

MARTIN HAIRER

Mathematics Department
The University of Warwick
CV4 7AL Coventry
United Kingdom

Phone: ++44 24 765 28335 (office)
Email: martin@hairer.org
Web: <http://www.hairer.org/>

Born: November 14, 1975

Citizenship: Austria

Languages: Fluent in French, German, and English

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Career history

from 04/2014	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.

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.

Honours and awards

- 2008 LMS Whitehead prize
- 2008 Philip Leverhulme Prize
- 2009 Royal Society Wolfson Research Merit Award
- 2013 Fermat prize
- Fellow of the Royal Society (since 2014)
- 2014 Fröhlich prize
- 2014 Fields medal
- Fellow of the AMS (since 2015)

- Member of the Austrian Academy of Sciences (since 2015)
- Member of the German National Academy of Sciences Leopoldina (since 2015)
- Member of the Berlin-Brandenburg Academy of Sciences and Humanities (since 2016)
- Honorary degree in science from HKBU (2016)
- Honorary Knight Commander of the British Empire (KBE, since 2016)

Past and current PhD students

A. Gerasimovics (PhD started October 2016).
P. Schönbauer (PhD started October 2015).
M. Iberti (PhD started January 2014).
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

Supervision of postdoctoral researchers

T. Holding (From 2016)
G. Cannizzaro (From 2016)
Y. Bruned (From 2015)
F. Gabriel (From 2015)
A. Chandra (2014–2017) now Zeeman lecturer at University of Warwick
H. Shen (2014–2015) now instructor at Columbia University
D. Erhart (2014–2017) now associate professor at Universidade Federal da Bahia
W. Xu (From 2013–2016) now EPSRC postdoc in Warwick
C. Labbé (2013–2015) now MCF at Paris Dauphine
H. Weber (2010–2011) now associate professor at University of Warwick
J. Maas (2009) now associate professor at IST Vienna
J. Voß (2007–2009, joint with A. Stuart) now lecturer in Leeds

Named lectures

- Simon 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)

Committee memberships

- Member of the scientific steering committee of the Institute Henri Poincaré (Paris; 2012-present)
- Member of the scientific steering committee of the Oberwolfach Institute (2013-present)
- Member of the scientific advisory board of ETHZ-ITS (2013-present)
- Panel member for the AFR Luxembourg (2012-2013)
- Member of the EPSRC peer review college (2006-present)
- Member of the ‘commission ANR’ responsible for allocating research funds for Mathematics in France (2008-2010)
- Panel member for the Early Career Research Program (USA Dept. of Energy; 2009)

Editorial duties

- Associate editor for the journal “Commun. Math. Phys.” (2015-present)
- Associate editor for the journal “Probability Theory and Related Fields” (2008-present)
- Associate editor for the “Journal of Functional Analysis” (2013-present)
- 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)

External member of thesis defence committees

M. Gourcy (Clermont-Ferrand 2006; Supervisor L.-M. Wu)
M. Caruana (Oxford 2007; Supervisor T. Lyons)
A. Camanes (Nantes 2008; Supervisor P. Carmona)
H. Oberhauser (Cambridge 2009; Supervisor P. Friz)
R. Lefevere (Habilitation thesis; Paris 2009)
B. Franke (Habilitation thesis; Paris 2010)
F. Malrieu (Habilitation thesis; Rennes 2010)
W. Mohammed (Augsburg 2011; Supervisor D. Blömker)
M. Ottobre (Imperial College 2012; Supervisor G. Pavliotis)
F. Barrett (Bonn / Paris 2012; Supervisors S. Méléard and A. Bovier)
G. Stoltz (Habilitation thesis; Paris 2012)
B. Sausserau (Habilitation thesis; Besançon 2012)
B. Cloez (Paris 2013; Supervisor D. Chafaï)

S. Riedel (Berlin 2013; Supervisor P. Friz)
Y. Bruned (Paris 2015; Supervisor L. Zambotti)
I. Bailleul (Habilitation thesis; Rennes 2015)
N. Cuneo (Geneva 2016; Supervisor J.-P. Eckmann)
J.-C. Mourrat (Habilitation thesis; Lyon 2017)

Organisation of workshops and seminars

May 2–3, 2003	<i>Workshop on fractional Brownian motion</i> , co-organiser
August 4–15, 2003	<i>Workshop on SPDEs and related topics</i> , co-organiser
July 9, 2004	<i>Third East Midlands Stochastic Analysis Seminar</i> , Warwick, co-organiser
2003 – 2007	<i>Organiser of the Stochastic Analysis Seminar of the University of Warwick</i>
July 9–13 2007	<i>SciCADE07</i> Co-organiser for two minisymposia
June 2008	<i>Easter Probability Meeting</i> , Warwick, co-organiser
July 27–31 2009	<i>SPA 2009</i> Organiser of an invited minisymposium
2010–present	<i>Co-organiser of the Stochastic Analysis Seminar of the University of Warwick</i>
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	<i>Bernoulli World Congress 2012</i> 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)
July 7–11 2014	<i>IMS annual meeting 2014</i> Organiser of invited minisymposium
October 2014	<i>Advances in Probability: Integrability, Universality and Beyond</i> (Clay, Oxford), co-organiser
March 29–April 2 2016	<i>Probabilistic models - from discrete to continuous</i> (Warwick), co-organiser
May 16–20 2016	<i>Stochastic PDEs</i> (Simons centre, Stony Brook), organiser

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
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Fellowships

- 05/2014 5-year ERC consolidator award. (€ 1.5M)
09/2013 5-year Leverhulme Leadership Award. (£ 950k)
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 (CHF 96k 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. (CHF 48k)
10/2002 1-year Research fellowship of the Swiss National Science Foundation. (CHF 39k)
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Grants

- 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)
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Visiting professorships with honorarium

- December 2006 Université Paul Sabatier, Toulouse, invited professor (1 month)
July 2009 Technical University, Berlin, invited professor (1 month)
April 2013 École Normale Supérieure, Paris, invited professor (1 month)
February 2014 Université Paul Sabatier, Toulouse, invited professor (1 month)
March-April 2014 IAS Princeton, member (2 months)
April 2015 École Polytechnique / IHÉS, Paris, invited professor (1 month)
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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 Hypoelliptic 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 Hypoelliptic 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 Hypoellipticity 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. Korálov, 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

Proceedings articles

- [68] E. Hairer and M. Hairer, GniCodes - Matlab programs for geometric numerical integration. *Frontiers in Numerical Analysis (Durham 2002)*, Springer, Berlin, 2003.
- [69] M. Hairer, *Coupling stochastic PDEs*, Proceedings of the ICMP, 2003
- [70] D. Blömker and M. Hairer, *Amplitude Equations for SPDEs: Approximate Centre Manifolds and Invariant Measures*, Proceedings of the IMA (2003)
- [71] M. Hairer and C. Manson, *Periodic homogenization with an interface*, Proceedings of ISAAC 2009
- [72] M. Hairer *Hypoellipticity in Infinite Dimensions*, Proceedings of ISAAC 2009
- [73] M. Hairer, *Singular stochastic PDEs*, Proceedings of the ICM, 2014
- [74] M. Hairer, *Regularity structures and the dynamical Φ_3^4 model*, Current Developments in Mathematics, 2015
- [75] M. Hairer *The motion of a random string*, Proceedings of the ICMP, 2015.

Articles in press

- [76] M. Hairer and C. Labbé, *Multiplicative stochastic heat equations on the whole space*, Journal EMS, to appear.
- [77] M. Hairer and H. Shen, *A central limit theorem for the KPZ equation*, Annals of Probability, to appear.
- [78] M. Hairer and K. Matetski, *Discretisations of rough stochastic PDEs*, Annals of Probability, to appear.
- [79] M. Hairer and W. Xu, *Large scale behaviour of 3D phase coexistence models*, Commun. Pure Appl. Math., to appear.
- [80] C.-E. Bréhier, M. Hairer and A. Stuart, *Weak error estimates for trajectories of SPDEs under Spectral Galerkin discretization*, Jour. Comp. Math., to appear.

Submitted

- [81] M. Hairer and J. Quastel, *A class of growth models rescaling to KPZ*, Preprint (2015).
- [82] M. Hairer, G. Iyer, L. Korálov, A. Novikov and Z. Pajor-Gyulai *A fractional kinetic process describing the intermediate time behaviour of cellular flows*, Preprint (2016).
- [83] M. Hairer and C. Labbé, *The reconstruction theorem in Besov spaces*, Preprint (2016).
- [84] M. Hairer and J. Mattingly, *The strong Feller property for singular stochastic PDEs*, Preprint (2016).
- [85] Y. Bruned, M. Hairer and L. Zambotti, *Algebraic renormalisation of regularity structures*, Preprint (2016).
- [86] M. Hairer and A. Chandra, *An analytic BPHZ theorem for regularity structures*, Preprint (2016).

Monographs

- [87] P. Friz and M. Hairer, *A course on rough paths*, Universitext, Springer (2014)

Unpublished notes

- [88] M. Hairer, *A probabilistic argument for the controllability of conservative systems*, Unpublished note (2007).
- [89] M. Hairer, *Ergodic properties of Markov processes*, Unpublished lecture notes (2005).
- [90] M. Hairer, *Ergodic Theory for Stochastic PDEs*, Unpublished lecture notes (2008).
- [91] M. Hairer, *Introduction to Stochastic PDEs*, Unpublished lecture notes (2009).

Theses

- [92] M. Hairer, *Systèmes Mécaniques Couplés à des Bains Thermiques de Températures Différentes*, Diploma Thesis, University of Geneva, 1998
- [93] M. Hairer, *Comportement Asymptotique d'Équations à Dérivées Partielles Stochastiques*, PhD Thesis, University of Geneva, 2001

Invited lectures (from 2011)

- 02/02/2011 *Random Media: Homogenization and Beyond*, Los Angeles
- 02/02/2011 *Congress RSME-2011*, Avila
- 09/03/2011 *Mathematical challenges in molecular dynamics*, Imperial College
- 11/03/2011 Probability theory seminar, Bath
- 20/03/2011 *International Conference on Malliavin Calculus and Stochastic Analysis*, Lawrence
- 07/04/2011 *Workshop on the Fourier Law and Related Topics*, Toronto
- 25/05/2011 *Seventh Seminar of Stochastic Analysis, Random Fields and Applications*, Ascona (**Plenary Lecture**)
- 20/06/2011 *SPA 2011*, Oaxaca
- 29/06/2011 *Coarse-graining of many-body systems: analysis, computations and applications*, Heraklion
- 29/07/2011 *Stochastic Analysis: A UK-China Workshop*, Loughborough
- 09/09/2011 *ICSAA 2011*, Bonn (**Plenary Lecture**)
- 13/09/2011 *Stochastic Partial Differential Equations*, ETH Zurich
- 19/09/2011 *Foundations of Stochastic Analysis*, Banff
- 05/10/2011 Probability theory seminar, Manchester
- 07/10/2011 Mathematics colloquium, Warwick
- 11/10/2011 *Evolution Equations: Randomness and Asymptotics*, Bad Herrenalb
- 24/10/2011 *The KPZ equation and universality class*, Palo Alto
- 10/11/2011 PDE seminar, Sussex University
- 16/11/2011 *SIAM PD11*, San Diego, (**Plenary Lecture**)
- 16/12/2011 *Multiscale Systems: Theory and Applications*, Warwick
- 20/02/2012 Probability seminar, Geneva University
- 22/02/2012 Probability seminar, ETH Zurich
- 13/03/2012 Probability seminar, Toulouse
- 20/03/2012 Probability seminar, Harvard
- 23/03/2012 *SSP2012*, Kansas University
- 16/04/2012 *Stochastic Analysis and Stochastic PDEs*, Warwick
- 10/05/2012 *Stan' Days 2012*, Nancy
- 22/05/2012 *Dynamics in infinite-dimensions: ergodic theory and PDEs*, Edinburgh
- 12/06/2012 *NASPDE2012*, Warwick

14/06/2012 *Workshop on Random Dynamical Systems*, Imperial College
 03/07/2012 *ECM06*, Krakow
 19/07/2012 *UK-Japan Mathematical Forum*, Keio University
 08/08/2012 *ICMP2012*, Aalborg
 21/08/2012 *Rough Paths and PDEs*, Oberwolfach (3 lectures)
 31/08/2012 *East Midlands Stochastic Analysis Seminar*, Warwick
 06/09/2012 *Stochastic methods and Nonlinear PDEs*, Cardiff
 10/09/2012 *International Conference on Nonlinear Partial Differential Equations*,
 Oxford, **(Plenary Lecture)**
 12/09/2012 *Stochastic Partial Differential Equations*, Cambridge
 19/09/2012 *ICNAAM2012*, Kos, **(Plenary Lecture)**
 27/09/2012 Mathematics colloquium, Orléans
 04/10/2012 Mathematics colloquium, Münster
 09/01/2013 Mathematics colloquium, University of Chicago
 11/01/2013 Analysis seminar, University of Chicago
 17/01/2013 *Theory and Applications of Stochastic PDEs*, IMA Minneapolis
 31/01/2013 Statistical mechanics seminar, University of Warwick
 07/02/2013 Statistical mechanics seminar, University of Warwick
 20/02/2013 *Workshop in honour of Étienne Pardoux*, Marseille
 19/03/2013 Probability theory seminar, Paris 6
 22/03/2013 Analysis seminar, Paris 6
 22/04/2013 WIAS Colloquium, Berlin
 13/05/2013 *Nonlinear PDEs in Micromagnetism*, Edinburgh
 21/05/2013 *Asymptotic Problems in Stochastic Processes and PDEs*, University of
 Maryland
 10/07/2013 Hausdorff colloquium, Bonn
 01/08/2013 *29th Brazilian Mathematics Colloquium*, Rio de Janeiro
 12/08/2013 *Two days in Stochastic Analysis II*, Campinas
 23/08/2013 Probability seminar, Jyväskylä
 09/09/2013 Mathematical physics seminar, Geneva
 12/09/2013 *GER-JAP Conference*, Leipzig
 27/09/2013 *Stochastic Analysis and Applications*, Oxford
 23/10/2013 Mathematics colloquium, Princeton
 24/10/2013 Fluid dynamics seminar, Princeton
 28/10/2013 Charles River Lectures on Probability and Related Topics, MIT
 21/11/2013 *Northeast Probability Seminar*, New York
 29/11/2013 Mathematics colloquium, Edinburgh
 05/12/2013 Mathematics colloquium, Munich
 10/12/2013 Mathematics colloquium, Zurich
 14/01/2014 Mathematics colloquium, Reading
 04/03/2014 Seminar, IAS, Princeton
 05/03/2014 Seminar, IAS, Princeton
 06/03/2014 Seminar, IAS, Princeton
 07/04/2014 Mathematics colloquium, Courant Institute, New York
 09/04/2014 Mathematics colloquium, Lehigh University, Bethlehem (PA)
 29/04/2014 Probability seminar, Brown
 16/05/2014 Euler lecture, Berlin
 08/07/2014 *IMS-ASC 2014*, Sydney **(Plenary Lecture)**
 29/07/2014 *SPA 2014*, Buenos Aires **(Plenary Lecture)**

14/08/2014 *ICM 2014, Seoul (Fields Medal Lecture)*
 11/09/2014 *Stochastics and Dynamics, Berlin*
 23/09/2014 *Heidelberg Laureates Forum, Heidelberg*
 10/10/2014 *Séminaire Hypatie, Lyon*
 11/10/2014 *Oberwolfach lecture, Oberwolfach*
 13/10/2014 *Analysis seminar, Aachen*
 31/10/2014 *Radcliffe exploratory workshop, Cambridge (MA)*
 21/11/2014 *Current Developments in Mathematics, Cambridge (MA)*
 05/12/2014 *Probability colloquium, Darmstadt*
 10/12/2014 *Bakry's 60th birthday conference, Toulouse*
 12/12/2014 *EMS meeting, Edinburgh*
 21/01/2015 *LPT ENS 40 years anniversary conference, Paris*
 18/02/2015 *Physics colloquium, ETH Zurich*
 10/03/2015 *Stochastic Systems Simulation and Control workshop, ICMS Edinburgh*
 11/03/2015 *ICMS public lecture, Edinburgh*
 03/04/2015 *Mathematics colloquium, Lille*
 14/04/2015 *Dutch Mathematical Congress, Leiden*
 21/04/2015 *Probabilistic Numerics for Differential Equations, Warwick*
 01/05/2015 *Department colloquium, Oxford*
 15/05/2015 *Bernoulli lecture, EPFL Lausanne*
 15/05/2015 *The Future of Interdisciplinary Research, London*
 18/05/2015 *Mathematics colloquium, Southampton*
 03/06/2015 *Mathematics colloquium, Fribourg (CH)*
 04/06/2015 *FIM 50th anniversary meeting, ETH Zurich*
 16/06/2015 *ITS colloquium, ITS Vienna*
 18/06/2015 *Distinguished PDE lecture, TU Vienna*
 25/06/2015 *LMS popular lecture, London*
 30/06/2015 *Numerical probabilistic methods for non-linear PDEs, Imperial College London*
 10/07/2015 *Random Dynamical Systems and Ergodicity, Loughborough*
 16/07/2015 *SPA 2015, Oxford*
 27/07/2015 *ICMP 2015, Santiago (Plenary Lecture)*
 04/08/2015 *Stochastic Analysis and related fields, Wuhan*
 06/08/2015 *1st East Lake Lecture, Wuhan*
 10/08/2015 *Colloquium, Beijing University*
 12/08/2015 *ICIAM 2015, Beijing (Plenary Lecture)*
 13/08/2015 *Colloquium, Chinese Academy of Sciences*
 04/09/2015 *Stochastic Analysis and Applications, Sendai*
 08/09/2015 *Itô memorial workshop, Kyoto*
 23/09/2015 *LMS popular lecture, Birmingham*
 05/10/2015 *Leonardo da Vinci lecture, Milan*
 09/10/2015 *Stochastic calculus, Monte-Carlo, and Math. Finance, Le Mans*
 23/10/2015 *New Challenges In PDE, MSRI Berkeley*
 30/10/2015 *Distinguished Colloquium, UC San Diego*
 05/11/2015 *Colloquium, UC Berkeley*
 12/11/2015 *Kai Lai Lecture, Stanford*
 17/11/2015 *Colloquium, UC Santa Cruz*
 02/12/2015 *Michalik lecture, Pittsburgh*
 05/12/2015 *Meeting of the CMS, Montreal (Plenary Lecture)*
 07/01/2016 *SIAM UKIE 20th Annual Meeting, Cambridge UK*
 08/01/2016 *Stochastic Analysis, Rough Paths, Geometry, Imperial College*
 13/01/2016 *Random processes and random media, ETH Zurich*
 15/02/2016 *Colloquium, Queen Mary (London)*

01/03/2016 *German Probability and Statistics Conference*, Bochum (**Plenary Lecture**)
14/03/2016 Colloquium, Universidad Carlos III, Madrid
16/03/2016 Colloquium, Lancaster
18/03/2016 Colloquium, Bristol
25/04/2016 Colloquium, Greenwich (London)
04/05/2016 *Rough Paths, Regularity Structures and Related Topics*, Oberwolfach
27/05/2016 Colloquium, Brussels
07/06/2016 *Swiss Probability Seminar*, ETH Zurich
15/06/2016 Seminar “panorama de la recherche”, ENS Cachan
23/06/2016 *Workshop on SDEs*, Mannheim
04/07/2016 *AIMS*, Orlando (**Plenary Lecture**)
13/07/2016 *Bernoulli World Congress*, Toronto
13/07/2016 *Bernoulli World Congress*, Toronto (**Plenary Lecture**)
27/07/2016 *AMC*, Bali (**Plenary Lecture**)
15/08/2016 *Conference in honour of Varadhan*, Berlin
17/08/2016 *Abelsymposium*, Rosendal (Norway)
31/08/2016 *Frontiers in Mathematical Physics*, Montreal
21/09/2016 *Interactions Between Partial Differential Equations & Functional Inequalities*, Mittag-Leffler Institute (Sweden)
28/09/2016 Colloquium, KTH (Sweden)
13/10/2016 *Stochastic Partial Differential Equations and Related Fields*, Bielefeld (Germany)
25/10/2016 Colloquium, Northwestern University (Chicago)
27/10/2016 Colloquium, IIT (Chicago)
10/11/2016 Colloquium, Sheffield
17/11/2016 *BMS Anniversary*, Berlin
25/01/2017 *Workshop on Mathematical Physics*, Weizman Institute
01/02/2017 *RSME 2017*, Zaragoza