Tommaso Rosati

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Academic positions

2022- **Harrison Early Career Assistant Professor** at the *University of Warwick*.
Additionally supported by a Leverhulme Early Career Fellowship.

2020-2022 **Research associate (postdoc)** in the group of Martin Hairer, *Imperial College London*.

INTERESTS • Probability, stochastic analysis, PDEs, dynamics of stochastic PDEs.

Education

2017-2020 **PhD** in mathematics, *Freie Universität Berlin*.
PhD thesis "Singular SPDEs and Fluctuations of Particle Systems". Supervisor: Nicolas Perkowski.
Final grade: Summa cum laude.

2015-2017 **Master** in mathematics, *Humboldt Universität zu Berlin*.
Master thesis on "The KPZ Equation on the Real Line". Supervisor: Nicolas Perkowski.
Final grade: 1.0.

2012-2015 **Bachelor** in mathematics, *Università di Roma Tor Vergata*.
Bachelor thesis on "Tropical Conics". Supervisor: Ciro Ciliberto.
Final grade: 110/110 summa cum laude.

List of publications and preprints (articles can be found on arxiv.org)

2025 • "Invariant measures for the open KPZ equation: an analytic perspective", with A. Dunlap and Y. Gu, *submitted.*
• "Lower bounds on Lyapunov exponents for linear PDEs driven by the 2D stochastic Navier–Stokes equations", with M. Hairer, S. Punshon-Smith and J. Yi.
Duke Math. J. *(under minor revisions).*
• "Quantitative instability for stochastic scalar reaction-diffusion equations", with A. Blessing.
Ann. Appl. Probab. *(to appear).*
• "Spectral gap for projective processes of linear SPDEs", with M. Hairer.
Commun. Am. Math. Soc. (2025) 5 (06), 209-283.
• "Synchronisation for scalar conservation laws via Dirichlet boundary", with A. Djurdjevac.
Bernoulli (2025) .
2024 • "The Allen-Cahn equation with weakly critical random initial datum", with S. Gabriel and N. Zygouras.
Probab. Theory Related Fields (2024): 1-74.
• "Global existence for perturbations of the 2D stochastic Navier-Stokes equations with space-time white noise", with M. Hairer.
Ann. PDE 10, no. 1 (2024): 3.
2023 • "The wave speed of an FKPP equation with jumps via coordinated branching", with A. Tobias.
Electron. J. Probab. 28 (2023): 1-29.
• "The Allen–Cahn equation with generic initial datum", with M. Hairer and K. Le.

Probab. Theory Related Fields (2023): 1-42.
• "The spatial Λ-Fleming-Viot process in a random environment", with A. Klimek.
Ann. Appl. Probab. 33.3 (2023): 2426-2492.
• "Synchronization for KPZ".
Stoch. Dyn. 22 (2022) No. 04, 2250010. Won a Best Paper award.
2021 • "Lyapunov exponents in a slow environment".
Stochastic Process. Appl. 170 (2024): 104296.
• "A rough super-Brownian motion" with N. Perkowski.
Ann. Probab. 49.2 (2021): 908-943.
2020 • "Killed rough super-Brownian motion".
Electron. Commun. Probab. 25 (2020): 1-12.
• "Modelled Distributions of Triebel-Lizorkin Type", with S. Hensel.
Studia Math. 252 (2020), 251-297.
2019 • "The KPZ Equation on the Real Line", with N. Perkowski.
Electron. J. Probab. 24 (2019): 1-56. Won the EHS and the Huboldt prizes.

Grants, Awards, & Co.

2025 Bernoulli Centre Lausanne (10k£) towards the organisation of a workshop, joint with M. Dolce.
Heilbronn Small Grant (6k£), joint with F. Bechtold, E. Gussetti, and A. Mayorcas.
2024 Leverhulme Early Career Fellowship (100k£).
Stochastics & Dynamics Best Paper award for the article "Synchronization for KPZ".
2022 IAS Warwick travel award (2k£).
2018 Humboldt Prize for master theses.
2017 Erhard Höpfner Stiftung prize for best master theses in the natural sciences at Berlin universities.
2016-2017 DAAD scholarship for students of all scientific subjects, 2016/17.
2013-2015 Scholarship for talented students, granted by Tor Vergata University.

Refereeing Activity

• *I periodically referee for:* Royal Society Proceedings A; Trans. Amer. Math. Soc.; Comm. Math. Phys.; Stoch. Dyn.; Probab. Theory Related Fields.; Math. Nachr.; Electron. J. Probab.; Ann. Probab.; Ann. Appl. Probab.; J. Math. Anal. Appl.; SIAM J. Math. Anal.; C. R. Math. Acad. Sci. Paris; Arch. Ration. Mech. Anal.; Rev. Math. Phys.; ESAIM Probab. Stat.; J. Funct. Anal.; Bernoulli; Stoch. Partial Differ. Equ. Anal. Comput.; Stochastic Process. Appl.; Nonlinearity.

Selected invited talks

2026 • "Wave and hydrodynamic turbulence", Imperial College London.
• Thematic term on stochastic PDEs (workshop talk), SISSA, Trieste.
• "Recent Trends in Stochastic Analysis", Campinas, Brazil.
• "SPDEs in Fluid Dynamics and Beyond", Nanjing, China.
• "Statistical Mechanics and Singular SPDEs", NUS Singapore.
• "Chinese-Italian Conference on Stochastic Analysis", Chinese Academy of Sciences, Beijing, China.
• "5th Italian Meeting on Probability and Mathematical Statistics", Palermo.
• Analysis Seminar, University of Birmingham.
• Probability Seminar, University of Edinburgh.
2025 • Probability Seminar, University of Surrey.
• "Emerging synergies between stochastic analysis and statistical mechanics", Banff, Canada.
• "Recent Trends in Stochastic Partial Differential Equations", SL Math, Berkeley, USA.
• AMS Sectional Meeting, "Recent Advances at the Interface of Dynamics and Fluids", Tulane, USA.
• "Navigating Irregularity, Turbulence, and Stochasticity in Fluid Dynamics", ICMS Edinburgh.
• "Conference on Random Dynamical Systems", University of Konstanz.

- Deterministic and Stochastic Advection in Fluid Dynamics, Basel.
- “Stochastic Analysis in Mathematics and Natural Sciences”, IACM, Crete.
- SIAM Conference on dynamical systems, Denver.
- TRR opening conference, Berlin.
- Probability Seminar, Pisa.
- Clifford Lectures accompanying conference, Tulane, New Orleans.
- Dynamics seminar, Georgia Tech, Atlanta.

2024
- “Seminário de Probabilidade e Mecânica Estatística”, IMPA (online).
- Probability seminar, Bath.
- “Dynamics days Europe” , Bremen.
- “11th World Congress in Probability and Statistics” , Bochum.
- “AMS-UMI International Joint Meeting” , Palermo.
- “PDEs and Randomness” (Summer school + conference), AIMS Senegal.
- “New developments and challenges in Stochastic Partial Differential Equations” , Lausanne.
- “4-th Italian Meeting on Probability and Mathematical Statistics ” , Rome.
- “Equadiff” conference, Karlstad.
- Probability seminar, University of York.
- Probability seminar, University of Tor Vergata.
- Early career math colloquium (Online), University of Arizona.
- GEN-Y Workshop (Early career stochastic PDEs), Munster.
- Paris–London analysis seminar, Imperial College London.
- Stochastic Analysis and Stochastic Finance Seminar, Oxford.
- Analysis Seminar, Queen Mary University.
- Probability seminar, Durham.
- Analysis seminar, SISSA, Trieste.
- Probability seminar, GSSI, L’Aquila.
- Cimat–Unam–Warwick–Bath Workshop, Playa del Carmen, Mexico.

2023
- Warwick–Kiev Stochastic Analysis online seminar.
- IRTG Colloquium, Berlin.
- PDE Seminar Muenster.
- “Fluid Equations, A Paradigm for Complexity”, BIRS Workshop, Banff.
- Probability Seminar, University of Madison–Wisconsin.
- “Enjoying Probability and Fluids”, Lausanne.
- “10th International Congress on Industrial and Applied Mathematics”, Tokyo.
- “Early career researchers in mathematics”, Durham.
- “CRC Colloquium”, Collaborative Research Center “Scaling Cascades in Complex Systems”, Berlin.
- “Stochastics, Dynamics, and Geometry Workshop in honour of Peter Baxendale”, Warwick.
- “Interplay of partial differential equations and stochastic processes”, Birmingham.
- “Workshop on PDEs related to probability, and fluid dynamics”, Max–Planck Institute Leipzig.
- “NEMSA probability seminar”, York.

2022
- Probability seminar Konstanz.
- Stochastic analysis seminar Bielefeld.
- Probability seminar Warwick.
- Webinar on stochastic analysis, Beijing Institute of Technology.
- Conference “DMV Tagung”, Berlin.
- Workshop “SPDEvent”, Bielefeld.
- Conference “SRA Meeting”, Berlin.
- Conference “SPA”, Wuhan.
- Workshop “Stochastic Dynamics for Complex Systems”, Vienna.
- MFO meeting “Regularization by Noise”, Oberwolfach.

2021
- Oberseminar dynamics, TUM Munich.
- Vienna probability seminar (VPS), TU Wien.
- Research seminar stochastic analysis, TU Berlin.
- Workshop “Stochastic Dynamics for Complex Systems”, Vienna.

• Conference “German Stochastic Days”, Mannheim.
• Research seminar of the group of Alison Etheridge, Oxford.
2020 • Oxford stochastic analysis seminar.
• Imperial College stochastic analysis seminar.
2019 • Workshop “Berlin-Leipzig workshop in analysis and stochastics” , MPI Leipzig.
• Workshop “11th Annual Berlin-Oxford young researchers meeting” , WIAS Berlin.
• Workshop “Random partial differential equations” CIRM Luminy, Marseille.
• Conference “BMS - BGSMath junior meeting” , TU/FU Berlin.
• Conference “Stochastic analysis and applications” , Risor, Norway.
• Yearly conference of the IRTG1740 research group.
• Workshop “SPDE day - recent progress on quasilinear equations” , HIM Bonn.
2018 • Probability research seminar of the University of Campinas, Brazil.
• Yearly conference of the IRTG 1740, Cachoeira Paulisa, Brazil.
• Conference “VI Encontro da Pos-Graduacao” , University of Bahia, Brazil.
• Workshop “8th Oxford-Berlin young researchers meeting”, Oxford.

Teaching & Mentoring

• Brownian motion (MSc Module, ST403, 30 Hours) in the years 2022/23, 23/24, 24/25, 25/26.
• Introduction to SPDEs (PhD module, ST924, 10 Hours) in the years 2023/24, 25/26.
• Cosupervisor of one PhD student (T. Galanis) since 2024.
• Maintaining “Probability at Warwick” website since 2023.
2025-2026 • Organisation reading group on GMC.
• Personal Tutor of 15 students.
2024-2025 • Supervisor of one master student (J. Sagoo).
• Supervisor of three summer research projects (D. Sanchez, D. Khan, N. Nogueira).
• Personal Tutor of 20 students.
2023-2024 • Supervisor of one visiting PhD student (A. Chen, from UniCamp, Brazil).
• Supervisor of three master thesis (M. Gbur, L. Jiang, L. C. Vidal).
• Supervisor of one bachelor thesis (T. Han).
• Supervisor of one summer research project (E. Martin).
• Personal Tutor of 28 students.
2022-2023 • Personal Tutor of 20 students.
2019-2020 Weekly advanced math (& problem solving) classes with high-school students (MSG Zirkel).
2015-2017 Teaching assistant in “Stochastic analysis” (Mathematics), “Differential equations” (Physics),“Analysis I” (Informatics).

Organisation

2026 • Workshop “Log-correlated fields and stochastic PDEs” at University of Rome Tor Vergata (with G. Cipolloni).
2025 • Workshop “Long-Time Dynamics in Random and Deterministic Systems” at the Bernoulli Centre EPFL (with M. Dolce).
• Contributed minisymposium at the SIAM Conference on Applied Dynamical Systems, Denver (with S. Punshon-Smith).
• Contributed minisymposium SPA Wroclaw (with N. Barashkov).
• Early Career Researchers Committee, Department of Statistics, Warwick.
2017-2025 Reading groups (approximately one a year, recently GMC, Polchinski flow, ...).
2019 IRTG 1740 yearly school and conference.
2018 BMS “What is ...?” seminar.

Research visits

- 2025 • Sam Punshon-Smith, Tulane ~ 1 week.
- • Alex Blumenthal, Georgia Tech ~ 1 week.
- • Felix Otto, MPI Leipzig ~ 2 weeks.
- 2024 • Thematic term on SPDEs, Bernoulli Center EPFL ~ 2 weeks.
- • Martin Hairer, EPFL ~ 1 week.
- • Xue-Mei Li, EPFL ~ 1 week.
- 2023 • Martin Hairer, EPFL ~ 2 weeks.
- 2022 • Sam Punshon-Smith, at Tulane University ~ 1 week.
- • Alexandra Neamtu, at University of Konstanz ~ 1 week.
- • Martina Hofmanova, at University of Bielefeld ~ 1 week.
- • Ana Djurdjevac, at FU Berlin ~ 2 weeks.
- 2018 • Dirk Erhardt, University of Salvador de Bahia ~ 1 week.
- • Paulo Ruffino, 6 Months stay at UNICAMP (University of Campinas, Brazil).