

Yvain BRUNED

Born: 11/01/1989

French, Spanish Nationalities

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EDUCATION AND EMPLOYMENT

- 09/2022-2020** Professor of Mathematics, Université de Lorraine, Nancy.
Qualification in sections 25 et 26 for professorship in France.
- 01/2019-08/2022** Lecturer, University of Edinburgh.
- 10/2017-12/2018** Research Associate, Imperial College London under the direction of Martin Hairer.
- 01/2016-09/2017** Research Fellow, University of Warwick under the direction of Martin Hairer.
- 2012-2015** PhD in Mathematics, on Singular KPZ type equations under the direction of Lorenzo Zambotti at UPMC (Paris 6).
- 2011-2012** French Agrégation of Mathematics. Master 2 in Probability and Statistics at ENS Cachan / Rennes 1, with high honours.
- 2010-2011** Master 1 in Mathematics at ENS Cachan, with high honours.
- 2009-2010** Bachelor in Mathematics and Computer science at University of Rennes 1 with honours.
- 2009-2013** Student at ENS Cachan Brittany extension as a trainee civil servant (« Elève normalien »).
- 2007-2009** Student in Classes Préparatoires: Intensive preparation in Mathematics and Physics for the highly competitive entrance exams to the French Grandes Ecoles.
- 2007** Baccalauréat S: French equivalent of High School Diploma general studies with a specialization in science, obtained with great honours.

FUNDING

- 09/2023-08/2028** PI of the ERC Starting Grant LoRDeT, EUR 1 498 013,00.
URL: <https://cordis.europa.eu/project/id/101075208>
- 02/2023-08/2023** PI of the ANR Tremplin ERC StG project LoRDeT, EUR 33 103,41.
URL: <https://anr.fr/Projet-ANR-23-ERCS-0011>

PUBLICATIONS

Published or accepted

- [1] Y. Bruned, K. Ebrahimi-Fard, “Bogoliubov-type recursions for renormalisation in regularity structures”, **Annales de l’Institut Henri Poincaré (D) Combinatorics, Physics and their Interactions**, 2024, 31 pages. [arxiv:2006.05284](https://arxiv.org/abs/2006.05284). [doi:10.4171/AIHPD/186](https://doi.org/10.4171/AIHPD/186).
- [2] Y. Bruned, U. Nadeem, “Convergence of space-discretised gKPZ via Regularity Structures”, to appear in **Annals of Applied Probability** (Accepted 29/10/2023), 60 pages. [arxiv:2207.09946](https://arxiv.org/abs/2207.09946).
- [3] Y. Bruned, F. Katsetsiadis, “Post-Lie algebras in Regularity Structures”, **Forum Mathematics, Sigma**, 2023, Volume 11, e98, pp 1-20. [arxiv:2208.00514](https://arxiv.org/abs/2208.00514). [doi:10.1017/fms.2023.93](https://doi.org/10.1017/fms.2023.93).
- [4] Y. Bruned, U. Nadeem, “Diagram-free approach for convergence of tree-based models in Regularity Structures”, to appear in **Journal of the Mathematical Society of Japan**, (Accepted 02/10/2023), 33 pages. [arxiv:2211.11428](https://arxiv.org/abs/2211.11428).

- [5] Y. Alama Bronsard, Y. Bruned, K. Schratz, "Approximation of dispersive PDEs in the presence of low-regularity randomness", to appear in **Foundations of Computational Mathematics** (Accepted 12/07/2023), 49 pages. [arxiv:2205.02156](https://arxiv.org/abs/2205.02156).
- [6] Y. Bruned, D. Manchon, "Algebraic deformation for (S)PDEs", **Journal of the Mathematical Society of Japan**, April 2023, Volume 75, Issue 2, pp 485-526. [arxiv:2011.05907](https://arxiv.org/abs/2011.05907). [doi:10.2969/jmsj/88028802](https://doi.org/10.2969/jmsj/88028802).
- [7] I. Bailleul, Y. Bruned, "Parametrization of renormalized models for singular stochastic PDEs", to appear in **Kyoto Journal of Mathematics** (Accepted 24/01/2023), 17 pages. [arxiv:2106.08932](https://arxiv.org/abs/2106.08932).
- [8] Y. Bruned, F. Katsetsiadis, "Ramification of Volterra-type Rough Paths", **Electronic Journal of Probability**, 2023, Volume 28, pp 1-25. [arxiv:2105.03423](https://arxiv.org/abs/2105.03423). [doi: 10.1214/22-EJP890](https://doi.org/10.1214/22-EJP890).
- [9] Y. Bruned, "Renormalisation from non-geometric to geometric rough paths", **Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques**, 2022, Volume 58, Issue 2, pp 1078-1090. [arxiv:2007.14385](https://arxiv.org/abs/2007.14385). [doi:10.1214/21-AIHP1178](https://doi.org/10.1214/21-AIHP1178).
- [10] Y. Bruned, K. Schratz, "Resonance based schemes for dispersive equations via decorated trees", **Forum of Mathematics, Pi**, 2022, Volume 10, e2, pp 1-76. [arxiv:2005.01649](https://arxiv.org/abs/2005.01649). [doi:10.1017/fmp.2021.13](https://doi.org/10.1017/fmp.2021.13).
- [11] Y. Bruned, F. Gabriel, M. Hairer, L. Zambotti, "Geometric stochastic heat equations", **Journal of the American Mathematical Society**, 2022, Volume 35, Issue 1, pp 1-80. [arxiv:1902.02884](https://arxiv.org/abs/1902.02884). [doi:10.1090/jams/977](https://doi.org/10.1090/jams/977).
- [12] Y. Bruned, A. Chandra, I. Chevyrev, M. Hairer, "Renormalising SPDEs in regularity structures", **Journal of the European Mathematical Society**, 2021, Volume 23, Issue 3, pp 869-947. [arxiv:1711.10239](https://arxiv.org/abs/1711.10239). [doi:10.4171/JEMS/1025](https://doi.org/10.4171/JEMS/1025).
- [13] Y. Bruned, M. Hairer, L. Zambotti, "Renormalisation of Stochastic Partial Differential Equations", **EMS Newsletter**, March 2020, Volume 115, Issue 3, pp 7–11. [doi:10.4171/NEWS/115/3](https://doi.org/10.4171/NEWS/115/3).
- [14] Y. Bruned, C. Curry, K. Ebrahimi-Fard, "Quasi-shuffle algebras and renormalisation of rough differential equations", **Bulletin of the London Mathematical Society**, February 2020, Volume 52, Issue 1, pp 43-63. [arxiv:1801.02964](https://arxiv.org/abs/1801.02964). [doi:10.1112/blms.12305](https://doi.org/10.1112/blms.12305).
- [15] Y. Bruned, I. Chevyrev, P. Friz, R. Preiss, "A rough path perspective on renormalization", **Journal of Functional Analysis**, December 2019, Volume 277, Issue 11, 108283. [arxiv:1701.01152](https://arxiv.org/abs/1701.01152). [doi:10.1016/j.jfa.2019.108283](https://doi.org/10.1016/j.jfa.2019.108283).
- [16] Y. Bruned, M. Hairer, L. Zambotti, "Algebraic renormalisation of regularity structures", **Inventiones Mathematicae**, March 2019, Volume 215, Issue 3, pp 1039-1156, [arxiv:1610.08468](https://arxiv.org/abs/1610.08468). [doi:10.1007/s00222-018-0841-x](https://doi.org/10.1007/s00222-018-0841-x).
- [17] Y. Bruned, "Recursive formulae in regularity structures", **Stochastics and Partial Differential Equations: Analysis and Computations**, December 2018 Volume 6, Issue 4, pp 525-564, [arxiv:1710.10634](https://arxiv.org/abs/1710.10634). [doi:10.1007/s40072-018-0115-z](https://doi.org/10.1007/s40072-018-0115-z).
- [18] Y. Bruned, I. Chevyrev, P. Friz, "Examples of renormalized SDEs", **Stochastic Partial Differential Equations and Related Fields**. Springer International Publishing, 2018, pp 303-317, [arxiv:1701.01158](https://arxiv.org/abs/1701.01158). [doi:10.1007/978-3-319-74929-7_19](https://doi.org/10.1007/978-3-319-74929-7_19).
- [19] M. Arzel, C. Lahuec, C. Jégo, W. Gross, and Y. Bruned, "Stochastic multiple stream decoding of cortex codes," **Signal Processing, IEEE Transactions on**, vol. 59, no. 7, pp. 3486–3491, July 2011. [doi:10.1109/TSP.2011.2138699](https://doi.org/10.1109/TSP.2011.2138699).

In revision

- [20] I. Bailleul, Y. Bruned, "Locality for singular stochastic PDEs", 14 pages, in revision at **Annals of Probability** (Submitted 06/2022, Report received 22/02/2024, Revision in progress), [arxiv:2109.00399](https://arxiv.org/abs/2109.00399).
- [21] I. Bailleul, Y. Bruned, "Renormalised singular stochastic PDEs", 16 pages, Merged with [20], [arxiv:2101.11949](https://arxiv.org/abs/2101.11949).

- [22] N. Berglund, Y. Bruned, “BPHZ renormalisation and vanishing subcriticality asymptotics of the fractional ϕ_d^3 ”, 52 pages, in revision at **Stochastics and Partial Differential Equations: Analysis and Computations** (Submitted 18/01/2023, Report received 25/10/2023, Revision sent 14/11/2023), [arxiv:1907.13028](https://arxiv.org/abs/1907.13028).

Preprint

- [23] Y. Bruned, K. Ebrahimi-Fard, Y. Hou, “Multi-indices B-series”, 27 pages, submitted. [arxiv:2402.13971](https://arxiv.org/abs/2402.13971).
- [24] Y. Bruned, M. Gerencsér, U. Nadeem, “Quasi-generalised KPZ equation”, 57 pages, submitted. [arxiv:2401.13620](https://arxiv.org/abs/2401.13620).
- [25] J. Armstrong-Goodall, Y. Bruned, “Resonance based schemes for SPDEs”, 35 pages, submitted. [arxiv:2312.16690](https://arxiv.org/abs/2312.16690).
- [26] Y. Bruned, V. Dotsenko, “Novikov algebras and multi-indices in regularity structures”, 24 pages, submitted. [arxiv:2311.09091](https://arxiv.org/abs/2311.09091).
- [27] Y. Bruned, “Composition and substitution of Regularity Structures B-series”, 31 pages, submitted. [arxiv:2310.14242](https://arxiv.org/abs/2310.14242).
- [28] Y. Bruned, P. Linares, “A top-down approach to algebraic renormalization in regularity structures based on multi-indices”, 71 pages, submitted, [arxiv:2307.03036](https://arxiv.org/abs/2307.03036).
- [29] Y. Alama Bronsard, Y. Bruned, G. Maierhofer, K. Schratz, “Symmetric resonance based integrators and forest formulae”, 71 pages, submitted, [arxiv:2305.16737](https://arxiv.org/abs/2305.16737).
- [30] I. Bailleul, Y. Bruned, “Random models for singular SPDEs”, 15 pages, submitted, [arxiv:2301.09596](https://arxiv.org/abs/2301.09596).
- [31] Y. Bruned, F. Katsetsiadis, “Geometric embedding for Regularity Structures”, 26 pages, submitted, [arxiv:2301.05896](https://arxiv.org/abs/2301.05896).
- [32] Y. Alama Bronsard, Y. Bruned, K. Schratz, “Low regularity integrators via decorated trees”, 57 pages, submitted, [arxiv:2202.01171](https://arxiv.org/abs/2202.01171).

Report

- [33] I. Bailleul, C. Bellingieri, Y. Bruned, A. Fermanian, N. Marie, “Rough paths and SPDE”, **ESAIM: Proceedings and surveys**, November 2023, Volume 74, pp 169-184. [doi:10.1051/proc/202374169](https://doi.org/10.1051/proc/202374169)
- [34] Y. Bruned, “Regularity Structures”, 16 pages, submitted to **Encyclopedia of Mathematical Physics**, Second edition, Elsevier. [Pdf](#).
- [35] Y. Bruned, “Resonance-based schemes for dispersive equations via decorated trees”, **Oberwolfach Report** No. 26/2022. [doi:10.14760/OWR-2022-26](https://doi.org/10.14760/OWR-2022-26).
- [36] Y. Bruned, “Algebraic deformation for (S)PDEs”, **Oberwolfach Report** No. 40/2020. [doi:10.14760/OWR-2020-40](https://doi.org/10.14760/OWR-2020-40).
- [37] Y. Bruned, M. Hairer, L. Zambotti, “Renormalisation algébrique des structures de régularité”, 8 pages, **Letter of INSMI**, June 2019. http://www.insmi.cnrs.fr/sites/institut_insmi/files/news/2020-02/renormalisation_algebrique.pdf.
- [38] Y. Bruned, “Hopf algebras of coloured forests in Regularity Structures”, **Oberwolfach Report** No. 24/2016. [doi:10.4171/OWR/2016/24](https://doi.org/10.4171/OWR/2016/24).

Thesis

- [39] Y. Bruned, “Singular KPZ type equations”, 205 pages, **PhD thesis**, Université Pierre et Marie Curie, 2015. URL: <https://tel.archives-ouvertes.fr/tel-01306427>.

SUPERVISIONS

2024-

Supervisor of Postdoctoral researchers:

- Paul Laubie, will start in October 2024, Université de Lorraine.
- Carlo Bellingeri, started in January 2024, Université de Lorraine.

2019-

Supervisor of PhD theses:

- Aurélien Minguella, will start in September 2024, Université de Lorraine.
- "Butcher series from numerical analysis to singular stochastic partial differential equations", Yingtong Hou, started in November 2023, Université de Lorraine.
- "Low regularity numerical schemes via decorated trees for PDEs with randomness", Jacob Armstrong-Goodall, started in May 2022, University of Edinburgh.
- "Convergence in the discrete setting for singular SPDEs", Usama Nadeem, started in September 2020, University of Edinburgh.
- "Combinatorial structures for singular stochastic dynamics", Foivos Katsetsiadis, 2019-2023, Viva on 01/09/2023, University of Edinburgh.

2019-

Supervisor of Master theses:

For the Master 2 MFA research orientation in Mathematics, University of Lorraine:

- "Derivation of wave kinetic equations for dispersive PDEs", Sophie Baland, completed, 2023.

For the MSc in Computational Mathematics Finance, University of Edinburgh:

- "Numerics for rough differential equations", Hou Yingtong, completed 2022.
- "Areas of areas for the iterated-integral signature", Wei Lun, completed 2022.
- "BPHZ renormalisation for rough Volatility Models", Li Wenjie, completed 2021.
- "Diamond expansions for Volatility Models", Zhang Hanwen, completed 2021.
- "Asymptotics for Rough Volatility Models", Chen Kaili, completed 2020.
- "Invariants of multidimensional time series", Qian Yiming, completed 2020.
- "Branched Rough Paths and Machine Learning", Xie Qingyu, completed 2020.
- "Application of Regularity Structures to finance", Yu Yue, completed 2019.

For the MSc in Financial Modelling and Optimization, University of Edinburgh:

- LGB-"Stochastic Volatility" Project, Rachel Dance, completed 2021.
- "Machine Learning and Rough Paths", Song Zihao, completed 2019.

2021-

Supervisor of Bachelor theses:

For the BSc in Mathematics, University of Edinburgh:

- "Regularity structures and the reconstruction theorem", Vegard Solberg, completed 2022.
- "Hopf Algebras on rooted trees", Ella Yu, completed 2022.

TEACHING EXPERIENCE

2023-2024

Course/Tutoring on Calculus (BSc, 35 hours), Université de Lorraine, Nancy.
Course on Stochastic Methods for Computation (MSc, 7 hours).
Tutoring for Stochastic Methods for Computation (MSc, 14 hours),
Ecole des Mines, Nancy.

2022-2023

Course on Stochastic Calculus (MSc, 18 hours).
Course on Usual functions (BSc, 4 hours).
Course/Tutoring on Calculus (BSc, 35 hours).

- Tutoring for Stochastic Calculus (MSc, 9 hours).
 Tutoring for Probability (MSc, 18 hours).
 Tutoring for Integration and Probability (BSc, 54 hours).
 Tutoring for Random Graphs (MSc, 5 hours).
 Practical for Random Graphs (MSc, 6 hours),
 Université de Lorraine, Nancy.
 Course on Stochastic Methods for Computation (MSc, 7 hours).
 Tutoring for Stochastic Methods for Computation (MSc, 14 hours),
 Ecole des Mines, Nancy.
- 2021-2022** Course on Discrete-Time Finance (MSc, 22 hours).
 SMSTC Course on Stochastic Processes (PGT, 4 hours).
 Tutoring for Discrete-Time Finance (MSc, 15 hours).
 Tutoring for Probability, Measure and Finance (MSc, 10 hours),
 University of Edinburgh.
- 2020-2021** Course on Discrete-Time Finance (MSc, 11 hours).
 SMSTC Course on Stochastic Processes (PGT, 4 hours).
 Tutoring for Discrete-Time Finance (MSc, 10 hours).
 Tutoring for Probability, Measure and Finance (MSc, 20 hours).
 Tutoring for Stochastic Modelling (BSc, 18 hours), University of Edinburgh.
- 2019-2020** Course on Solving Singular SPDEs with Regularity Structures (PGR, 20 hours).
 Course on Probability with Applications (BSc, 16.5 hours).
 SMSTC Course on Stochastic Processes (PGT, 4 hours).
 Tutoring for Probability with Applications (BSc, 16.5 hours).
 Tutoring for Introduction to Linear Algebra (BSc, 33 hours), University of Edinburgh.
- 2018-2019** Tutoring for the courses Stochastic Modelling (BSc, 12 hours) and Risk Neutral
 Asset Pricing (MSc, 5 hours), University of Edinburgh.
- 2015-2016** Teaching assistant in Mathematics, Undergraduate Program in Mathematics at
 UPMC (Paris 6): oral exam (20 hours).
- 2014-2015** Teaching assistant in Mathematics, Undergraduate Program in Mathematics at
 UPMC (Paris 6): Tutorials (54 hours) and oral exam (20 hours).
- 2013-2014** Teaching assistant in Mathematics, Undergraduate Program in Mathematics at
 UPMC (Paris 6): Tutorials (54 hours).
- 2012-2013** Practical works in Maple:
 - in PTSI at Lycée Chaptal (72 hours)
 - in PSI* at Lycée Condorcet (48 hours + 8 hours for the preparation of the
 national competitive exam for the Polytechnique school).

ADVANCED TEACHING

- 03/2024-
04/2024** Mini course on Singular SPDEs via the theory of Regularity Structures, Working
 group in Probability and Statistics, IECL, University of Lorraine, Nancy.
- 10/2023** Mini course on Singular SPDEs via the theory of Regularity Structures,
 University of Michigan.
- 01/2022-
06/2022** Course on Decorated Trees for singular (stochastic) PDEs, Max Planck Institute for
 Mathematics in the Sciences (MPI) in Leipzig, Germany.
- 08/2021** Preparatory seminars, Vega Institute Foundation, Moscow.
 Mini course on Renormalisation from non-geometric to geometric rough paths.
- 07/2018** International Program on Regularity Structures and Stochastic Systems, July 9th
 -August 3rd, 2018, Beijing, Academy of Mathematics and Systems Science, CAS.
 Mini course on Renormalisation in Regularity Structures.
- 06/2018** Mini course on Renormalisation of singular SPDEs, University of Bielefeld, Germany.
- 04/2017** Workshop on the paper: Y. Bruned, M. Hairer, L. Zambotti
 « Algebraic renormalisation of regularity structures », Invent. Math. 2019.
 Department of Mathematics, University of Bergen, Norway.
- 02/2016** Paths to, from and in renormalization, Universität Potsdam – Institut für
 Mathematik. Mini course on Hopf Algebras on Labelled Forests: Application to
 regularity structures.

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| 10/2015-12/2015 | Two months stay at the University TU Berlin invited by Peter Friz. Mini course on Renormalisation in regularity structures. |
| 08/2014 | Mini course at IMPA on Renormalisation and convergence in regularity structures, Brazil. |

REPOSIBILITIES

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|------------------|---|
| 05/2024 | Organiser of a Workshop on Decorated Tree-like structures for singular dynamics, 27-29 May, funded by the ERC LoRDeT, IECL, University of Lorraine, Nancy. |
| 04/2024 | Member of a selection committee for a professor position in section 26 in Analysis and Probability, University of Orléans. |
| 2023- | Co-organiser Seminar Probability and Statistics, IECL, University of Lorraine. |
| 06/2023 | Member of the PhD commission, IECL, University of Lorraine. |
| 02/2023 | Co-organiser of a research afternoon in Time Quantized Numerical Integrators, University of Edinburgh. |
| 2021-2022 | Co-organiser of the Maxwell Institute Probability Seminar. |
| 2020-2022 | Second supervisor of the PhD student Xingyuan Chen, University of Edinburgh. |
| 2020-2022 | Academic selector for the MSc in Financial Modelling and Optimization and the the MSc in Computational Mathematics Finance, University of Edinburgh. |
| 2020 | Internal examiner for the PhD defense of William Salkeld, University of Edinburgh. |
| 2020 | Member of a formal interview panel for a lecturer/reader position in Probability and Stochastic Analysis at University of Edinburgh. |
| 2019 | Maxwell Institute representative in a formal interview panel for an assistant/associate position in Stochastics at Heriot-Watt University. |
| 2019-2022 | PhD interviews for the School of Mathematics, University of Edinburgh. |
| 2019-2022 | Tutor of Bachelor Students, University of Edinburgh. |
| 2019-2021 | Organiser of the NBPS (North British Probability Seminar). |
| 2015- | Reviewer in scientific journals, e.g., <ol style="list-style-type: none"> 1) Advances in Difference Equations 2) Annals of Applied Probability 3) Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques 4) Archive for Rational Mechanics and Analysis 5) Communications in Mathematical Physics 6) Communications on Pure and Applied Mathematics 7) EMS Surveys in Mathematical Sciences 8) Foundations of Computational Mathematics 9) Forum of Mathematics Pi 10) Forum of Mathematics Sigma 11) IMA Journal of Numerical Analysis 12) Inventiones Mathematicae 13) International Mathematics Research Notices 14) Journal of Computational Dynamics 15) Journal of Functional Analysis 16) Journal of Geometry and Physics 17) Journal of Mathematical Analysis and Applications 18) Journal of Mathematical Physics 19) Journal of the European Mathematical Society 20) Nonlinearity 21) Open Mathematics 22) Proceedings of the Edinburgh Mathematical Society 23) Proceedings of the London Mathematical Society 24) SIGMA |

- 25) SIAM Journal on Numerical Analysis
- 26) Stochastic Partial Differential Equations: Analysis and Computations
- 27) Stochastic Processes and their Applications
- 28) Transactions of the American Mathematical Society.

2021- Reviewer for grant proposal, ANR, SONATINA-5, National Science Center Poland.

RESEARCH STAY

- 09/2023** Long stay at Centre for Advanced Studies (CAS) in Oslo, for the programme Signatures for Images.
- 01/2022-06/2022** Long stay at the Max Planck Institute for Mathematics in the Sciences (MPI) in Leipzig, Germany, invited by Felix Otto.
- 09/2019-10/2019** Long stay during the program Randomness, PDEs and Nonlinear Fluctuations at the Hausdorff research institute for Mathematics (HMI), Bonn, Germany. Co-organiser of the workshop Singular SPDEs and Related Topics.
- 09/2018-12/2018** Long stay during the program Scaling limits, rough paths, quantum field theory at the Isaac Newton Institute, Cambridge.

RESEARCH INTERNSHIP

- 2012** Master 2: Internship on the paper Solving the KPZ equation under the direction of Martin Hairer and Lorenzo Zambotti.
- 2011** Eight weeks internship on the study of stochastic models under the direction of Martin Hairer, University of Warwick, Coventry.
- 2010** Eight weeks internship on stochastic decoding under the direction of Matthieu Arzel, Telecom Bretagne, Brest.

CONFERENCES AND WORKSHOPS TALKS

- 11/2024** Workshop Directions in Rough Analysis, 3-8 November, Mathematical Research Institute of Oberwolfach, Germany.
- 08/2024** Journées MAS de la SMAI, Session Singular SPDEs, 28-30 August, Université de Poitiers, France.
- 07/2024** SciCADE 2024, Minisymposia Numerical integration for dispersive problems National University of Singapore, Singapore.
- 06/2024** Conference on Signatures of paths and images, June 10-14, 2024, at the Centre for Advanced Studies (CAS) in Oslo.
- 06/2024** 3rd Congress China-France in Probability, 3-8 June, Beijing, China.
- 04/2024** Workshop on Modern methods for differential equations of quantum mechanics, 21-26 April, Banff International Research Station, Canada.
- 01/2024** Workshop on Common trends and challenges in QFT and stochastic PDEs, 11-12 January, Università di Pavia, Almo collegio Borromeo, Italy.
- 11/2023** Co-organiser of the Mini-Workshop Combinatorial and Algebraic Structures in Rough Analysis and Related Fields, 26 November – 2 December, Mathematical Research Institute of Oberwolfach, Germany. Talk on Novikov algebras and multi-indices in regularity structures.
- 10/2023** Meeting ANR Smooth, IECL, University of Lorraine, Nancy. Talk on Symmetric resonance based integrators and forest formulae.
- 10/2023** Conference 10 ans de l'institut Elie Cartan de Lorraine, Abbaye des Prémontés. Talk on Decorated trees series for low regularity dynamics.
- 08/2023** Workshop on Structural aspects of signatures and rough paths, 28 August – 1 September, at Centre for Advanced Studies (CAS) in Oslo. Talk on Symmetric resonance based integrators and forest formulae.

- 08/2023** Minisymposia on Long-time dynamics in numerical methods for nonlinear evolution equations, 10th International Congress on Industrial and Applied Mathematics, 20-25 August, Waseda University. Talk on Symmetric low regularity integrators via a forest formula.
- 06/2023** Organiser of a Workshop on Hopf algebras, operads, deformations for singular dynamics funded by the ANR LoRDeT, 21-23 June, University of Lorraine, Nancy. Talk on Post-Lie algebras in Regularity Structures.
- 06/2023** Workshop on Stochastic Analysis meets QFT – critical theory, 12-14 June, University of Münster. Talk on Convergence of the renormalized model for the generalised KPZ equation via preparation maps.
- 06/2023** Conference 2023 of the GDR TRAG, 7-9 June, Université Paris Dauphine PSL Paris. Talk on Convergence of renormalised models within Regularity Structures.
- 12/2022** Meeting on Rough Paths and associated numerical methods, 8-9 December, LAMP Pau. Talk on Low regularity integrators for (S)PDEs.
- 11/2022** GDR Renormalisation Annual Meeting 2022, Hopf algebras and applications. November 14-18, Mathematics Laboratory Joseph Liouville, Calais. Talk on Post-Lie algebras in Regularity Structures.
- 08/2022** Berlin SRA22: Stochastic and Rough Analysis, 22-26 August, Berlin. Talk on Post-Lie algebras in Regularity Structures.
- 08/2022** Workshop on Computational Mathematics for Quantum Technologies, University of Bath. Talk on Approximations of dispersive PDEs in the presence of low-regularity randomness.
- 07/2022** SciCADE 2021, Minisymposia Geometric and algebraic perspectives in numerical integration (GAPNI), University of Iceland, Reykjavik. Talk on Decorated trees from singular SPDEs to numerical analysis.
- 06/2022** Conference on Normal forms and splitting methods, Pornichet, France. Talk on Low regularity integrators via decorated trees.
- 06/2022** UNA-Random workshop 2022, Bologna June 6-9. Talk on Low regularity dynamics via decorated trees.
- 05/2022** Workshop on Deterministic Dynamics and Randomness in PDE, 22-28 May, Mathematical Research Institute of Oberwolfach, Germany. Talk on Resonance-based scheme for dispersive equations via decorated trees.
- 11/2021** Master Class and Workshop on Higher Structures Emerging from Renormalisation, November 8-19, Erwin Schrödinger Institute, Vienna, Austria. Talk on Locality for singular stochastic PDEs.
- 08/2021** Journées Mas 2020, 25-27 August 2021, Orléans, France. Talk on Ramification of Volterra-type Rough Paths.
- 02/2021** Online workshop on Cumulants in stochastic analysis, 25-26 February. Discussant for the talk Cumulant operators for continuous and discrete stochastic integrals of Nicolas Privault.
- 12/2020** Meeting on Rough Paths and SPDEs, 10-11 December, Trondheim, Norway. Talk on Renormalisation from non-geometric to geometric rough paths.
- 12/2020** Workshop on New Directions in Rough Path Theory, 6-12 December, Mathematical Research Institute of Oberwolfach, Germany. Talk on Algebraic deformation for (S)PDEs.
- 11/2020** Conference on Algebraic Structures in Perturbative Quantum Field Theory, in honour of Dirk Kreimer's 60th birthday, 16-20 November, IHES, France. Talk on Bogoliubov type recursions for renormalisation in regularity structures.
- 10/2020** Workshop on Higher structures emerging from renormalisation, 12-16 October, Erwin Schrödinger Institute, Vienna, Austria. Talk on Resonance based schemes for dispersive equations via decorated trees.
- 12/2019** 12th Annual ERC Berlin-Oxford Young Researchers Meeting, Oxford. Talk on Renormalisation and the Hairer-Kelly map.

- 10/2019** Meeting of the GDR Renormalisation, Mathematics Laboratory Joseph Liouville, Calais. Talk on BPHZ renormalisation and vanishing subcriticality limit of the fractional ϕ_d^3 .
- 05/2019** 11th Annual ERC Berlin-Oxford Young Researchers Meeting, Berlin. Talk on Deformation of algebraic structures for SPDEs.
- 05/2019** Workshop on Non-commutative stochastic analysis, 8-10 May, NTNU, Trondheim. Talk on Quasi-generalised KPZ equation.
- 04/2019** Conference on Random Partial Differential Equations, CIRM, Marseille. Talk on Geometric stochastic heat equations.
- 11/2018** Meeting of the GDR Renormalisation, Mathematics Laboratory Blaise Pascal, Clermont-Ferrand. Talk on Pre-Lie Structures in Geometric stochastic heat equations.
- 10/2018** Workshop on Quantum field theory, renormalisation and stochastic partial differential equations, Isaac Newton Institute for Mathematical Sciences, Cambridge. Talk on Renormalisation in Regularity Structures: Part II.
- 07/2018** Workshop on Algebraic and geometric aspects of numerical methods for differential equations, Institut Mittag-Leffler, Djursholm, Sweden. Talk on Pre-Lie structure in singular SPDEs.
- 06/2018** 9th Annual ERC Berlin-Oxford Young Researchers Meeting, Berlin. Talk on The geometric KPZ equation.
- 12/2017** 8th Annual ERC Berlin-Oxford Young Researchers Meeting, Oxford. Talk on A Birkhoff type decomposition for renormalised models.
- 10/2017** Workshop « Rough Paths in Toulouse », INSA Toulouse. Talk on A rough path perspective on renormalisation.
- 09/2017** ENUMATH 2017, Minisymposia Noncommutative stochastic differential equations: Analysis and simulation, Voss. Talk on Renormalisation of singular SPDEs.
- 09/2017** SciCADE 2017, Minisymposia Algebraic and combinatoric approaches, Bath. Talk on Algebraic renormalisation of regularity structures.
- 07/2017** EPSRC Durham Symposium on Stochastic Analysis. Talk on Algebraic structures in SPDEs.
- 05/2017** 7th Annual ERC Berlin-Oxford Young Researchers Meeting, Berlin.
- 12/2016** 6th Annual ERC Berlin-Oxford Young Researchers Meeting, Oxford.
- 08/2016** 5th Annual ERC Berlin-Oxford Young Researchers Meeting, Berlin.
- 05/2016** Rough Paths, Regularity Structures and Related Topics, MFO, Oberwolfach Research Institute for Mathematics.
- 02/2016** Paths to, from and in renormalization, Universität Potsdam – Institut für Mathematik. Mini course on Hopf Algebras on Labelled Forests: Application to regularity structures.
- 12/2015** 4th Annual ERC Berlin-Oxford Young Researchers Meeting, Berlin.
- 07/2015** EquaDiff 2015 Minisymposia Stochastic PDEs, Lyon. Talk on Renormalisation group in regularity structures.

SUMMER SCHOOLS, SEMINARS TALKS

- 05/2024** European Non-Associative Algebra seminar (online).
- 03/2024** Webminar on Stochastic Analysis, Beijing Institute of Technology, School of Mathematics and Statistics.
- 10/2023** Stochastic Analysis Seminar, Imperial College London.
- 10/2023** Seminar of the Master Mathematics Students, University Paris-Saclay.
- 10/2023** Seminar Algebra and Topology, University of Strasbourg.
- 10/2023** Differential Equations seminar, University of Michigan.
- 05/2023** Mathematics Seminar, IRIMAS, University Haute-Alsace, Mulhouse.

02/2023 GAAO Seminar, Blaise Pascal Laboratory, University Clermont Auvergne.

02/2023 Virtual Seminar ACPMS (Algebra, Combinatorics and Perspectives in Mathematical Sciences) organised by NTNU, Trondheim, Norway.

11/2022 Oberseminar Analysis-Probability, Max Planck Institute for Mathematics in the Sciences (MPI) in Leipzig, Germany.

10/2022 PDEs and Applications seminar at IECL, Nancy.

10/2022 Probability and Statistics seminar at IECL, Nancy.

06/2022 Algebra, Geometry and Physics seminar, MPIM Bonn and HU Berlin.

04/2022 Seminar of the research unit FOR 2402- Rough paths, stochastic partial differential equations and related topics, Berlin.

03/2022 Seminar of Laboratoire Jacques-Louis Lions, Paris.

02/2022 Probability and Statistics seminar at IECL, Nancy.

02/2022 Oberseminar Analysis-Probability, Max Planck Institute for Mathematics in the Sciences (MPI) in Leipzig, Germany.

11/2021 Stochastic Analysis Seminar, Mathematical Institute, Oxford.

05/2021 Probability seminar at IMT, Toulouse.

03/2021 Stochastic analysis seminar UNICAMP, Brazil.

03/2021 Probability seminar, Laboratoire J.A Dieudonné, Nice.

10/2020 Online seminar series on Probability and Financial Mathematics at the University of Leeds.

06/2020 Seminar Structure of Local Quantum Field Theories organised by Dirk Kreimer, Humboldt University, Berlin, Germany.

05/2020 Stochastic Virtual Seminar, TU Berlin, Germany.

05/2020 DNA Virtual Seminar, NTNU Trondheim, Norway.

04/2020 Maxwell online Colloquium, Edinburgh.

04/2020 Virtual Seminar ACPMS (Algebra, Combinatorics and Perspectives in Mathematical Sciences) organised by NTNU, Trondheim, Norway.

12/2019 Bielefeld Stochastic Afternoon seminar, University of Bielefeld.

11/2019 Analysis and PDEs seminar, Heriot-Watt University.

05/2019 Maths Phys seminar, Institut Camille Jordan, Lyon.

04/2019 MAXIMALS seminar, University of Edinburgh.

04/2019 Mathphys Analysis seminars, Erwin Schrödinger Institute in Vienna.

04/2019 New faculty colloquium, University of Edinburgh.

11/2018 Oberseminar Dynamics, TU Munich.

03/2018 Stochastic Calculus Seminar, IRMA, Strasbourg.

03/2018 DNA Seminar, NTNU Trondheim, Norway.

02/2018 Probability and Statistics Seminar, Laboratoire J.A Dieudonné, Nice.

09/2017 MAPMO seminar, Orléans. Talk on Renormalisation of singular SPDEs.

02/2017 Arbeitsgemeinschaft Angewandte Analysis, Max Planck Institute Leipzig. Talk on Algebraic renormalisation of regularity structures.

10/2016 Stochastic Analysis Seminar, Mathematical Institute, Oxford. Talk on Hopf algebras in regularity structures.

07/2016 Probability Summer School Saint-Flour.

07/2015 Probability Summer School Saint-Flour.

04/2015 Day on « Singular SPDEs », LPMA, Paris 6.

02/2015 Probability Seminar, IRMAR, Rennes.

09/2014 Summer school Singular stochastic PDEs, Centro de Giorgi, Pise. Talk on Renormalisation group in SPDEs.

08/2014 18th Brazilian School of Probability, IMPA, Mambucaba, Brazil.
07/2014 Probability Summer School Saint-Flour. Talk on The generalized KPZ.
06/2014 PhD Student Seminar, LPMA, Paris 6.
03/2014 PhD Student Seminar, Paris-Dauphine University.

CONFERENCES, WORKSHOPS (AS AN ATTENDEE)

08/2016 Conference in Honor of the 75th Birthday of S.R.S. Varadhan, Berlin.
03/2016 Probabilistic models – from discrete to continuous, Mathematics Institute, Warwick.
06/2014 Stochastic Analysis: Around the KPZ Universality class, MFO, Oberwolfach Research Institute for Mathematics.
05/2014 KPZ, PDE and Probability Trimester, CIMI, Toulouse.
02/2014 Deterministic and Stochastic Navier-Stokes equations, PDE and Probability Trimester, CIMI, Toulouse.
01/2014 Rough Paths: Theory and Applications, IPAM, UCLA, Los Angeles.
01/2014 SPDEs and Application IX, Trento.

SUMMER SCHOOLS (AS AN ATTENDEE)

09/2016 Quantum Integrable Systems, Conformal Field Theories and Stochastic Processes, Institut d'Études Scientifiques de Cargèse.
08/2016 Singular Random Dynamics, CIME-EMS Summer School in Applied Mathematics, Cetraro.
06/2013 Summer School on KPZ equation and Rough Path, Henri Lebesgue Center Rennes, France.

SKILLS

Languages: French, native speaker.
English fluent.
Spanish conversant.

Computer science: Programming: Ocaml, C, C++, java, LateX, HTML, Lisp and Python.
Scientific computations: MATLAB, Maple.

MISCELLANEOUS

Chess: active player with a current international rating of 2286 ELO FIDE.
Best international rating 2393 ELO FIDE.

2005: Obtention of the FM (Fide Master) title.

Opera, cinema, theatre, reading, museums, swimming, hiking.

REFERENCES

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