Curriculum vitae - Lucio Galeati

I'm a mathematician working in the fields of Stochastic Analysis and PDEs.

As of October 2024, I'm a Tenure Track Researcher (RTT) at the Università degli Studi dell'Aquila. As of June 2025, I hold the Italian National Scientific Habilitation (Abilitazione Scientifica Nazionale di Seconda Fascia, Settore Concorsuale 01/A3 - Analisi Matematica, Probabilità e Statistica Matematica).

I'm also a member of the editorial board of the YoungStatS Blog and a member of the European Young Acamedemy (EMYA).

Email: lucio.galeati@univaq.it
URL: https://sites.google.com/view/lucio-galeati-math/home
Academic profiles: Scholar, ResearchGate, Orcid, Scopus

Born: 01 September, 1994—Fano, Italy
Nationality: Italian
Languages: Italian (native), English (professional), Spanish (basic), French (basic)

Employment

2024 - ongoing Tenure Track Researcher (Ricercatore RTT) at Università degli Studi dell'Aquila

WS 2024-25 Substitute Professorship in Probability at Freie Universität Berlin

2022 - 2024 PostDoc position at EPFL Lausanne in the research group of Prof. M. Colombo

Education

2018 - 2022 PhD in Mathematics, University of Bonn
Defense sustained on 23/06/2022, Final grade: 1.0 (magna cum laude)
Thesis title: *Pathwise methods in regularisation by noise* (available here)
PhD Supervisor: Prof. M. Gubinelli

2016-2018 MSc in Mathematics, University of Padova
Final grade: 110/110 cum laude, GPA: 30/30
Thesis title: *Stochastic Fluid Dynamics Equations with Multiplicative Noise*
Thesis Supervisor: Prof. D. Barbato

2016-2017 Erasmus experience, University of Warwick

2013-2016 BSc in Mathematics, University of Padova
Final grade: 110/110 cum laude, GPA: 29.5/30
Thesis title: *Large Deviation Theory for Markov Chains with an application to Taylor's Law*
Thesis Supervisor: Prof. P. Dai Pra

Publications

2025 M. Bagnara, L. Galeati, M. Maurelli. Regularization by rough Kraichnan noise for the generalised gSQG equations. *Math. Annalen* link.
L. Galeati. Almost-everywhere uniqueness of Lagrangian trajectories for 3D Navier–Stokes revisited. *J. Math. Pures Appl.* **200**, 103723. link
L. Galeati, M. Gerencsér. Solution theory of fractional SDEs in complete subcritical regimes. *Forum Mathematics, Sigma.* **13**, e12. link

2024 L. Galeati, M. Gubinelli. Prevalence of ρ-irregularity and related properties. *Ann. Inst. H. Poincaré Probab. Statist.* **60** (4), 2415–2467. link

L. Galeati: A note on weak existence for singular SDEs. *Stoch. Dyn.* **24** (3), 2450025. link

F. Flandoli, L. Galeati, D. Luo: Quantitative convergence rates for scaling limit of SPDEs with transport noise. *J. Diff. Equ.* **394**, 237–277. link

2023 L. Galeati, M. Gubinelli: Mixing for generic rough shear flows. *SIAM J. Math. Anal.* **55** (6), 7240–7272. link.

L. Galeati, D. Luo: LDP and CLT for SPDEs with transport noise. *Stoch. PDE: Anal. Comp.* link.

L. Galeati, C. Ling: Stability estimates for singular SDEs and applications. *Electron. J. Prob.* **28**, 1–31. link

L. Galeati, F.A. Harang, A. Mayorcas: Distribution Dependent SDEs driven by additive fractional Brownian motion, *Probab. Theory Relat. Fields* **185**, 251–309. link

L. Galeati: Nonlinear Young Differential Equations: A Review, *J. Dyn. Diff. Equ.* **35**, 985–1046. link

2022 L. Galeati, F.A. Harang: Regularization of multiplicative SDEs through additive noise, *Ann. Appl. Prob.* **32** (5), 3930–3963. link

L. Galeati, F.A. Harang, A. Mayorcas: Distribution Dependent SDEs driven by additive continuous noise, *Electron. J. Prob.* **27**, 1–38. link

F. Flandoli, L. Galeati, D. Luo: Eddy heat exchange at the boundary under white noise turbulence, *Philosophical Transactions of the Royal Society A*, **380**, Issue 2219. link

L. Galeati, M. Gubinelli: Noiseless regularisation by noise, *Rev. Mat. Iberoam.*, **38** (2), 433–502 link

2021 F. Flandoli, L. Galeati, D. Luo: Delayed blow-up by transport noise, *Comm. PDEs* **46** (9), 1757–1788. link

F. Flandoli, L. Galeati, D. Luo: Scaling limit of stochastic 2D Euler equations with transport noises to the deterministic Navier–Stokes equations, *J. Evol. Equ.* **21**, 567–700. link

2020 L. Galeati: On the convergence of stochastic transport equations to a deterministic parabolic one, *Stoch. PDE: Anal. Comp.* **8**, 833–868. link

Submitted Preprints

2025 L. Anzeletti, L. Galeati, A. Richard, E. Tanré. On the density of singular SDEs with fractional noise and applications to McKean-Vlasov equations. arXiv:2506.11900

L. Galeati, J.-M. Leahy, T. Nilssen. On the well-posedness of (nonlinear) rough continuity equations. arXiv:2502.04982

2024 L. Galeati, F. Grotto, M. Maurelli: Anomalous Regularization in Kraichnan's Passive Scalar Model, arXiv:2407.16668

L. Galeati, K. Lê, A. Mayorcas: Quantitative Propagation of Chaos for Singular Interacting Particle Systems Driven by Fractional Brownian Motion, arXiv:2403.05454

2023 L. Galeati, D. Luo: Weak well-posedness by transport noise for a class of 2D fluid dynamics equations, arXiv:2305.08761

Awards, fundings and projects

2025 PI for the GNAMPA project *Modelli stocastici in Fluidodinamica e Turbolenza"*, funding of 3'500 EUR

Recipient of 2'000 EUR funding for a Starting Research Project (Progetto di Avvio alla Ricerca) at Univaq, entitled *Transport PDEs with low regularity coefficients and passive scalar turbulence*.

2024 Winner of an Ambizione SNF Grant, corresponding funding of 830'660 CHF (turned down).

2023 Acceptance of Bernoulli Postdoctoral Workshop proposal, corresponding funding of 28'000 CHF (jointly with M. Dolce and M. Sorella).

2022 IMS Hannan Graduate Student Travel Award.

2018-2022 BIGS Hausdorff PhD Scholarship.

Supervised thesis and projects

WS 2023-2024 Christian N'Guessan, Master project (supervised jointly with Prof. M. Colombo)
Title: *A Stochastic Lagrangian Representation of the 3D Incompressible Navier-Stokes Equations*.

SS 2022-2023 Younes Mouhib, Bachelor project (supervised jointly with Prof. M. Colombo)
Title: *On the subadditive ergodic theorem and its applications*.

Teaching

SS 2024-2025 Lecturer for *Stochastic Processes*, M. Sc. Mathematical Engineering (Real Maths Double Degree), Università dell'Aquila

WS 2024-25 Lecturer for *Stochastics III*, M.Sc. Mathematics course, FU Berlin

Lecturer for *Masterseminar Stochastics - Averaging and Homogenization in SDEs*, M.Sc. Mathematics course, FU Berlin

SS 2023-2024 Lecturer for *Functional Analysis II*, B.Sc. Mathematics course, EPFL Lausanne

SS 2022-2023 Teaching Assistant for *Functional Analysis II*, B.Sc. Mathematics course, EPFL Lausanne

WS 2019-2020 Teaching Assistant for *Foundations of Stochastic Analysis*, B.Sc. Mathematics course, University of Bonn

SS 2017-2018 Tutor for *Introduction to Probability*, B.Sc. Mathematics course, University of Padova

SS 2017-2018 Tutor for *Linear Algebra 1*, B.Eng. Mechanical Engineering course, University of Padova

WS 2017-2018 Tutor for *Analysis 1*, B.Eng. Mechanical Engineering course, University of Padova

Refereeing activity

2022 - ongoing Reviewer for Mathscinet Mathreviews and for ZbMath.

2020 - ongoing Referee activity for several journals, including: Ann. Probab., Ann. Appl. Probab., Probab. Theory Relat. Fields, J. Eur. Math. Soc., Bernoulli, AIHP Probabilités, J. Math. Pures Appl., J. Funct. Anal., Electron. Commun. Probab., Electron. J. Probab., Stoch. Process. Their Appl., SIAM Math. Anal., SIAM Num. Anal., PDEs: Anal. Comp., Stoch. Dyn, Proc. A Royal Soc. Edinburgh, Physica D.

Organised events and sessions

2023 YStatS Webinar: *Stochastic Fluid Dynamics*, 15 November 2023 (fully online, recording here)
Bernoulli Workshop: *Enjoying Probability and Fluids in Lausanne* (jointly with M. Dolce and M. Sorella). 18 - 22 September 2023, Bernoulli Center, EPFL Lausanne
Contributed Session: *Recent advances in stochastic fluid dynamics*. At the 43rd Conference on Stochastic Processes and their Applications, Lisbon, 24 - 28 July 2023
Summer School: *Deterministic and random features of fluids* (jointly with M. Colombo, M.

Dolce and M. Sorella). 3 - 7 July 2023, EPFL Lausanne

2022 Minisession: *Rough Analysis and Applications* (jointly with C. Bellingeri). At the Third Italian Meeting on Probability and Mathematical Statistics, Bologna, 13 - 16 June 2022

Talks and seminars

2025 16 April, TU Wien, Workshop: Regularization by noise
Regularity of the conditional densities for singular fractional SDEs
8 April, Online Seminar: Non-local operators, probability and singularities
Regularity of the conditional densities for singular fractional SDEs
18 March, Gran Sasso GSSI, Analysis and PDE Seminar
A.e. uniqueness for (stochastic) Lagrangian trajectories for Leray solutions of 3D Navier-Stokes
13 February, FU Berlin, CRC1114-Colloquium
Modelling turbulent fluids by noise: theoretical challenges

2024 10 October, TU Berlin, CRC Opening Day
Anomalous regularisation and anomalous dissipation in the Kraichnan model
12 September, Beijing, AMSS Seminar (online talk)
A.e. uniqueness for (stochastic) Lagrangian trajectories for Leray solutions of 3D Navier-Stokes
31 July, Bremen, Conference: Dynamics Days Europe
Evolution of Sobolev norms in the Kraichnan model
17 July, Seville, 9th European Congress of Mathematics (Talk at contributed session)
Singular McKean–Vlasov SDEs driven by fractional Brownian motion
4 July, Delft, Workshop: SPDEs below sea level
Evolution of Sobolev norms in the Kraichnan model
20 June, Lausanne, Bernoulli Workshop: New Developments and Challenges in SPDEs
A.e. uniqueness for (stochastic) Lagrangian trajectories for Leray solutions of 3D Navier-Stokes
12 June, Rome, 4th Italian Meeting on Probability and Mathematical Statistics (Talk at the invited session "Stochastic Fluid Dynamics")
Scaling limits for SPDEs with transport noise
14 May, Edinburgh Probability Seminar
Propagation of chaos for singular interacting particle systems driven by fBm
16 April, Pisa, Mini-Workshop: Noise and Singularity within Interacting Particle Systems
Propagation of chaos for singular interacting particle systems driven by fBm
26 February, Gran Sasso GSSI, SMAQ Seminar
Propagation of chaos for singular interacting particle systems driven by fBm
9 February, Analysis Seminar, Stony Brook University
A.e. uniqueness for (stochastic) Lagrangian trajectories for Leray solutions of 3D Navier-Stokes
16 January, SNS Pisa, SPASS Seminar
A.e. uniqueness for (stochastic) Lagrangian trajectories for Leray solutions of 3D Navier-Stokes

2023 20 December, Paris IHP, Workshop: Mean field interactions with singular kernels
A.e. uniqueness for (stochastic) Lagrangian trajectories for Leray solutions of 3D Navier-Stokes
3 November, Edinburgh, Talk at Maxwell Analysis Minisymposium
Regularisation by transport noise for 2D fluid dynamics equations
6 September, Pisa, XXII UMI Congress (Talk at contributed session)
Advances on interacting particle systems driven by fBm
25 August, Tokyo, ICIAM 2023 (Talk at Minisymposium)
Regularisation by transport noise for 2D fluid dynamics equations

14 August, Münster, Workshop: Stability, mixing and fluid dynamics
Regularisation by transport noise for 2D fluid dynamics equations
17 July, Bielefeld, Workshop: SPDEvent 2023
Propagation of chaos for singular interacting particle systems driven by fBm
17 May, Martina Hofmanova's research group seminar, University of Bielefeld
Regularisation by transport noise for 2D fluid dynamics equations
2 May, Stochastic Analysis Seminar, University of Konstanz
A Yudovich type theorem for nonlinear rough continuity equations
19 April, Early Career Math Colloquium Webinar, University of Arizona
Regularisation by transport noise for 2D fluid dynamics equations

2022 14 December, Beijing Webinar on Stochastic Analysis
Singular DDSDEs driven by fractional Brownian motion
10 November, One World Probability Seminar
Advances on regularisation of singular SDEs by fractional noise (video)
1 November, Delft, Workshop: Stochastic Analysis Afternoon
Scaling limits of SPDEs with transport noise
5 September, Trento, Workshop: Interacting Particle Systems and Applications
Singular DDSDEs driven by fractional Brownian motion
21 July, Grenoble, AMS-EMS-SMF International Meeting 2022
Recent advances on regularisation of ODEs by fractional noise
29 June, London, IMS Annual Meeting 2022
LDP and CLT for scaling limits of SPDEs with transport noise
15 June, Bologna, Third Italian Meeting on Probability and Mathematical Statistics
Recent advances on SDEs with fractional noise
20 May, Bonn Analysis group seminar
Mixing for generic rough shear flows
18 February, Oberwolfach Mini-workshop: Regularization by Noise: Theoretical Foundations, Numerical Methods and Applications
Some recent advances on SDEs with fractional noise

2021 3 December, Paris, GDR TRAG Young Researchers Meeting
Some recent advances on SDEs with fractional noise
26 November, Oslo, Workshop: Rough path techniques in stochastic analysis
Some recent advances on SDEs with fractional noise
29 October, Lausanne, EPFL Analysis seminar
Roughness of generic functions. Part II: prevalence of mixing and enhanced dissipation
30 September, German Probability and Statistics Days Mannheim, Prerecorded talk
Singular DDSDEs driven by additive fBm
1 July, Berlin, Rough Paths research unit seminar
Scaling limits of SPDEs with transport noise and applications
28 April, Imperial College, Junior Analysis Seminar
Scaling limits of SPDEs with transport noise
28 April, Oxford, Etheridge Group Seminar
Delayed blow-up by transport noise
19 March, Brasil, Stochastic Analysis seminar UNICAMP
Delayed blow-up by transport noise
8 March, CIRM Conference: Pathwise Stochastic Analysis and Applications

Distribution dependent SDEs driven by additive fBm
10 February, 14th Berlin-Oxford Meeting
Inviscid mixing and enhanced dissipation for generic rough shear flows

2020 10 December, Trondheim, Research seminar: Rough Paths and SPDEs
Regularisation by noise and nonlinear Young integrals
August: One World Symposium, Prerecorded talk
Noiseless regularisation by noise
26 June, Padova, Seminars in Probability and Finance
Regularisation by noise and notions of irregularity
25 June, Berlin, Rough Paths research unit seminar
Regularisation by noise and notions of irregularity
9 June, 13th Berlin-Oxford Meeting
Noiseless regularisation by noise (video)
5 June, Leipzig, AG Seminar
An analytic approach to regularisation by noise for ODEs
1 June, Paris, LPSM PhD seminar
An averaging (path-by-path) approach to regularisation by noise for ODEs

2019 4 Noverber, Delft, Probability PhD seminar
Regularisation by noise for ODEs: an averaging (path-by-path) approach