

Curriculum vitae

Personal information

Family name: Cruzeiro

First name: Ana Bela

Nationalities: Portuguese, Swiss

URL for web site: <http://gfm.cii.fc.ul.pt/people/abcruzeiro>

Orcid ID: orcid.org/0000-0001-5256-1174

Research topics: Stochastic Analysis; Relations with PDE's; Malliavin Calculus; Probabilistic methods in Hydrodynamics; Stochastic Geometric Mechanics.

Education

1991 Agregação, Mathematics, Univ. of Lisbon, Portugal

1985 PhD (Doctorat d'État), Mathematics, Univ. Pierre et Marie Curie, Paris VI, France

1983 Doctorat de 3ème cycle, Mathematics, Univ. Pierre et Marie Curie, Paris VI, France

1982 Diplôme d'Études Approfondies, Mathematics, Univ. Pierre et Marie Curie, Paris VI, France

1980 Master in Mathematics, Faculdade de Ciências, Univ. Lisboa, Portugal

Current position

2002- Full professor, Dep. of Math., Instituto Superior Técnico, Univ. Lisboa, Portugal

Previous positions

1986-2002 Auxiliary then assistant professor Department of Mathematics, Faculdade de Ciências, Univ. Lisboa, Portugal

1985-1986 Maître de conférences, Department of Mathematics, Univ. Orsay, France

1980-1981 Assistant, Air Force Academy, Portugal

Supervision/co-supervision of Graduate students and postdoctoral fellows

PhD students/present positions:

2014-present Alexandra Symeonides

2017 Guoping Liu (Huazhong Univ. of Sc. and Tech.)

2002 Maria João Oliveira (Univ. Aberta, Lisbon)

2001 Fernanda Cipriano (Univ. Nova, Lisbon)

1999 Li Xiangdong (Chinese Academy of Sciences, Beijing, "Special Prize of 1999 President Scholarship for Postgraduate students", Chinese Academy of Sciences)

Postdoctoral fellows/present positions:

2017- Léonard Monsaingeon

2013-2015 Rémi Lassalle (Univ. Paris Dauphine)

2012-2014 Chen Xin (Shanghai Jiao Tong Univ.)

2012-2013 Iván Torrecilla (Univ. Barcelona)

2011-2012 Miguel Tierz (Univ. Lisboa)

2010-2011 Davide Masoero (Univ. Lisboa)

2007-2008 Evelina Shamarova (Univ. Federal Paraíba)

2001-2002 Xicheng Zhang (Huazhong Univ., Wuhan)

2000 Xiang Kai-Nan (Nankai Univ., Tianjin)

1999-2000 Li Xiangdong (Chinese Academy of Sciences, Beijing)

Organization of scientific meetings: (since 2002)

2018 Co-organiser of the workshop "From Stochastic Geometric Mechanics to Mass Transportation Problems", Lisbon

2017 Co-organizer of the session “Probability Conference on Geometric Science of Information (GSI2017), Mines Paris Tech, Paris 2017

2015 Co-organizer of the research semester “Geometric Mechanics, Variational and Stochastic Methods”, Centre Interfacultaire Bernoulli, EPFL, Lausanne

2014 Co-organizer of the Conference “Advances in Mathematical Fluid Mechanics – Stochastic and deterministic methods”, Lisbon

2011 Co-organizer of the 3rd Intern. Conference “Geometry, Dynamics, Integrable systems”, Sintra

2010 Member of the scientific committee of the 34th Conference on Stochastic processes and their applications, SPA 2010, Osaka

2006 Co-organizer of the Conference “Stochastic Analysis in Mathematical Physics”(Satellite conference of the International Congress of Mathematics ICM2006), Lisbon

2006 Organizer of the Session “Stochastic Analysis” of the 31th Conference on Stochastic processes and their applications, SPA 2006, Paris

2003 Co-organizer of the first “EMS Mathematical weekend”, Lisbon

2003 Member of the local organizer committee of the XIV International Congress on Mathematical Physics (ICMP 2003), Lisbon

2002 Member of the scientific committee of the 1st. Sino-German Conference on Stochastic Analysis (Satellite of the ICM 2002), Beijing

Institutional responsibilities/commissions of trust

2017- Scientific Council FCT

2016-2019 Member of the ESF College of expert Reviewers

2013-2016 Vice President Department of Mathematics, IST, Univ. Lisbon

2012 Member of the jury of the European Latsis Prize 2012 in Mathematics

2010-2014 Committee for IRCSET postdoctoral fellowships (Mathematics), Ireland

2010-2017 Committee for Conferences on Stoch. processes Bernoulli Society

2008-2009 Jury senior of IUF (Institut Universitaire de France)

2007-2010 Panel member ERC (Starting Grants)

2006-2011 Member then secretary of the Mathematical Physics Commission (C18) of the IUPAP

2006-2008 Editorial Board of the EMS Newsletter

2005 Italian committee of evaluation (CIRV)

2004-2006 Commission for meetings of the EMS

2003 Evaluation committee of the program Ramón y Cajal, Spain

2000-2004 President of the Portuguese Mathematical Society

Projects (since 2008)

2018- FCT “Schroedinger’s problem and Optimal Transport: a multidisciplinary perspective” (member)

2015-2018 FCT “From Stochastic Geometric Mechanics to Mass Transportation Problems” (PTDC/MAT-STA/0975/2014) (PI)

2013-2015 FCT “Advances in nonlinear pdes: from degenerate equations to stochastic control and mean-field games” (PTDC/MAT-CAL/0749/2012) (member)

2012-2015 FCT “Probability and PDE’s in mathematical Physics” (PTDC/MAT/120354/2010) (member)

2009-2014 ANR “ProbaGeo: Manifold-valued stochastic processes and Geometry of infinite dimensional path manifolds “(member)

2009-2012 FCT “Probabilistic approach to finite and infinite dimensional dynamical systems” (PTDC/MAT/104173/2008) (PI)

2007-2012 FCT “Mathematical Physics” (PTDC/MAT/69635/2006) (member)

Some recent invited talks

2018 ENSPM, Bragança, Portugal

2018 LSAA2018, Linnaeus University

2018 Workshop Gibbs measures for nonlinear dispersive equations, Oberwolfach

2018 Centenary of S.V. Fomin, Moscow State University

2017 Classic and Stochastic Approaches to Mathem. Fluid Dynamics, imperial College London
 2017 LMS Durham Research Symposium Stochastic Analysis
 2017 Conference GeoProb 2017, Univ. Luxembourg
 2017 Irregular transport: analysis and applications, Basel
 2016 Asian Mathematical Conference, Indonesia
 2016 Stochastic Analysis, Rough paths, Geometry, Imperial College London
 2016 UK-Japan Winter School, Imperial College London
 2014 Colloquium at IMB, Univ. Dijon
 2014 Semester “EDP e Probabilités”, Inst. Mathém. de Toulouse (mini-course)
 2013 Stochastic Analysis and Applications, Oxford-Man Inst. of Quantitative Finance
 2013 Probability and PDE's”, Pisa
 2013 Stochastic Processes and Functional Inequalities, Oberwolfach
 2013 Chinese Acad. Sciences, Beijing
 2012 9th AIMS Conference, Orlando
 2012 Centre Interfacultaire Bernoulli, EPFL (mini-course)
 2011 5th Int. Conference on Stochastic Analysis and its Applications, Hausdorff Center, Bonn
 2011 Seminar Stochastic Analysis, Mathem. Institute Univ. Oxford
 2010 GDIS 2010 (Geometry, Dynamics, Integrable Systems), Belgrade
 2009 XI CLAPEM (Congreso Latino-Americano de Prob. y Estad. Matematica), Venezuela
 2009 7th Intern. ISAAC Congress, Imperial College London
 2008 Symposium on Stochastic Analysis, Univ. and HCM, Bonn

Some recent invited research visits

2017 2 weeks, Shanghai Jiao Tong Univ.
 2015 4 months, Centre Interfacultaire Bernoulli, EPFL, Lausanne
 2014 1 month, Dep. Mathématique Univ. Dijon
 2012 2 months, Centre Interfacultaire Bernoulli, EPFL, Lausanne
 2011 1 month, Mathematical Institute Univ. Oxford
 2008/2009 3 months, Dep. Mathématique Univ. Poitiers
 2009 2 weeks, Univ. Fudan, Shangai
 2007 1 month, Inst. Mittag-Leffler, Stockholm
 2007 2 weeks, Mathematical Institute Univ. Oxford

Referee for J. Phys. A, Proc. Royal Soc., Annals of Prob., Nonlinearity, PTRF, JEMS, among others

Career Breaks: None

Publications

in journals:

1. *Convergence quasi partout dans des domaines paraboliques des fonctions d'intégrale de Dirichlet finie*, C.R. Acad. Sc. Paris, t. 294 (1982), 13-16
2. *Convergence au bord pour les fonctions harmoniques dans \mathbb{R}^d de la classe de Sobolev $W_{1,p}$* , C.R.Acad. Sc. Paris, t. 294 (1982), 71-74
3. *Equations différentielles ordinaires: non explosion et mesures quasi-invariantes*, J. Funct. Anal. 54 (1983), 193-205
4. *Equations différentielles sur l'espace de Wiener et formules de Cameron-Martin non linéaires*, J. Funct. Anal. 54 (1983), 206-227.
5. *Unicité de solutions d'équations différentielles sur l'espace de Wiener*, J. Funct. Anal. 58 (1985), 335-347
6. *Diffusions sur l'espace de Wiener*, C.R. Acad. Sc. Paris, t. 302, ser. I, 8 (1986), 295-298
7. *Estimations capacitaires sur l'espace de Wiener*, I, Bull. Sc. Math., 2e ser., 110 (1986), 139-147
8. *Processus sur l'espace de Wiener associés à des opérateurs élliptiques à coefficients dans certains espaces de Sobolev*, J. Funct. Anal. 72 (2) (1987), 346-367
9. *Solutions et mesures invariantes pour des équations d'évolution stochastiques du type Navier-Stokes*, Expo. Math. 7 (1989), 73-82
10. with S. Alberverio, *Global flows with invariant (Gibbs) measures for Euler and Navier-Stokes*

two dimensional fluids, Comm. Math. Phys. 129 (1990), 431-444

11. with J.C. Zambrini, *Malliavin Calculus and Euclidean Quantum Mechanics, I - Functional Calculus*, J. Funct. Anal. 96 (1) (1991), 62-95

12. with P. Malliavin, *Repère Mobile et Géométrie Riemannienne sur les espaces des chemins*, C.R. Acad. Sc. Paris 319, ser. I (1994), 859-864

13. with J.C. Zambrini, *Malliavin Calculus and Euclidean Quantum Mechanics II - Variational Principle for Infinite Dimensional Processes*, J. Funct. Anal. 130 (2) (1995), 450-476

14. with P. Malliavin, *Courbures de l'espace de Probabilité d'un Brownien Riemannien*, C.R. Acad. Sc. Paris 320, ser. I (1995), 603-607

15. with S. Fang, *Une inégalité L2 pour des integrales stochastiques anticipatives sur une variété Riemannienne*, C.R. Acad. Sc. Paris 321, Série I (1995), 1245-1250.

16. with P. Malliavin, *Renormalized Differential Geometry and Path Space: Structural Equation, Curvature*, J. Funct. Anal. 139 (1) (1996), 119-181

17. with S. Fang, *An L2 - Estimate for Riemannian Anticipative Stochastic Integrals*, J. Funct. Anal. 143 (2) (1997), 400-414

18. with P. Malliavin, *Non Perturbative Construction of Invariant Measure through Confinement by Curvature*, J. Math. Pures Appl. 77 (6) (1998), 527-537

19. with F. Cipriano, *Flows associated to tangent processes on the Wiener space*, J. Funct. Anal. 166 (2) (1999), 310-331

20. with S. Fang, P. Malliavin - *A Probabilistic Weitzenbock formula on Riemannian Path Space*, J. Anal. Math., Jerusalem 80 (2000), 87-100

21. with P. Malliavin, *Frame bundle of Riemannian Path Space and Ricci tensor in adapted Differential Geometry*, J. Funct. Anal. 177 (2000), p219-253

22. *Construction of some processes on the Wiener space associated to second order operators*, J. Korean Math. Soc. 38 (2) (2001), 307-315

23. with S. Fang, *A Weitzenbock formula for the damped Ornstein- Uhlenbeck operator in adapted differential geometry*, C. R. Acad. Sc. Paris 332 (2001), 447-452

24. with S. Fang, *Weak Levi-Civita connection for the damped metric on the Riemannian path space and vanishing of Ricci tensor in adapted differential geometry*, J. Funct. Anal. 185 (2001), 681-698

25. with P. Malliavin, S. Taniguchi, *Ground state estimations in Gauge theory*, Bull. Sci. Math. 125 (6-7) (2001), 623-640

26. with P. Malliavin, *A class of anticipative tangent processes on the Wiener space*, C. R. Acad. Sc. Paris, Ser.I, t. 333 (2001), 353-358.

27. with P. Malliavin – *Stochastic calculus of variations and Harnack inequality on Riemannian path spaces*, C. R. Acad. Sc. Paris, Ser.I, t. 335 (2002), 817-820

28. with X. Zhang, *Finite dimensional approximation of Riemannian path space geometry*, J. Funct. Anal. 205 (2003), p. 206-270

29. with P. Malliavin, A. Thalmaier, *Geometrization of Monte-Carlo numerical analysis of an elliptic operator: strong approximation*, C.R. Acad. Sci., Ser I, 338 (2004), 481-486

30. with F. Cipriano, *Flows associated with irregular Rd-vector fields*, J. Diff. Equations 219 (1) (2005), 183-201

31. with X. Zhang, *Lp – gradient estimates of symmetric Markov semigroups for $1 < p \leq 2$* , Acta Math. Sinica, Vol. 22, 1 (2006), 101-104

32. with P. Malliavin – *Numerical approximation of diffusions in Rd using normal charts of a Riemannian manifold*, Stoch. Proc. And their Applic. 116 (2006), 1088-1095

33. with X. Zhang, *Bismut type formulae for diffusion semigroups on Riemannian manifolds*, Pot. Anal., 25 (2006), 121-130

34. with F. Flandoli, P. Malliavin, *Brownian motion on volume preserving diffeomorphisms group and existence of global solutions of 2D stochastic Euler equation*, J. Funct. Anal. 242, 1 (2007), 304-326

35. with F. Cipriano, *Navier-Stokes equation and diffusions on the group of homeomorphisms of the torus*, Comm. Math. Phys. 275 (2007), 255-269

36. with C. J. S. Alves, *Monte-Carlo simulation of stochastic differential systems – a geometrical approach*, Stoch. Proc. and their Applic. 118 (2008), 346-367

37. with P. Malliavin, *Nonergodicity of Euler fluid dynamics on tori versus positivity of the Arnold-Ricci tensor*, J. Funct. Anal. 254 (7) (2008), 1903-1925

38. with P. Malliavin, *Nonexistence of infinitesimally invariant measures on loop groups*, J. Funct. Anal. 254 (2008), 1974-1987
39. with P. Malliavin, *Stochastic calculus of variations on complex line bundle and construction of unitarizing measures for the Poincaré disk*, J. Funct. Anal. 256 (2) (2009), 385-408
40. with P. Malliavin, *Renormalized stochastic calculus of variations for a renormalized infinite-dimensional Brownian motion*, Stochastics 81 (3-4) (2009), 385-399
41. with E. Shamarova, *Navier-Stokes equations and forward-backward SDEs on the group of diffeomorphisms of a torus*, Stoch. Proc. and their Applic. 119 (2009), 4034-4060
42. with M. Arnaudon, N. Galamba, *Lagrangian Navier-Stokes flows: a stochastic model*, J. Phys. A 44 (17) (2011), 1-12
43. *Stochastic calculus of variations for the diffeomorphisms group*, Bull. Sci. Math. 135 (6-7) (2011), 557-564
44. with M. Arnaudon, *Stochastic Lagrangian flows on some compact manifolds*, Stochastics 84 (2-3) (2012), 367-381
45. with M. Arnaudon, *Lagrangian Navier-Stokes diffusions on manifolds: variational principle and stability*, Bull. Sci. Math. 136 (8) (2012), 857-881.
46. with X. Chen, *Stochastic geodesics and stochastic backwards equations on Lie groups*, Discrete and Cont. Dyn. Systems (2013), 115-121
47. with A. Antoniouk, M. Arnaudon, *Generalized stochastic flows and applications to incompressible viscous fluids*, Bull. Sci. Math., vol 138, 4 (2014), 565-584
48. with A. de Oliveira Gomes, L. Zhang, *Asymptotic properties of coupled forward-backward stochastic differential equations*, Stoch. and Dynamics, vol 14, 3, 1450004 (2014) 42pp
49. with Zh. Qian, *Backward stochastic differential equations associated with the vorticity equations*, J. Funct. Anal., vol 267, 3 (2014), 660-677
50. with M. Arnaudon, X. Chen, *Stochastic Euler-Poincaré reduction*, J. Math. Physics 55, 081507 (2014)
51. with I. Torrecilla, *On a 2D stochastic Euler equation of transport type: existence and geometric formulation*, Stoch. and Dynamics, vol 15, 1, 1450012 (2015) 19pp
52. with P. Vuillermot, *Forward-backward stochastic differential equations generated by Bernstein diffusions*, Stoch. Anal. Appl. 33, n.1 (2015), 91-109
53. with G. Liu, *A stochastic variational approach to viscous Burgers equations*, Acta Math. Sinica 32 (9) (2016), 1027-1034
54. with G. Liu, *A stochastic variational approach to the viscous Camassa-Holm and Leray-alpha equations*, Stoch. Proc. and their Applic. 127 (1) (2017), 1-19
55. with M. Arnaudon e S. Fang, *Generalized stochastic Lagrangian paths for the Navier-Stokes equation*, Ann. Scuola Norm. Sup. Pisa, pp 24, DOI Number: 10.2422/2036- 2145.201602_006 (2017)
56. with M. Guerra, R. Sousa, *Barrier Option Pricing under the 2-Hypergeometric Stochastic Volatility Model*, J. of Comp. and Appl. Maths., 328 (2018), 197-213
57. with D.D. Holm, T.S. Ratiu, *Momentum Maps and Stochastic Clebsch Action Principles*, Comm. Math. Phys, 357 (2) (2018), 873-912

Proceedings:

1. *Invariant measures for Euler and Navier-Stokes systems, Stochastic analysis, path integration and dynamics*, ed. K.D. Elworthy e J.C. Zambrini, Pitman Res. Notes in Math. Ser. 200 (1989)
2. *Flows in infinite dimensions and associated transformations of Gaussian measures*, Stoch. Methods in Math. and Physics, ed. R. Gielerak e W. Karwowski, World Sc. (1989)
3. *Invariant measures in hydrodynamic systems with random perturbations*, Dynamics and Stochastic Processes, ed. R. Lima, L. Streit, R. Vilela Mendes, Springer-Verlag (1990)
4. with J.C. Zambrini, *Feynman's functional calculus and stochastic calculus of variations*, Stochastic Analysis and Applications, ed. A.B. Cruzeiro e J.C. Zambrini, Birkhauser P.P. 26 (1991)
5. with J.C. Zambrini, *Ornstein-Uhlenbeck processes as Bernstein diffusions*, Proc. Conf. Barcelona Análise Estocástica, Birkhauser, Boston P.P. 32 (1993)
6. with J.C. Zambrini, *Euclidean Quantum Mechanics: an outline*, Proceedings NATO ASI, Stoch. Analysis and Appl. in Physics, ed. L. Streit, Kluwer-Acad. Publ. (1994), 59-97

7. with A. Brandão, *Singular differential operators and associated processes*, Stoch. Processes, Physics and Geometry II, ed. S. Albeverio, U. Cattaneo, D. Merlini, World Sc. (1995)
8. with Z. Haba e J.C. Zambrini, *Bernstein diffusions and Euclidean Quantum Field Theory*, Proc. Monte Verità Meeting, ed. E. Bolthausen, F. Russo, Birkhauser P.P. 36 (1995)
9. with Z. Haba, *Invariant Measure for a Wave Equation on a Riemannian Manifold*, Stoch. Differential and Difference Equations, Birkhauser Progress in Systems and Control Theory 23 (1997), p. 35-42.
10. with P. Malliavin, *Energy Identities and Estimates for Anticipative Stochastic Integrals on a Riemannian Manifold*, Stoch, Anal. and Related Topics VI, Birkhauser PP 42 (1998), 221-234
11. with P. Malliavin, *Riesz Transforms, Commutators and Stochastic Integrals*, in Harmonic Analysis and Partial Diff. Equations, Chicago Lectures in Mathematics, The Univ. of Chicago Press (1999) 151-162
12. with W. Liming, J.C. Zambrini, *Bernstein processes associated with a Markov process*, Stoch. Analysis and Mathematical Physics, Trends in Mathematics, Birkhauser, ed. R. Rebolledo (2000)
13. with K-N. Xiang, *On metrics for tangent processes on the path space*, Stoch. Analysis and Related Topics VIII, Birkhauser P.P. 53, ed. U. Capar and A.S. Ustunel (2003)
14. with X. Zhang, *A Littlewood-Paley type inequality on the path space*, em “Seminar on Stochastic Analysis, Random Fields and Applications IV”, Birkhauser P.P. 58, ed. R. Dalang, M. Dozzi, F. Russo (2004)
15. with X. Zhang, Ornstein, *Uhlenbeck semigroups on Riemannian path spaces*, Recent developments in Stoch. Analysis and related topics, Proc. of the First Sino-German Conf. on Stoch. Analysis (a satellite conference of ICM 2002), ed. S. Albeverio, Z-M Ma & M. Roeckner, World Scientific (2004)
16. *On some probabilistic estimates of heat kernels and applications*, Publicaciones de la Real Sociedad Matematica Espanola, vol 9, Proc. of the XIII Fall Workshop on Geometry and Physics, Murcia (2005)
17. with F. Cipriano, *Variational principle for diffusions on the diffeomorphism group with the H2 metric*, em Mathematical Analysis of Random Phenomena, ed. A.B. Cruzeiro, H. Ouerdiane, N.Obata, World Scientific (2007)
18. with P. Malliavin, *Stochastic evolution of inviscid Burgers fluid*, in Probability, Geometry and Integrable Systems, MSRI Publications 55 (2008), 167-183
19. with P. Malliavin, *Stochastic parallel transport on the d-dimensional torus*, em Stoch. Analysis in Mathematical Physics, G. Ben Arous, Y. Le Jan, J.C. Zambrini ed., World Scientific (2008)
20. *Hydrodynamics, probability and the geometry of the diffeomorphisms group*, Seminar on Stoch. Analysis, Random Fields and Applications IV, R. C. Dalang. M. Dozy, F. Russo ed, Birkhauser P.P. 63 (2011)
21. with E. Shamarova, *On a forward-backward system associated to the Burgers equation*, Stoch. Analysis and Financial Applications, A. Kohatsu-Higa, N. Privault, S. J. Sheu ed, Birkhauser P.P. 65 (2011)
22. with R. Lassalle, *On the stochastic least action principle for the Navier-Stokes equation*, Stoch. Analysis and Applications, Springer Proceedings in Mathematics & Statistics 100, ed. D. Crisan, B. Hambly, T. Zariphopoulou (2014)
23. with M. Arnaudon, *Stochastic Lagrangian flows and the Navier-Stokes equation*, Stoch. Analysis: a series of lectures, Springer, P.P. 68, ed. R.C. Dalang, M. Dozzi, F. Flandoli, F. Russo (2015)
24. with R. Lassalle, *Symmetries and martingales in a stochastic model for the Navier-Stokes equation*, From Particle Systems to Partial Differential Equations III, Ed. P. Gonçalves, A.J Soares, Springer Proceedings in Math. and Stat. (2016)

Survey articles:

1. with P. Malliavin, *Riemannian Geometry on the Path Space*, “Stoch. Partial Diff. Equations and Applications”, Lecture Notes in Pure and Applied Math., Marcel Decker Inc. vol 227, ed. G. da Prato, L. Tubaro (2002), 133-165
2. *Non adapted transformations of the Wiener measure*, Stoch. Analysis and Mathematical Physics, ed. R. Rebolledo, J. Rezende, J. C. Zambrini, World Scientific (2004)
3. *Malliavin Calculus*, em Encyclopedia of Mathematical Physics, Elsevier, ed. J. P. Francoise, G. Naber, T. S. Tsun, Oxford: Elsevier (2006), v.3, 383

Books edited:

1. with J.C. Zambrini, *Stochastic Analysis and Applications* (Proceedings of the Lisbon Conference 1989), Birkhauser, Boston, Inc., P.P. 26 (1991)
2. with J.C. Zambrini, *Stochastic Analysis and Mathematical Physics* (Proceedings of the Lisbon Conference 1999), Birkhauser, Boston, Inc., P.P. 50 (2001)
3. with H. Ouerdiane, N. Obata, *Mathematical Analysis of Random Phenomena*, World Scientific (2007)
4. with G. Ben Arous, Y. Le Jan, J. C. Zambrini, *Stochastic Analysis in Mathematical Physics*, World Scientific (2008)
5. with S. Albeverio, D.D. Holm, *Stochastic Geometric Mechanics*, Springer Proceedings in Mathematics & Statistics (2017)