

# MARTIN HAIRER

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## Career history

from 11/2022	CHAIR IN PROBABILITY AND PDES École Polytechnique Fédérale de Lausanne (EPFL).
from 10/2017	CHAIR IN PROBABILITY AND STOCHASTIC ANALYSIS Imperial College London.
04/2014 – 10/2017	REGIUS PROFESSOR OF MATHEMATICS The University of Warwick.
01/2010 – 04/2014	FULL PROFESSOR The University of Warwick.
01/2009 – 01/2010	ASSOCIATE PROFESSOR New York University (Courant institute).
09/2007 – 01/2009	ASSOCIATE PROFESSOR (READER) The University of Warwick.
09/2006 – 09/2007	ASSOCIATE PROFESSOR The University of Warwick.
10/2004 – 09/2006	LECTURER / ASSISTANT PROFESSOR The University of Warwick.
10/2003 – 10/2004	ADVANCED FELLOWSHIP (from the Swiss NSF) Mathematics Research Centre, University of Warwick.
10/2002 – 10/2003	POSTDOCTORAL FELLOWSHIP (from the Swiss NSF) Mathematics Research Centre, University of Warwick.

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## Education

November 2001	PHD IN PHYSICS – University of Geneva.
October 1998	MSC IN PHYSICS – University of Geneva.
July 1998	BSC IN MATHEMATICS – University of Geneva.
June 1994	HIGH SCHOOL DIPLOMA – Collège Claparède, Geneva.

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## Honours and awards

- Honorary Member of the Austrian Mathematical Society
- 2022 Erwin Schrödinger Institute Medal
- 2022 King Faisal Prize
- Foreign associate of the French Academy of Sciences (since 2022)
- Foreign member of the Chinese Academy of Sciences (since 2021)
- 2020 Breakthrough prize
- Member of the IMU Circle
- Foreign member of the Polish Academy of Sciences (since 2018)
- Knight Commander of the British Empire (KBE; honorary since 2016, substantive since 2019)

- Honorary degree in science from HKBU (2016)
- Member of the Berlin-Brandenburg Academy of Sciences and Humanities (since 2016)
- Member of the German National Academy of Sciences Leopoldina (since 2015)
- Corresponding member of the Austrian Academy of Sciences (since 2015)
- Fellow of the AMS (since 2015)
- 2014 Fields medal
- 2014 Fröhlich prize
- Fellow of the Royal Society (since 2014)
- 2013 Fermat prize
- 2009 Royal Society Wolfson Research Merit Award
- 2008 Philip Leverhulme Prize
- 2008 LMS Whitehead prize

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### **Past and current PhD students**

W. Zhao (PhD started October 2023).  
M.C. Ricciuti (PhD started October 2022).  
D. Villringer (PhD started October 2022). Joint supervision with M. Coti Zelati  
M. Peev (PhD started October 2021). Joint supervision with A. Chandra  
F. Pedullà (PhD started October 2021).  
F. Bertacco (PhD started October 2020).  
L. Gerardo (PhD started October 2020). Joint supervision with X.-M. Li  
H. Singh (PhD completed November 2023).  
R. Steele (PhD completed November 2022).  
A. Gerasimovics (PhD completed December 2019).  
P. Schönbauer (PhD completed October 2019).  
M. Iberti (PhD completed March 2018).  
K. Matetski (PhD completed April 2016).  
M. Scott (PhD completed December 2014).  
S. Weber (PhD completed October 2014).  
S. Vollmer (PhD completed September 2013). Joint supervision with A. Stuart  
D. Kelly (PhD completed December 2012).  
C. Manson (PhD completed June 2010).  
P. Bubak (PhD completed January 2009). Joint supervision with J. Robinson  
A. Ohashi (PhD completed October 2006). Joint supervision with P. Ruffino

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### **Supervision of postdoctoral researchers**

P. Duch (from 2024)  
Y. Zine (from 2023)  
J. Yi (from 2023)  
N. Rana (2022–2023) now lecturer at the University of York  
M. Sy (2021–2022) now professor at AIMS Senegal  
T. Rosati (2020–2022) now temporary lecturer at University of Warwick  
A. Moinat (2019)  
K. Lê (2017–2019) now lecturer at U. Leeds  
T. Holding (2016–2019)  
G. Cannizzaro (2016–2018) now lecturer at University of Warwick  
Y. Bruned (2015–2018) now lecturer at University of Edinburgh

F. Gabriel (2015–2018) now assistant professor at U. Lyon 1  
A. Chandra (2014–2017) now lecturer at Imperial College London  
H. Shen (2014–2015) now associate professor at U. Wisconsin Madison  
D. Erhart (2014–2017) now associate professor at Universidade Federal da Bahia  
W. Xu (2013–2016) now assistant professor at Peking University  
C. Labbé (2013–2015) now professor at Paris Dauphine  
H. Weber (2010–2011) now professor at University of Münster  
J. Maas (2009) now professor at IST Austria  
J. Voß (2007–2009, joint with A. Stuart) now lecturer at U. Leeds

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## Named lectures

- Gauss lecture (Bielefeld, November 2023)
  - Virginia Mathematics Lectures (Charlottesville, December 2022)
  - Distinguished Lecture Series (Los Angeles by videoconference, April 2020)
  - Schrödinger lecture (London, February 2020)
  - Master Lectures (Sanya, December 2019)
  - Pedro Nunes lecture (Lisbon, December 2019)
  - Jarník lecture (Prague, October 2019)
  - Lagrange lecture (Turin, November 2018)
  - Hamilton lecture (Dublin, October 2018)
  - Rothschild lecture (Cambridge, September 2018)
  - Simons lectures (Stony Brook, March 2018)
  - Chern lectures (Berkeley, March 2018)
  - Takagi lectures (Tokyo, November 2017)
  - Milliman lectures (Seattle, November 2017)
  - Weierstrass lecture (Paderborn, May 2017)
  - Simons lectures (MIT, May 2017)
  - Lewis Fry Richardson lecture (York, January 2017)
  - Sackler lecture (Tel Aviv, January 2017)
  - Einstein lectures (Bern, December 2016)
  - Zygmund-Calderon lectures (Chicago, October 2016)
  - Michalik Lecture (Pittsburgh, December 2015)
  - Kai-Lai Chung Lecture (Stanford, November 2015)
  - Leonardo da Vinci lecture (Milan, October 2015)
  - Bernoulli lecture (Lausanne, May 2015)
  - Collingwood lecture (Durham, February 2015)
  - ICM Fields medal lecture (Seoul, August 2014)
  - Lévy lecture (Buenos Aires, July 2014)
  - IMS Medallion lecture (Sydney, July 2014)
  - Euler lecture (Berlin, May 2014)
  - Minerva lectures (New York, March 2014)
  - Lipschitz lectures (Bonn, July 2013)
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## Committee memberships

- Member of the ICM structure committee (2023–2026)
- Member of the Abel Prize committee (2023–2025)
- Member of the first Antonio Aniceto Monteiro Prize committee (2022)
- Chair of the AMS Bôcher Memorial Prize committee (2022)
- Chair of the programme committee for the 2022 ICM (virtual; originally St Petersburg)
- Member of the Mathematics sub-panel for REF 2021
- Member of the Rollo Davidson Prize committee (2017-present)
- Member of the scientific advisory board of HCM, Bonn (2017-present)
- Member of the scientific advisory board of the Fields Institute, Toronto (2021-present)
- Member of the Royal Society URF panel (2014-2020)
- Member of the scientific steering committee of the Institute Henri Poincaré (Paris; 2012-2020)
- Member of the scientific steering committee of the Oberwolfach Institute (2013-2021)
- Member of the scientific advisory board of ETHZ-ITS (2013-2019)
- Panel member for the AFR Luxembourg (2012-2013)
- Panel member for the Early Career Research Program (USA Dept. of Energy; 2009)
- Member of the ‘commission ANR’ responsible for allocating research funds for Mathematics in France (2008-2010)
- Member of the EPSRC peer review college (2006-present)

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## Editorial duties

- Associate editor for “*Inventiones Mathematicae*” (2023-present)
  - Associate editor for the “Archive for Rational Mechanics and Analysis” (2023-present)
  - Managing editor for the journal “*Commun. AMS*” (2021-present)
  - Associate editor for the journal “*Trans. LMS*” (2021-present)
  - Associate editor for the journal “*Commun. Math. Phys*” (2015-2023)
  - Associate editor for the journal “*Probability Theory and Related Fields*” (2008-2020)
  - Associate editor for the “*Journal of Functional Analysis*” (2013-2023)
  - Associate editor for the journal “*Annals of IHP Ser. B*” (2011-present)
  - Associate editor for the “*Electronic Journal of Probability*” (2010-2014)
  - Associate editor for “*Electronic Communications in Probability*” (2010-2014)
  - Associate editor for the journal “*SPDEs: analysis and computations*” (2012-present)
  - Associate editor for the journal “*NoDea*” (2007-present)
  - Associate editor for the “*Journal of Mathematical Analysis and Applications*” (2010-2011)
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## Organisation of workshops and seminars

- May 2–3, 2003 *Workshop on fractional Brownian motion*, co-organiser
- August 4–15, 2003 *Workshop on SPDEs and related topics*, co-organiser
- July 9, 2004 *Third East Midlands Stochastic Analysis Seminar*, Warwick, co-organiser
- 2003 – 2007 *Organiser of the Stochastic Analysis Seminar of the University of Warwick*
- July 9–13 2007 *SciCADE07* Co-organiser for two minisymposia
- June 2008 *Easter Probability Meeting*, Warwick, co-organiser
- July 27–31 2009 *SPA 2009* Organiser of an invited minisymposium
- 2010–present *Co-organiser of the Stochastic Analysis Seminar of the University of Warwick*
- January – July 2010 Organiser of a thematic semester on SPDEs at the Newton Institute (Cambridge)
- 2011/2012 Co-organiser of the symposium year “Probability Theory” at the University of Warwick. (Directly involved in the organisation of 4 workshops.)
- July 10, 2012 *Bernoulli World Congress 2012* Organiser of a minisymposium on stochastic PDEs
- January – June 2013 Co-organiser of a thematic semester on “Infinite Dimensional and Stochastic Dynamical Systems and their Applications” at the IMA (Minneapolis)
- June 1–7 2014 *Stochastic Analysis* Co-organiser of an Oberwolfach workshop
- July 7–11 2014 *IMS annual meeting 2014* Organiser of invited minisymposium
- October 2014 *Advances in Probability: Integrability, Universality and Beyond* (Clay, Oxford), co-organiser
- March 29–April 2 2016 *Probabilistic models - from discrete to continuous* (Warwick), co-organiser
- May 16–20 2016 *Stochastic PDEs* (Simons centre, Stony Brook), organiser
- May 28–June 3 2017 *Stochastic Analysis* Co-organiser of an Oberwolfach workshop
- July 1–5 2019 *Paths between Probability, PDEs, and Physics* (Imperial College), co-organiser
- May 30–June 3 2022 *Stochastic Analysis* Co-organiser of an Oberwolfach workshop
- July 8–12 *Applied Mathematics* overlay conference for vICM 2022, co-organiser
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## Minicourses held

- March 1–2, 2007 Winter intensive course: *Hypoellipticity : Analysis & Stochastic Analysis*, Imperial College, London
- July, 2007 Chinese Probability Summerschool, Wuhan, China
- July 7–11, 2008 LMS Short Course Programme: *Stochastic Partial Differential Equations*, Imperial College, London
- December, 2008 Necas Seminar on Continuum Mechanics, Prague
- July, 2009 BMS Invited professor, Technical University, Berlin
- December, 2009 Stochastic and Statistical Methods in Multi-Scale Systems, Shanghai, China
- May, 2010 Evolution equations and Functional Inequalities, Hammamet, Tunisia
- July, 2010 Young Researchers Workshop, Warwick, United Kingdom
- October, 2010 Oberwolfach Seminar, Oberwolfach, Germany
- June, 2011 Spectral properties of non-selfadjoint operators, Rennes, France
- May, 2012 Ergodic theory of SPDEs, Edinburgh, UK
- June, 2012 Mathematical aspects of the KPZ equation, Marseille, France
- July, 2012 Rough SPDEs, Tokyo, Japan
- March, 2013 Renormalisation of SPDEs, ZiF Bielefeld, Germany
- March, 2013 Dynamics near criticality, ENS Paris, France
- April, 2013 Renormalisation of SPDEs, Cambridge, United Kingdom
- June, 2013 The KPZ equation, Rennes, France
- July, 2013 Renormalisation theory and stochastic PDEs, Bonn
- August, 2013 Renormalisation theory and stochastic PDEs, Brazilian summer school in probability
- September, 2013 Regularity structures, ETH Zurich
- February, 2014 Renormalisation and SPDEs, Part I, Toulouse, France
- February, 2014 Regularity structures, Columbia University, USA
- April, 2014 Introduction to Regularity structures, University of Virginia, USA
- May, 2014 Renormalisation and SPDEs, Part II, Toulouse, France
- July, 2014 Singular SPDEs, St Flour summer school, France
- September, 2014 Regularity structures, Warwick University, UK
- March, 2015 Regularity structures, Polytechnique Paris, France
- May, 2015 Regularity structures, Warwick University, UK
- November, 2015 Renormalisation and SPDEs, University of Pittsburgh, USA
- December, 2015 Renormalisation and SPDEs, Bangalore, India
- July, 2016 Renormalisation and SPDEs, Barcelona, Spain
- August, 2016 Renormalisation and SPDEs, ZiF Bielefeld, Germany
- June, 2017 A BPHZ theorem for SPDEs, Euler institute, St Petersburg
- June, 2017 A BPHZ theorem for SPDEs, PIMS, Vancouver
- April, 2018 Chern Lectures, Berkeley
- April, 2018 Simons Lectures, Stony Brook
- June, 2018 Summer school, ITS Austria, Vienna

July, 2018	Summer school, Beijing
July, 2018	Summer school, Varese
August, 2018	Summer school, Santander
December, 2019	The Brownian Castle, Lisbon
July, 2020	Summer school, Bath (virtual)
September, 2020	Summer school, Brazil (virtual)
August, 2022	Summer school, Brazil
October, 2023	Winter school, Peking University

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## Grants and Fellowships

03/2019	5-year Royal Society research professorship. (£1.2M)
05/2014	5-year ERC consolidator award. (€ 1.5M)
09/2013	6-year Leverhulme Leadership Award. (£950k)
01/2011	EPSRC Grant EP/I014829/1 (funding for a 1 year symposium; joint with N. O'Connell (PI), J. Warren, and B. Hambly) (£200k)
10/2007	EPSRC Grant EP/F029950/1 (funding for a 1 week meeting; joint with W. Kendall (PI) and J. Warren) (£20k)
10/2006	EPSRC Grant EP/E002269/1 (funding for a 3 year postoc position; joint with A. Stuart) (£267k)
10/2006	5-year EPSRC Advanced Research Fellowship EP/E002269/1. (£413k)
10/2004	2-year Advanced research fellowship of the Swiss National Science Foundation (CHF96k could not be taken up because it clashed with the position in Warwick).
10/2003	1-year Advanced research fellowship of the Swiss National Science Foundation. (CHF48k)
10/2002	1-year Research fellowship of the Swiss National Science Foundation. (CHF39k)

## Publications and Preprints

### Refereed articles

- [1] J.-P. Eckmann and M. Hairer, *Non-Equilibrium Statistical Mechanics of Strongly Anharmonic Chains of Oscillators*, Commun. Math. Phys. **212** (2000), no 1, pp. 105–164
- [2] J.-P. Eckmann and M. Hairer, *Invariant Measures for Stochastic PDE's in Unbounded Domains*, Nonlinearity **14** (2001), pp. 133–151
- [3] J.-P. Eckmann and M. Hairer, *Uniqueness of the Invariant Measure for a Stochastic PDE Driven by Degenerate Noise*, Commun. Math. Phys. **219** (2001), no 3, pp. 523–565
- [4] M. Hairer, *Exponential Mixing for a Stochastic PDE Driven by Degenerate Noise*, Nonlinearity **15** (2002), pp. 271–279
- [5] M. Hairer, *Exponential Mixing Properties of Stochastic PDEs Through Asymptotic Coupling*, Probab. Theory Relat. Fields **124** (2002), no 3, pp. 345–380
- [6] J.-P. Eckmann and M. Hairer, *Spectral Properties of Hypocoelliptic Operators*, Commun. Math. Phys. **235** (2003), no 2, pp. 233–253
- [7] D. Blömker and M. Hairer, *Stationary Solutions for a Model of Amorphous Thin-Film Growth*, Stoch. Anal. Appl. **22** (2004), no 4, pp. 903–922

- [8] D. Blömker and M. Hairer, *Multiscale expansion of invariant measures for SPDEs*, Commun. Math. Phys. **251** (2004), pp. 515–555
- [9] M. Hairer and G. Pavliotis, *Periodic Homogenization for Hypocoelliptic Diffusions*, J. Stat. Phys. **117** (2004), no. 1/2, pp. 261–279
- [10] M. Hairer and J. Mattingly, *Ergodicity of the 2D Navier-Stokes Equations with Degenerate Stochastic Forcing*, Ann. of Math. **164** (2006), no 3, pp. 993–1032
- [11] D. Blömker, M. Hairer, and G. Pavliotis, *Modulation Equations: Stochastic Bifurcation in Large Domains*, Commun. Math. Phys. (258) (2005), no 2, pp. 479–512
- [12] M. Hairer, J. Mattingly, and E. Pardoux, *Malliavin calculus for highly degenerate 2D stochastic Navier-Stokes equations*, C. R. Acad. Sci. Paris, Ser. I **339** (2004), no. 11, pp. 793–796
- [13] M. Hairer and J. Mattingly, *Ergodic properties of highly degenerate 2D stochastic Navier-Stokes equations*, C. R. Acad. Sci. Paris, Ser. I **339** (2004), no. 12, pp. 879–882
- [14] M. Hairer, *Ergodicity of stochastic differential equations driven by fractional Brownian motion*, Ann. Probab. **33** (2005), no 3, pp. 703–758
- [15] M. Hairer, A. M. Stuart, J. Voß, and P. Wiberg, *Analysis of SPDEs Arising in Path Sampling Part I: The Gaussian Case*, Comm. Math. Sci. **3** (2005), no 4, pp. 587–603
- [16] A. Apte, M. Hairer, A. M. Stuart, and J. Voß, *A Bayesian approach to data assimilation*, Physica D **230** (2007), pp. 50–64
- [17] M. Hairer and A. Ohashi, *Ergodic theory for SDEs with extrinsic memory*, Ann. Probab. **35** (2007), no 5, pp. 1950–1977
- [18] F. Baudoin and M. Hairer, *Hörmander’s theorem for fractional Brownian motion*, Probab. Theory Rel. Fields **139** (2007), no 3/4, pp. 373–395
- [19] D. Blömker, M. Hairer, and G. Pavliotis, *Multiscale Analysis for SPDEs with Quadratic Nonlinearities*, Nonlinearity **20** (2007), no 7, pp. 1721–1744
- [20] M. Hairer, A. M. Stuart, and J. Voß, *Analysis of SPDEs Arising in Path Sampling Part II: The Nonlinear Case*, Ann. Appl. Probab. **17** (2007), no 5/6, pp. 1657–1706
- [21] F. Flandoli, M. Gubinelli, M. Hairer, and M. Romito, *Remarks on the K41 scaling law in turbulent fluids*, Commun. Math. Phys. **278** (2008), no 1, pp. 1–29
- [22] M. Hairer and G. Pavliotis, *From ballistic to diffusive behavior in periodic potentials*, J. Stat. Phys. **131** (2008), no 1, pp. 175–202
- [23] F. Baudoin, M. Hairer, and J. Teichmann *Ornstein-Uhlenbeck processes on Lie groups*, J. Func. Anal. **255** (2008), no 4, pp. 877–890
- [24] M. Hairer and E. Pardoux *Homogenization of periodic linear degenerate PDEs*, J. Func. Anal. **255** (2008), no 9, pp. 2462–2487
- [25] M. Hairer and J. Mattingly, *Spectral gaps in Wasserstein distances and the 2D stochastic Navier-Stokes equations*, The Annals of Probability **36** (2008), no 6, pp. 2050–2091
- [26] M. Hairer, *Ergodic properties of a class of non-Markovian processes*, ‘Trends in Stochastic Analysis’, LMS Lecture Notes Series 353
- [27] M. Hairer, A. Stuart and J. Voß, *Sampling conditioned diffusions*, ‘Trends in Stochastic Analysis’, LMS Lecture Notes Series 353



- [28] M. Hairer and J. Mattingly, *Slow energy dissipation in anharmonic oscillator chains*, Commun. Pure Appl. Math. **62** (2009), no 8, pp. 999–1032
- [29] M. Hairer, *How hot can a heat bath get?*, Commun. Math. Phys. **292** (2009), no 1, pp. 131–177
- [30] R. F. Bass, K. Burdzy, Z.-Q. Zheng, and M. Hairer, *Stationary distributions for diffusions with inert drift*, Probab. Theo. Rel. Fields **146** (2010), no 1, pp. 1–47
- [31] M. Hairer, J. Mattingly, and M. Scheutzow, *Asymptotic coupling and a weak form of Harris' theorem with applications to stochastic delay equations*, Probab. Theo. Rel. Fields **149** (2010), no 1–2, pp. 223–259
- [32] M. Hairer and A. Majda, *A simple framework to justify linear response theory*, Nonlinearity **23** (2010), no 4, pp. 909–922
- [33] M. Hairer and C. Manson, *Periodic homogenization with an interface: the one-dimensional case*, Stoch. Proc. Appl. **120** (2010), no 8, pp. 1589–1605
- [34] M. Hairer, A. Stuart, and J. Voß, *Sampling Conditioned Hypocoelliptic Diffusions*, Ann. Appl. Probab. **21** (2010), no 2, pp. 669–698
- [35] M. Hairer and N. S. Pillai, *Ergodicity of hypoelliptic SDEs driven by fractional Brownian motion*, Annals IHP, Ser B. (2010)
- [36] M. Hairer and C. Manson, *Periodic homogenization with an interface: the multi-dimensional case*, Ann. Probab. **39** (2011), no 2, pp. 648–682
- [37] M. Hairer and J. Mattingly, *Yet another look at Harris' ergodic theorem for Markov chains*, Seminar on Stochastic Analysis, Random Fields and Applications VI, Progr. Probab., **63** (2011), pp. 109–117
- [38] M. Hairer and J. Mattingly, *A Theory of Hypocoellipticity and Unique Ergodicity for Semilinear Stochastic PDEs*, Electron. J. Probab, **16** (2011), pp. 658–738
- [39] M. Hairer and J. Voß, *Approximations to the Stochastic Burgers Equation*, Journ. Nonlin. Sci., **21** (2011), no 6, pp. 897–920
- [40] M. Allman, V. Betz, and M. Hairer, *A chain of interacting particles under strain*, Stoch. Proc. Appl., **121** (2011), no 9, pp. 2014–2042
- [41] M. Hairer, *Rough stochastic PDEs*, Commun. Pure Appl. Math., **64** (2011), no 11, pp. 1547–1585
- [42] M. Hairer, *On Malliavin's proof of Hörmander's theorem*, Bull. Sci. Math., **135** (2011), no 6-7, pp. 650-666
- [43] M. Hairer, *Singular perturbations to semilinear stochastic heat equations*, Probab. Theo. Rel. Fields **152** (2012), no 1, pp. 265–297
- [44] M. Hairer, M.D. Ryser and H. Weber, *Triviality of the 2D Allen-Cahn equation*, Electron. J. Probab. **17** (2012), no. 39, pp. 1–14
- [45] M. Hairer and D. Kelly, *Stochastic PDEs with multiscale structure*, Electron. J. Probab. **17** (2012), no. 52, pp. 1–38
- [46] M. Hairer and J. Maas, *A spatial version of the Itô-Stratonovich correction*, Ann. Probab., **40** (2012), no 4, pp. 1675–1714

- [47] M. Hairer and H. Weber, *Rough Burgers-like equations with multiplicative noise*, Probab. Theo. Rel. Fields, **155** (2013), no. 1–2, pp. 71–126
- [48] N. Bou-Rabee and M. Hairer, *Non-asymptotic mixing of the MALA algorithm*, IMA J Numer Anal **33** (2013), no. 1, pp. 80–110
- [49] M. Hairer, *Solving the KPZ equation*, Ann. of Math., **178** (2013), pp. 559–664
- [50] M. Hairer and N. S. Pillai, *Regularity of Laws and Ergodicity of Hypocoelliptic SDEs Driven by Rough Paths*, Ann. Probab., **41** (2013), no 4, pp. 2544–2598
- [51] M. Hairer, E. Pardoux, and A. Piatnitski, *Random homogenisation of a highly oscillatory singular potential*, SPDEs: Anal. and Comp., **1** (2013), no 4, pp. 571–605
- [52] M. Hairer, J. Maas and H. Weber, *Approximating rough stochastic PDEs*, Commun. Pure Appl. Math., **67** (2014), no 5, pp. 776–870
- [53] M. Hairer, *A Theory of Regularity Structures*, Invent. Math., **198** (2014), no 2, pp. 269–504
- [54] M. Hairer, D. Kelly, *Geometric versus non-geometric rough paths*, Ann. IHP (B), **51** (2015), no 1, pp. 207–251
- [55] T. Cass, M. Hairer, C. Litterer and S. Tindel, *Smoothness of the density for solutions to Gaussian Rough Differential Equations*, Ann. Probab., **43** (2015), no 1, pp. 188–239
- [56] M. Hairer, M. Hutzenthaler, and A. Jentzen, *Loss of regularity for Kolmogorov equations*, Ann. Probab., **43** (2015), no 2, pp. 468–527
- [57] M. Hairer, A. Stuart and S. Vollmer, *Spectral Gaps for a Metropolis-Hastings Algorithm in Infinite Dimensions*, Ann. Appl. Probab., **24** (2014), no 6, pp. 2455–2490
- [58] M. Hairer and J. Weare, *Improved diffusion Monte Carlo*, Commun. Pure Appl. Math., **67** (2014), no 12, pp. 1995–2021
- [59] M. Hairer and J. Weare, *The Brownian fan*, Commun. Pure Appl. Math., **68** (2015), no 1, pp. 1–60
- [60] B. Cloez and M. Hairer, *Exponential ergodicity for Markov processes with random switching*, Bernoulli, **21** (2015), no 1, pp. 505–536
- [61] M. Hairer, *Introduction to Regularity Structures*, Braz. J. Prob. Stat., **29** (2015), no 2, pp. 175–210
- [62] M. Hairer and C. Labbé, *A simple construction of the continuum parabolic Anderson model on  $\mathbf{R}^2$* , Electron. Commun. Probab., **20** (2015), no. 43, 11 pp
- [63] M. Hairer and H. Weber, *Large deviations for white-noise driven, nonlinear stochastic PDEs in two and three dimensions*, Ann. Fac. Sci. Toulouse (6), **24** (2015), no 1, pp. 55–92.
- [64] M. Hairer and E. Pardoux, *A Wong-Zakai theorem for stochastic PDEs*, Jour. Math. Soc. Japan, **67** (2015), no 4, pp. 1551–1604
- [65] M. Hairer and H. Shen, *The dynamical sine-Gordon model*, Commun. Math. Phys., **341** (2016), no 3, pp. 933–989
- [66] M. Hairer, L. Korolov, and Z. Pajor-Gyulai, *From averaging to homogenization in cellular flows - an exact description of the transition*, Ann. IHP Probab. Stat., **52** (2016), no 4, pp. 1592–1613

- [67] M. Hairer and K. Matetski, *Optimal rate of convergence for stochastic Burgers-type equations*, *SPDEs: Anal. Appl.*, **4** (2016), no 4, pp. 402–437
- [68] M. Hairer and C. Labbé, *Multiplicative stochastic heat equations on the whole space*, *J. Eur. Math. Soc. (JEMS)* **20** (2018), no. 4, 1005–1054
- [69] M. Hairer and H. Shen, *A central limit theorem for the KPZ equation*, *Ann. Probab.* **45** (2017), no. 6B, 4167–4221
- [70] M. Hairer and K. Matetski, *Discretisations of rough stochastic PDEs*, *Ann. Probab.* **46** (2018), no. 3, 1651–1709
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