Sciences Students Conference, held at Western Sydney University in Sydney, Australia between 4 Dec. 2024–6 Dec. 2024.
- Nov. 2024
- Aug. 2022 – Organised a weekly outreach seminar series for undergraduate students.
- Jul. 2024

SERVICE

- Peer Review:** Calculus of Variations and Partial Differential Equations, and Discrete and Continuous Dynamical Systems.
- Dec. 2023 – Vice-president of the newly formed Association of Australian Mathematics Students (AAMS).
- Dec. 2024.
- Feb. 2023 – Maths Union postgraduate representative, *University of Western Australia*.
- Jul. 2024

EXTENDED VISITING EXPERIENCES

- Jan. 2025 – *Università degli Studi di Milano, Italy*. Invited by M. Cozzi and G. Ciraolo.
- May 2025
- Oct. 2023 *Universitat de Barcelona, Bracelona*. Invited by X. Ros-Oton.

Sep. 2023 *10-th Heidelberg Laureate Forum.*
Oct. 2022 – *Universitat de Barcelona, Bracelona. Invited by X. Ros-Oton.*
Nov. 2022

Last updated: May. 2026.