

CURRICULUM VITÆ

JULY 8, 2020

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Languages

French : mother tongue
English : fluent
German : fluent
Swedish : advanced
French sign language : novice

Education

March 2014 : Docent, Umeå University, Sweden
June 2004 : PhD in Mathematics at the University of Geneva, Switzerland, entitled “Analysis and Numerical Treatment of Highly Oscillatory Differential Equations” (advisor Ernst Hairer)
May 2000 : Diploma in Mathematics at the University of Geneva, Switzerland (advisor Ernst Hairer)

Employment

- 04.2020– : “Biträdande professor” (professor) at Chalmers University of Technology, Gothenburg, Sweden
- 09.2012– *on leave* : “Universitetslektor” (associate professor) at Umeå University, Sweden
- 03.2012–09.2012 : “Wissenschaftlicher Angestellter” (research fellow) at the Karlsruhe Institute of Technology, Germany
- 09.2007–02.2012 : “Assistenzprofessor” (non-tenure-track assistant professor) at the University of Basel, Switzerland
- 2006–2007 : Postdoc at the NTNU, Trondheim, Norway (financed by the *Geometric Analysis in Lie Groups and Applications* project)
- 2005–2006 : Postdoc at the University of Tübingen, Germany (financed by the SFB 382 *Verfahren und Algorithmen zur Simulation physikalischer Prozesse auf Höchstleistungsrechnern*)
- 2004–2005 : Postdoc at the University of Tübingen, Germany (Fellowship financed by the Swiss National Science Foundation)
- 2000–2004 : Assistant at the University of Geneva, Switzerland
- 1999–2001 : Replacements in various colleges in Geneva, Switzerland

Visiting position

- 11.2015–11.2016 : Guest professor for Stochastics at the University of Innsbruck, Austria

Academic Interests

Numerical methods for ordinary and partial differential equations. Numerical methods for stochastic (partial) differential equations. Geometric numerical integration. Exponential integrators. Highly oscillatory problems. Molecular dynamics. (Stochastic) wave equations.

Professional Skills

Programs in FORTRAN, C++, OPENGL and mathematical languages (MAPLE, MATLAB, MINITAB)

Supervision of Bachelor students

- ◆ Kristofer Cronwald (Umeå University, 11.09.19): *An Introduction to Multilevel Monte Carlo with Applications to Options*
- ◆ Katharina Zirngast (University of Innsbruck, 03.04.17): *Klassische Numerische Methoden für Stochastische Differentialgleichungen*

Supervision of Master students

- ◆ Karim Ramiyou Mache (AIMS Senegal, 05.02.20): *Geometric Numerical Integration and Optimization in Machine Learning*
- ◆ Krister Janzon (Umeå University, 24.08.18): *Monte Carlo Path Simulation and the Multilevel Monte Carlo Method*
- ◆ André Berglund (Umeå University, 02.05.17): *Numerical Simulations of Linear Stochastic Oscillators Driven by Wiener and Poisson Processes*
- ◆ Manuel Baumgartner (University of Basel, 02.08.11): *Charakterisierung symmetrischer exponentieller Runge–Kutta Verfahren*
- ◆ Annina Nef (University of Basel, 30.06.11): *Numerische Integrioren für stochastische Hamilton- und Poisson-Systeme*
- ◆ Magdalena Sigg (University of Basel, 19.01.09): *Hochoszillatorische Differentialgleichungen mit zeitabhängigen Frequenzen*
- ◆ Thomas Kozlik (University of Basel, 31.10.08): *Ein Vergleich des Yee Schemas mit Energieerhaltung bei $x = 0$ mit dem lokalen Zeitschrittverfahren mit Mass-Lumping* (with Prof. Dr. Marcus Grote)

Supervision of PhD students

- ♦ André Berg (Umeå University, 01.10.17–): *Ongoing*
- ♦ Rikard Anton (Umeå University, 01.09.13 – 18.05.18): *Exponential integrators for stochastic partial differential equations*
- ♦ Juan Carlos Araujo-Cabarcas (Umeå University, 01.02.13 – 13.06.19, co-supervisor): *Reliable hp finite element computations of scattering resonances in nano optics*
- ♦ Magdalena Sigg (University of Basel, 01.10.09 – 30.09.12, not until completion)

Mentoring of postdoctoral researcher

- ♦ Dr. Olivier Verdier (Umeå University, 01.07.13 – 31.03.15). Funded by the Kempe Foundations.

Grants

- ♦ Project Research Grant nr. 2018 – 04443 financed by the **Swedish Research Council** (*Numerical analysis and simulation of PDEs with random dispersion, 01.01.19 – 31.12.22, sole applicant*)
- ♦ Erasmus Teaching Staff Mobility from **Erasmus +** (*March 2018, sole applicant*)
- ♦ **FRÖ** mobility program between French and Swedish researchers (*Effective numerical methods for partial differential equations with random dispersion, January 2018, sole applicant*)
- ♦ Joint China-Sweden Mobility grant financed by **STINT** and **NSF China** (*Numerical methods for stochastic partial differential equations, January 2017, main applicant*)
- ♦ Initiation Grant financed by **STINT** (*Efficient numerical discretisations of stiff stochastic and random differential equations, May 2015, sole applicant*)
- ♦ Research exchange grant financed by the **The G S Magnuson Foundation** (*Effective numerical methods for stochastic Schrödinger equations, April 2015, sole applicant*)
- ♦ Project Research Grant financed by the **Swedish Research Council** (*Explicit numerical methods for the time discretisation of stochastic wave equations, 01.01.14 – 31.12.17, sole applicant*)
- ♦ Postdoc scholarship for Dr. O. Verdier financed by the **Kempe Foundations** (01.07.13 – 31.03.15, sole applicant)
- ♦ Research exchange grant financed by the **Lars Hierta Memorial Foundation** (*March 2013, sole applicant*)
- ♦ Research exchange grant with Japan financed by the **Royal Swedish Academy of Sciences** and the **Japan Society for the Promotion of Science** (*January 2013, sole applicant*)
- ♦ Project grant no. 200021_127130 financed by the **Swiss National Science Foundation** (*Numerical methods for stochastically driven wave equations, 01.10.09 – 30.09.12, sole applicant*)
- ♦ Fellowships for prospective researchers financed by the **Swiss National Science Foundation** (01.10.04–30.09.05, sole applicant)

Research Stays

- ♦ Workshop on Multiscale Analysis and Methods for Dispersive PDEs and Fluid Equations, Institute for Mathematical Sciences, NUS (invited, 17.02.20 – 28.02.20): Singapore, Singapore
- ♦ Bernoulli Center (13.12.19 – 20.12.19): Lausanne, Switzerland
- ♦ AMSS, Chinese Academy of Sciences (invited, 10.10.18 – 19.10.18): Beijing, PR China
- ♦ INRIA Lille Nord Europe (10.09.18 – 22.09.18): Lille, France
- ♦ AMSS, Chinese Academy of Sciences (invited, 23.05.17 – 01.06.17): Beijing, PR China
- ♦ Hong Kong Baptist University (invited, 23.01.17 – 25.01.17): Hong-Kong SAR, PR China
- ♦ Fundação Getulio Vargas (grant, 08.02.16 – 24.02.16): Rio de Janeiro, Brazil
- ♦ AMSS, Chinese Academy of Sciences (invited, 30.07.15 – 15.08.15): Beijing, PR China
- ♦ INRIA Lille Nord Europe (invited, 18.05.15 – 29.05.15): Lille, France
- ♦ Universitat Autònoma de Barcelona (invited, 30.06.14 – 04.07.14): Barcelona, Spain
- ♦ *Stochastic Computations* at the AMSS, Chinese Academy of Sciences (invited, 10.02.14 – 07.03.14): Beijing, PR China
- ♦ University of Tokyo and Kyushu Institute of Technology (grant, 07.01.13 – 28.01.13): Tokyo and

Fukuoka, Japan

- ◆ Universitat Autònoma de Barcelona (invited, 22.07.12 – 28.07.12): Barcelona, Spain
- ◆ INRIA Lille Nord Europe (invited, 31.01.12 – 04.02.12): Lille, France
- ◆ University of Tokyo (invited, 16.01.12 – 23.01.12): Tokyo, Japan
- ◆ Junior Hausdorff Trimester Program on Stochastics (invited, 01.09.10 – 31.12.10): HIM, Bonn, Germany
- ◆ Isaac Newton Institute (invited, 25.03.07 – 08.04.07, 24.06.07 – 06.07.07): Cambridge, UK

Publications

Preprints and links to the original publications available under

http://snovit.math.umu.se/Personal/cohen_david/index.html

- [1] D. Cohen, E. Hairer and C. Lubich, *Modulated Fourier expansions of highly oscillatory differential equations*, Foundations of Comput. Math., 2003 (3(4)), 327–345, <http://dx.doi.org/10.1007/s10208-002-0062-x>.
- [2] D. Cohen, E. Hairer and C. Lubich, *Numerical energy conservation for multi-frequency oscillatory differential equations*, BIT, 2005 (45(2)), 287–305, <http://dx.doi.org/10.1007/s10543-005-7121-z>.
- [3] D. Cohen, *Conservation properties of numerical integrators for highly oscillatory Hamiltonian systems*, IMA J NUMER ANAL, 2006 (26(1)), 34–59, <http://dx.doi.org/10.1093/imanum/dri020>.
- [4] D. Cohen, T. Jahnke, K. Lorenz and C. Lubich, *Numerical integrators for highly oscillatory Hamiltonian systems: a review*, Analysis, Modeling and Simulation of Multiscale Problems, A. Mielke (ed.), Springer, Berlin, 2006, http://dx.doi.org/10.1007/3-540-35657-6_20.
- [5] D. Cohen, E. Hairer and C. Lubich, *Long-time analysis of nonlinearly perturbed wave equations via modulated Fourier expansions*, Arch. Rat. Mech. Anal., 2008 (187(2)), 341–368, <http://dx.doi.org/10.1007/s00205-007-0095-z>.
- [6] E. Celledoni, D. Cohen and B. Owren, *Symmetric exponential integrators with an application to the cubic Schrödinger equation*, Foundations of Comput. Math., 2008 (8(3)), 303–317, <http://dx.doi.org/10.1007/s10208-007-9016-7>.
- [7] D. Cohen, E. Hairer and C. Lubich, *Conservation of energy, momentum and actions in numerical discretizations of nonlinear wave equations*, Numer. Math., 2008 (110(2)), 113–143, <http://dx.doi.org/10.1007/s00211-008-0163-9>.
- [8] D. Cohen, B. Owren and X. Raynaud, *Multi-symplectic integration of the Camassa–Holm equation*, J. Comp. Phys., 2008 (227(11)), 5492–5512, <http://dx.doi.org/10.1016/j.jcp.2008.01.051>.
- [9] D. Cohen and X. Raynaud, *Geometric finite difference schemes for the generalized hyperelastic-rod wave equation*, J. Comput. App. Math., 2011 (235(8)), 1925–1940, <http://dx.doi.org/10.1016/j.cam.2010.09.015>.
- [10] D. Cohen and E. Hairer, *Linear energy-preserving integrators for Poisson systems*, BIT, 2011 (51(1)), 91–101, <http://dx.doi.org/10.1007/s10543-011-0310-z>.
- [11] D. Cohen and M. Sigg, *Convergence analysis of trigonometric methods for stiff second-order stochastic differential equations*, Numer. Math., 2012 (121(1)), 1–29, <http://dx.doi.org/10.1007/s00211-011-0426-8>.
- [12] D. Cohen and X. Raynaud, *Convergent numerical schemes for the compressible hyperelastic-rod wave equation*, Numer. Math., 2012 (122(1)), 1–59, <http://dx.doi.org/10.1007/s00211-012-0452-1>.
- [13] D. Cohen, *On the numerical discretisation of stochastic oscillators*, Math. Comp. Simul., 2012 (82(8)), 1478–1495, <http://dx.doi.org/10.1016/j.matcom.2012.02.004>.

- [14] D. Cohen and L. Gauckler, *One-stage exponential integrators for nonlinear Schrödinger equations over long times*, BIT, 2012 (52(4)), 877–903, <http://dx.doi.org/10.1007/s10543-012-0385-1>.
- [15] A. Abdulle, D. Cohen, G. Vilmart and K.C. Zygalakis, *High order weak methods for stochastic differential equations based on modified equations*, SIAM J. Sci. Comp., 2012 (34(3)), A1800–A1823, <http://dx.doi.org/10.1137/110846609>.
- [16] D. Cohen, S. Larsson and M. Sigg, *A trigonometric method for the linear stochastic wave equation*, SIAM J. Numer. Anal., 2013 (51(1)), 204–222, <http://dx.doi.org/10.1137/12087030X>.
- [17] D. Cohen and G. Dujardin, *Energy-preserving integrators for stochastic Poisson systems*, Comm. Math. Sci., 2014 (12(8)), 1523–1539, <http://dx.doi.org/10.4310/CMS.2014.v12.n8.a7>.
- [18] D. Cohen, T. Matsuo and X. Raynaud, *A multi-symplectic numerical integrator for the two-component Camassa–Holm equation*, J. Nonlinear Math. Phys., 2014 (21(3)), 442–453, <http://dx.doi.org/10.1080/14029251.2014.936763>.
- [19] D. Cohen, L. Gauckler, E. Hairer and Ch. Lubich, *Long-term analysis of numerical integrators for oscillatory Hamiltonian systems under minimal non-resonance conditions*, BIT, 2015 (55(3)), 705–732, <http://dx.doi.org/10.1007/s10543-014-0527-8>.
- [20] D. Cohen and J. Schweitzer, *High order numerical methods for highly oscillatory problems*, ESAIM:M2AN, 2015 (49(3)), 695–711, <http://dx.doi.org/10.1051/m2an/2014056>.
- [21] D. Cohen and L. Quer-Sardanyons, *A fully discrete approximation of the one-dimensional stochastic wave equation*, IMA J NUMER ANAL, 2016 (36(1)), 400–420, <http://dx.doi.org/10.1093/imanum/drv006>.
- [22] C. Chen, D. Cohen and J. Hong, *Conservative methods for stochastic differential equations with a conserved quantity*, Int J Numer Anal Model, 2016 (13(3)), 435–456, <http://www.math.ualberta.ca/ijnam/Volume-13-2016/No-3-16/2016-03-06.pdf>.
- [23] D. Cohen and O. Verdier, *Multi-symplectic discretisation of wave map equations*, SIAM J. Sci. Comp, 2016 (38(2)), A953–A972, <http://dx.doi.org/10.1137/15M1014322>.
- [24] R. Anton, D. Cohen, S. Larsson and X. Wang, *Full discretisation of semi-linear stochastic wave equations driven by multiplicative noise*, SIAM J. Numer. Anal., 2016 (54(2)), 1093–1119, <http://dx.doi.org/10.1137/15M101049X>.
- [25] D. Cohen and G. Dujardin, *Exponential integrators for nonlinear Schrödinger equations with white noise dispersion*, Stoch PDE: Anal Comp, 2017 (5(4)), 592–613, <http://dx.doi.org/10.1007/s40072-017-0098-1>.
- [26] Y. Miyatake, D. Cohen, D. Furihata and T. Matsuo, *Geometric numerical integrators for Hunter–Saxton-like equations*, JJIAM, 2017 (34(2)), 441–472, <http://dx.doi.org/10.1007/s13160-017-0252-1>.
- [27] Y. Komori, D. Cohen and K. Burrage, *Weak second order explicit exponential Runge–Kutta methods for stochastic differential equations*, SIAM J. Sci. Comp, 2017 (39(6)), A2857–A2878, <https://doi.org/10.1137/15M1041341>.
- [28] R. Anton and D. Cohen, *Exponential integrators for stochastic Schrödinger equations driven by Itô noise*, special issue on SPDEs of J. Comput. Math., 2018 (36(2)), 276–309, <http://dx.doi.org/10.4208/jcm.1701-m2016-0525>.
- [29] D. Cohen, *Numerical discretisations of stochastic wave equations*, AIP Conference Proceedings, 2018 (1978(1)), 020001 (1–5), <https://doi.org/10.1063/1.5043646>.
- [30] R. Anton, D. Cohen and L. Quer-Sardanyons, *A fully discrete approximation of the one-dimensional stochastic heat equation*, IMA J NUMER ANAL, 2020 (40(1)), 247284, <https://doi.org/10.1093/imanum/dry060>.

- [31] D. Cohen, J. Cui, J. Hong and L. Sun, *Exponential Integrators for Stochastic Maxwell's Equations Driven by Ito Noise*, J. Comput. Phys., 2020 (**410**), <https://doi.org/10.1016/j.jcp.2020.109382>.
- [32] C. Chen, D. Cohen, R. D'Ambrosio, and A. Lang, *Drift-preserving numerical integrators for stochastic Hamiltonian systems*, Adv Comput Math., 2020 (**46(27)**), 1-22, <https://doi.org/10.1007/s10444-020-09771-5>.
- [33] D. Cohen, K. Debrabant, and A. Rößler, *High order numerical integrators for single integrand SDEs*, submitted, <https://arxiv.org/abs/2004.12887>, 2020.
- [34] A. Berg, D. Cohen, and G. Dujardin, *Exponential integrators for the stochastic Manakov equation*, submitted, <https://arxiv.org/abs/2005.04978>, 2020.
- [35] D. Cohen and G. Vilmart, *Drift-preserving numerical integrators for stochastic Poisson systems*, submitted, <https://arxiv.org/abs/2005.13991>, 27.05.2020.
- [36] C.-E. Bréhier and D. Cohen, *Analysis of a splitting scheme for a class of nonlinear stochastic Schrödinger equations*, submitted, <https://arxiv.org/abs/2007.02354>, 05.07.2020.

Presentations and conferences attended (* invited)

- August 2021* : BIT60 conference, Uppsala University, Sweden (lecture delivered*, entitled "tba")
- September 2020* : Workshop "Theory and Computational Methods for SPDEs", BIRS-CMO, Oaxaca, Mexico
- July 2020* : Virtual Seminar on Stochastic Analysis, Random Fields and Applications, Zoom (Ascona, Switzerland)
- June 2020* : AMCS Day, The University of Iowa, Iowa City (lecture delivered*, entitled "Drift-preserving schemes for stochastic Hamiltonian systems")
- May 2020* : One World Virtual Seminar Series - Stochastic Numerics and Inverse Problems, ICMS, Edinburgh (guest speaker*, lecture entitled "Drift-preserving schemes for stochastic Hamiltonian and Poisson systems")
- April 2020* : Seminar, Chalmers University of Technology/University of Gothenburg, Gothenburg, Sweden (lecture delivered, entitled "GNI: From ODEs to SPDEs")
- March 2020* : Seminar, KIT, Karlsruhe, Germany (lecture delivered*, entitled "Time integration of randomly perturbed Schrödinger-type equations")
- March 2020* : Seminar, University of Tübingen, Tübingen, Germany (lecture delivered*, entitled "Drift-preserving numerical integrators for stochastic Hamiltonian systems")
- February 2020* : Workshop Multiscale Analysis and Methods for Dispersive PDEs and Fluid Equations, IMS, NUS, Singapore, Singapore (lecture delivered*, entitled "Time integration of randomly perturbed Schrödinger-type equations")
- December 2019* : Seminar, EPFL, Lausanne, Switzerland (lecture delivered*, entitled "Drift-preserving numerical integrators for stochastic Hamiltonian systems")
- September 2019* : Seminar, East China Jiaotong University, Nanchang, PR China (lecture delivered*, entitled "Exponential integrators for stochastic partial differential equations")
- September 2019* : Seminar, Central South University, Changsha, PR China (lecture delivered*, entitled "Drift-preserving numerical integrators for stochastic Hamiltonian systems")
- September 2019* : Seminar, Qufu Normal University, Qufu, PR China (lecture delivered*, entitled "Exponential integrators for stochastic partial differential equations")
- September 2019* : Geometric Numerical Integration of Differential Equations, AMSS, Chinese Academy of Sciences, Beijing, PR China (lecture delivered*, entitled "Drift-preserving numerical integrators for stochastic Hamiltonian systems")
- July 2019* : SciCADE 2019, Innsbruck, Austria (lecture delivered*, entitled "Drift-preserving numerical integrators for stochastic Hamiltonian systems")
- June 2019* : Workshop HaLu-2019, GSSI, L'Aquila, Italy (invited speaker*, entitled "Exponential integrators for stochastic partial differential equations")
- June 2019* : Workshop on the Theory and Applications of Stochastic Partial Differential Equations, The Fields Institute, Toronto, Canada (invited speaker*, "Exponential integrators for stochastic partial differential equations")
- May 2019* : "Numerical Methods for SPDE: 20 successful years and future challenges", Mittag-Leffler Institute, Sweden
- April 2019* : UMIT seminar, Umeå, Sweden (lecture delivered, entitled "Drift-preserving numerical integrators for stochastic Hamiltonian systems")
- March 2019* : Séminaire d'analyse numérique, Geneva, Switzerland (lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- October 2018* : Forum on numerical analysis of SPDE, AMSS, Chinese Academy of Sciences, Beijing, China (lecture delivered*, entitled "A fully discrete approximation of the one-dimensional stochastic heat equation")
- October 2018* : Workshop on Scientific Computing in Sweden, Lund, Sweden (lecture delivered, entitled "A fully discrete approximation of the one-dimensional stochastic heat equation")
- September 2018* : Séminaire en analyse numérique et équations aux dérivées partielles, Lille, France (lecture delivered*, "Exponential integrators for stochastic partial differential equations")
- September 2018* : NumDiff-15, Halle, Germany (plenary speaker*, "Exponential integrators for stochastic partial differential equations")

- August 2018* : NM & A'18, Borovets, Bulgaria (lecture delivered*, entitled "A fully discrete approximation of the one-dimensional stochastic heat equation")
- June 2018* : International Workshop on Computational Mathematics, Suzhou, PR China (invited speaker*, "Exponential integrators for stochastic partial differential equations")
- May 2018* : Central South University, Changsha, China (lecture delivered*, entitled "A fully discrete approximation of the one-dimensional stochastic heat equation")
- May 2018* : AMSS, Chinese Academy of Sciences, Beijing, China (lecture delivered*, entitled "Full discretisation of semi-linear stochastic wave equations driven by multiplicative noise")
- May 2018* : Seminar, Jaume I University, Castelló de la Plana, Spain (lecture delivered*, entitled "Numerical discretisations of stochastic wave equations")
- February 2018* : Seminar, University of Salerno, Italy (lecture delivered*, entitled "Numerical discretisations of stochastic wave equations")
- February 2018* : Seminar, University of Salerno, Italy (lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- February 2018* : Seminar, University of Salerno, Italy (lecture delivered*, entitled "Energy-preserving integrators for stochastic Poisson systems")
- February 2018* : Seminar, University of L'Aquila, Italy (lecture delivered*, entitled "Numerical discretisations of stochastic wave equations")
- January 2018* : Seminar in Numerical Analysis, KTH, Stockholm, Sweden (lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- November 2017* : UMIT seminar, Umeå, Sweden (lecture delivered, entitled "A fully discrete approximation of the one-dimensional stochastic heat equation")
- September 2017* : ICNAAM 2017, Thessaloniki, Greece (invited speaker*, "Numerical discretisations of stochastic wave equations")
- September 2017* : SciCADE 2017, Bath, UK
- September 2017* : Research seminars in Scientific Computation, University of Nottingham, UK (lecture delivered*, entitled "Numerical discretisations of stochastic wave equations")
- July 2017* : International Workshop on BSDEs, SPDEs and their Applications, Edinburgh, UK (lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- June 2017* : NASPDE 2017, Linz, Austria (invited speaker*, "A fully discrete approximation of the one-dimensional stochastic heat equation")
- June 2017* : Meeting of the Catalan, Spanish, Swedish Math Societies, Umeå, Sweden
- May 2017* : Forum on Scientific and Engineering Computing, Beijing, PR China (invited speaker*, "Exponential integrators for stochastic Schrödinger equations driven by Itô noise")
- March 2017* : Winter Conference in Statistics 2017, Åre, Sweden
- February 2017* : Mini-workshop Stochastic Differential Equations: Regularity and Numerical Analysis in Finite and Infinite Dimensions, Oberwolfach, Germany (plenary lecture delivered*, entitled "Exponential integrators for stochastic Schrödinger equations driven by Itô noise")
- January 2017* : Workshop of Multiscale methods for stochastic dynamics, Geneva, Switzerland
- January 2017* : Séminaire d'analyse numérique, Geneva, Switzerland (lecture delivered*, entitled "Exponential integrators for stochastic Schrödinger equations driven by Itô noise")
- January 2017* : Colloquium, Hong Kong Baptist University, Hong Kong SAR, PR China (lecture delivered*, entitled "Exponential integrators for stochastic Schrödinger equations driven by Itô noise")
- January 2017* : The 10th International Conference on Computational Physics, Macau SAR, PR China (key note speaker at mini-symposium C14*, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- December 2016* : UMIT seminar, Umeå, Sweden (lecture delivered, entitled "Exponential integrators for various stochastic Schrödinger equations")
- November 2016* : 9th NAI Workshop Numerical Analysis of Evolution Equations, Vill/Innsbruck, Austria (lecture delivered, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")

- October 2016* : Scientific Computing in Sweden, Uppsala University, Uppsala, Sweden (lecture delivered, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- October 2016* : Guest lecture at Johannes Kepler Universität Linz, Austria (lecture delivered*, entitled "Fully discrete approximation of one-dimensional stochastic wave equations")
- September 2016* : NASPDE 2016, Chalmers University of Technology/University of Gothenburg, Gothenburg, Sweden (plenary lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- July 2016* : 7th European Congress of Mathematics, TU Berlin, Berlin, Germany (lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations with white noise dispersion")
- June 2016* : Seminar, NTNU, Trondheim, Norway (lecture delivered*, entitled "HOP: From ODE to SPDE")
- April 2016* : 12th Austrian Numerical Analysis Day, Innsbruck, Austria (plenary lecture delivered*, entitled "Numerical discretisations of stochastic wave equations by trigonometric integrators")
- March 2016* : Workshop on Geometric Numerical Integration, Oberwolfach, Germany (plenary lecture delivered*, entitled "Numerical discretisations of stochastic wave equations")
- February 2016* : Fundação Getulio Vargas, Rio de Janeiro, Brazil (lecture delivered, entitled "Mini-course on Geometric Numerical Integration")
- September 2015* : SciCADE 2015, Potsdam, Germany (lecture delivered*, entitled "Fully discrete approximation of one-dimensional stochastic wave equations")
- September 2015* : Numdiff-14, Halle, Germany (lecture delivered*, entitled "Multi-symplectic discretisation of wave map equations")
- August 2015* : ICIAM 2015, Beijing, China
- August 2015* : AMSS, Chinese Academy of Sciences, Beijing, China (lecture delivered*, entitled "Numerical discretisation of one-dimensional stochastic wave equations")
- June 2015* : Workshop on advances in numerical methods for SPDEs*, Mittag-Leffler Institute, Sweden
- May 2015* : Séminaire en analyse numérique et équations aux dérivées partielles, Lille, France (lecture delivered*, entitled "Numerical discretisation of one-dimensional stochastic wave equations")
- April 2015* : Seminar in Numerical Analysis, Basel, Switzerland (lecture delivered*, entitled "A fully discrete approximation of the one-dimensional stochastic wave equation")
- February 2015* : UMIT seminar, Umeå, Sweden (lecture delivered, entitled "GNI: From ODEs to SPDEs")
- December 2014* : Séminaire d'analyse numérique, Geneva, Switzerland (lecture delivered*, entitled "A fully discrete approximation of the one-dimensional stochastic wave equation")
- December 2014* : Séminaire d'analyse numérique, EPFL, Switzerland (lecture delivered*, entitled "A fully discrete approximation of the one-dimensional stochastic wave equation")
- September 2014* : Workshop on NASPDE 2014, EPFL, Lausanne, Suisse.
- August 2014* : International conference on stochastic analysis and related topics, IMECC-UNICAMP, Campinas, Brazil (plenary lecture delivered*, entitled "Energy-preserving integrators for stochastic Poisson systems")
- March 2014* : Umeå University, Sweden (docent lecture, entitled "Numerical solutions of ODEs")
- March 2014* : Uppsala University, Sweden (lecture delivered*, entitled "Energy-preserving integrators for stochastic Poisson systems")
- February 2014* : Central South University, Changsha, China (lecture delivered*, entitled "Energy-preserving integrators for stochastic Poisson systems")
- February 2014* : Series of plenary presentations*, AMSS, Chinese Academy of Sciences, Beijing, China
- December 2013* : Séminaire d'analyse numérique, Geneva, Switzerland (lecture delivered*, entitled "A trigonometric method for the linear stochastic wave equation")
- September 2013* : SciCADE 2013, Valladolid, Spain (lecture delivered*, entitled "Energy-preserving integrators for stochastic Poisson systems")

- January 2013* : Workshop on structure-preserving methods at the University of Tokyo, Tokyo, Japan (plenary lecture delivered, entitled "Exponential integrators for nonlinear Schrödinger equations over long times")
- December 2012* : Séminaire d'analyse numérique, Geneva, Switzerland (lecture delivered*, entitled "Energy-preserving integrators for stochastic Poisson systems")
- October 2012* : Umeå universitet, Umeå, Sweden (lecture delivered, entitled "HOP: From ODE to SPDE")
- July 2012* : 9th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA (lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations over long times")
- June 2012* : Workshop on Stochastic Analysis and Applications, EPFL, Lausanne, Switzerland
- May 2012* : Universität Göttingen, Göttingen, Germany (lecture delivered*, entitled "HOP: From ODE to SPDE")
- May 2012* : Universität Tübingen, Tübingen, Germany (lecture delivered*, entitled "A trigonometric method for the linear stochastic wave equation")
- January 2012* : University of Reading, Reading, United Kingdom (lecture delivered*, entitled "HOP: From ODE to SPDE")
- January 2012* : Workshop on structure-preserving methods at the University of Tokyo, Tokyo, Japan (lecture delivered*, entitled "HOP: From ODE to SPDE")
- November 2011* : Heriot-Watt University, Edinburgh, United Kingdom (lecture delivered*, entitled "HOP: From ODE to SPDE")
- October 2011* : Arbeitsgemeinschaft Analysis, Zürich, Switzerland (lecture delivered*, entitled "Exponential integrators for nonlinear Schrödinger equations over long times")
- September 2011* : Stochastic Partial Differential Equations: Analysis, Numerics, Geometry and Modeling, ETH Zürich, Switzerland (poster entitled "Discretisation of the stochastic wave equation by trigonometric methods")
- July 2011* : Foundations of Computational Mathematics conference, Budapest, Hungary (lecture delivered*, entitled "Convergence analysis of trigonometric methods for stiff second-order stochastic differential equations")
- June 2011* : Workshop "KAM theory and Geometric Integration"*, Banff International research station, Canada
- May 2011* : Colloque du mardi, Neuchâtel, Switzerland (lecture delivered*, entitled "HOP: From ODE to SDE")
- May 2011* : Schweizer Numerik Kolloquium, USI Lugano, Switzerland (poster entitled "Trigonometric Methods for Stiff Second-Order Stochastic Differential Equations")
- April 2011* : Séminaire d'analyse numérique, EPFL, Switzerland (lecture delivered*, entitled "Convergence analysis of trigonometric methods for stiff second-order stochastic differential equations")
- March 2011* : Workshop on Geometric Numerical Integration, Oberwolfach, Germany (lecture delivered*, entitled "Trigonometric schemes for stiff second-order SDEs")
- March 2011* : Workshop MaGIC, Finse, Norway (lecture delivered*, entitled "Convergence analysis of trigonometric methods for stiff second-order stochastic differential equations")
- November 2010* : CMA Guest Lectures, Oslo, (lecture delivered*, entitled "Numerical discretisation of stochastic oscillators with a high frequency")
- November 2010* : AG Numerik, Tübingen, (lecture delivered*, entitled "Numerical discretisation of stochastic oscillators")
- October 2010* : Hausdorff Institute for Mathematics, Bonn, (lecture delivered*, entitled "Stochastic trigonometric methods")
- October 2010* : Séminaire d'analyse numérique, Geneva, (lecture delivered*, entitled "Stochastic trigonometric methods")
- September 2010* : The Theory of Highly Oscillatory Problems: From Theory to Applications, Newton Institute, Cambridge, UK, (poster entitled "Stochastic trigonometric integrators")
- July 2010* : Workshop on Stochastic Partial Differential Equations, Newton Institute, Cambridge, UK
- June 2010* : BIT 50 - Trends in Numerical Computing, Lund, Sweden (lecture delivered*, entitled "On the numerical discretisation of stochastic oscillators")

- May 2010* : Seminar, Buchs FH, (lecture delivered*, entitled "GNI: Eine Panoramakarte")
- March 2010* : Workshop MaGIC, Ustaoset, Norway (lecture delivered*, entitled "On the numerical discretisation of stochastic oscillators")
- October 2009* : Symposium in Computational Sciences, Basel, Switzerland (lecture delivered*, entitled "The nonlinear wave equation and its numerical discretisations over long-times")
- August 2009* : ProDoc Summer School, Disentis, Switzerland
- March 2009* : Workshop MaGIC, Hornsjø, Norway
- October 2008* : Mathematikkolloquium, Innsbruck, Austria (lecture delivered*, entitled "A lot of oscillations . . .")
- April 2008* : Séminaire Mulhousien, Mulhouse, France (lecture delivered*, entitled "Intégrateurs multi-symplectiques pour l'équation de Camassa–Holm")
- March 2008* : Seminar über Partielle Differentialgleichungen und Numerik, Zürich, Switzerland (lecture delivered*, entitled "Multi-symplectic integrators for the Camassa–Holm equation")
- July 2007* : SciCADE 2007, Saint-Malo, France (lecture delivered*, entitled "Geometric integrators for the Camassa–Holm equation")
- June 2007* : Workshop on Highly Oscillatory Problems, Cambridge, United Kingdom
- April 2007* : Symposium in Applied and Computational Mathematics, Basel, Switzerland (lecture delivered*, entitled "A lot of oscillations . . .")
- April 2007* : Workshop on Applying Geometric Integrators, Edinburgh, United Kingdom (lecture delivered*, entitled "Highly oscillatory Hamiltonian systems with non-constant mass matrix")
- March 2007* : Workshop on Highly Oscillatory Problems, Cambridge, United Kingdom (lecture delivered*, entitled "Highly oscillatory Hamiltonian systems with non-constant mass matrix")
- February 2007* : Workshop MaGIC, Atnasjøen, Norway (lecture delivered*, entitled "Modulated Fourier expansion for highly oscillatory differential equations")
- September 2006* : Conference on Geometric Integration, Castellón, Spain (lecture delivered*, entitled "Long-time analysis of nonlinearly perturbed wave equations via modulated Fourier expansions")
- September 2006* : Sonderforschungsbereich 382 Verfahren und Algorithmen zur Simulation physikalischer Prozesse auf Höchstleistungsrechnern, Abschlusskolloquium, Stuttgart (presentation of a poster)
- May 2006* : Colloquium, Fribourg, Switzerland (lecture delivered*, entitled "Highly oscillatory Hamiltonian systems")
- April 2006* : Colloque Numérique Suisse, Lausanne, Switzerland
- March 2006* : Workshop on "Geometric Numerical Integration", Oberwolfach (lecture delivered*, entitled "Highly oscillatory Hamiltonian systems")
- February 2006* : Workshop on Numerical Relativity, Tübingen, Germany
- May 2005* : SCICADE 05, Nagoya, Japan (lecture delivered, entitled "Conservation properties of numerical integrators for highly oscillatory Hamiltonian systems")
- March 2005* : Schweizer Numerik Kolloquium, Zürich, Switzerland (lecture delivered*, entitled "Highly oscillatory differential equations")
- December 2004* : Molecular simulation: Algorithmic and Mathematical aspects, Paris, France
- September 2004* : Journées d'automne de la Société Mathématique Suisse, Lausanne, Switzerland (lecture delivered, entitled "Analyse et traitement numérique des équations différentielles à grandes oscillations")
- February 2004* : Rencontre des doctorants (École doctorale), Neuchâtel, Switzerland (lecture delivered, entitled "EDOs à grandes oscillations")
- June 2003* : Basler Numerik-Tage 2003, Basel, Switzerland
- June 2000* : Numerical Methods for ODEs (summer school), Dobbiaco, Italy

Other professional activities

- ◆ Editorial service for [Journal of Computational Mathematics](#) (2017–)
- ◆ Editorial service for [BIT Numerical Mathematics](#) (2014–)
- ◆ Director of graduate studies at the department of Mathematics and mathematical Statistics (Umeå University, 01.09.2017–31.03.2020)
- ◆ Member of the research board of the department of Mathematics and mathematical Statistics (Umeå University, 01.01.2015–31.03.2020)
- ◆ Member of the assessment committee, PhD thesis defence of Nicky Cordua Mattsson (University of Southern Denmark, 25.11.2019)
- ◆ Member of the grading board, PhD thesis defence of Gabriela Malenovás (KTH Stockholm, 07.12.2018)
- ◆ Critical reviewer for the licentiate thesis of Peter Meisrimel (Lund University, 05.11.2018)
- ◆ External expert referee for the PhD thesis of Martina Moccaldi (University of Salerno, 31.10.2018)
- ◆ Discussion leader, Licentiate thesis defence of Andreas Petersson (Chalmers University of Technology, 20.12.17)
- ◆ External expert referee, PhD thesis of Martina Prugger (University of Innsbruck, 11.12.17)
- ◆ Member of the grading committee, PhD thesis defence of Adam Andersson (Chalmers University of Technology, 30.01.15)
- ◆ Opponent, PhD thesis defence of Asif Mushtaq (NTNU Trondheim, 14.11.14)
- ◆ Member of the grading committee, Licentiate thesis defence of Emadeldeen Hassan (Umeå University, 03.05.13)
- ◆ Reviewer for the Austrian Science Fund (FWF)
- ◆ Reviewer for MathSciNet
- ◆ Reviewer for Springer Books
- ◆ Referee for the following journals:
Advances in Applied Mathematics and Mechanics; Advances in Computational Mathematics; Annals of Applied Probability; Applied Mathematics and Computation; Applied Mathematics and Optimization; Applied Numerical Mathematics; Bernoulli Journal; BIT Numerical Mathematics; Communications in Computational Physics; Computational Methods in Applied Mathematics; Computer Physics Communications; Discrete and Continuous Dynamical System - A; Discrete and Continuous Dynamical System - B; ESAIM: M2AN; ETNA; FoCM; IMA Journal of Numerical Analysis; Journal of Computational and Applied Mathematics; Journal of Computational Dynamics; Journal of Computational Mathematics; Journal of Computational Physics; Journal of Scientific Computing; Journal of the London Mathematical Society; Mathematics and Computers in Simulation; Mathematics of Computation; Numerical Mathematics: Theory, Methods and Applications; Numerische Mathematik; SIAM Journal on Numerical Analysis; SIAM Journal on Scientific Computing

Organisation of scientific events

- ◆ Initiator and co-organiser of the workshop “Theory and Computational Methods for SPDEs” (BIRS-CMO, September 2020), [link](#)
- ◆ Co-organiser of the conference “Geometric Numerical Integration of Differential Equations” (AMSS, Chinese Academy of Sciences, Beijing, PR China, September 2019), [link](#).
- ◆ Co-organiser of the minisymposium “Numerical methods for stochastic (partial) differential equations” at SciCADE 2019 (Innsbruck, July 2019), [link](#)
- ◆ Co-organiser of the workshop “Numerical Methods for SPDE: 20 successful years and future challenges” (Mittag-Leffler Institute, 20 – 24 May 2019), [link](#)
- ◆ Co-organiser of the “Forum on numerical analysis of SPDE” (AMSS, Chinese Academy of Sciences, Beijing, PR China, October 2018), [link](#).
- ◆ Co-organiser of special sessions on stochastic partial differential equations at the 40th Conference on Stochastic Processes and their Applications SPA 2018 (Gothenburg, June 2018), [link](#)
- ◆ Organiser and lecturer for the “Mini-course on Stochastic Differential Equations” (Jaume I University, May 2018), [link](#)
- ◆ Co-organiser of the “Forum on numerical analysis for SDEs and SPDEs” (Chinese Academy of Sciences, November 2017), [link](#)

- ♦ Co-organiser of the minisymposium “Numerical methods for stochastic systems” at SciCADE 2017 (Bath, September 2017), [link](#)
- ♦ Initiator and co-organiser of the special session “SPDEs: From Theory to Simulation” at the meeting of the Catalan, Spanish, Swedish Math Societies (Umeå, June 2017), [link](#)
- ♦ Initiator and organiser of the “Mini-course on numerical methods for SDEs” given by Prof. M. Tretyakov (University of Umeå, September 2016), [link](#)
- ♦ Organiser and lecturer for the “Mini-course on Geometric Numerical Integration” (Fundação Getulio Vargas, February 2016), [link](#)
- ♦ Co-organiser of the minisymposium “Numerical methods for stochastic differential equations” at SciCADE 2015 (Potsdam, September 2015), [link](#)
- ♦ Co-organiser of the “BIT circus” (Umeå University, 26 – 27 August 2015), [link](#)
- ♦ PI and co-organiser of the workshop “Advances in numerical methods for SPDEs” (Mittag-Leffler Institute, 16 – 18 June 2015), [link](#)
- ♦ Initiator and organiser of the “Guest Lectures in Numerical Analysis and Applied Mathematics”, (Umeå University, 2014–), [link](#)
- ♦ Initiator and co-organiser of the workshop “Advances in numerical analysis and computational sciences” (Umeå University, 2013), [link](#)
- ♦ Initiator and co-organiser of the “Seminar für Analysis und Numerik” and of the “Perlen-Kolloquium” at the institute of mathematics (University of Basel, 2007–2012)
- ♦ Initiator and co-organiser of the “Mini-course on the numerical integration of stochastic differential equations” given by Prof. D. Higham (University of Basel, 2010)
- ♦ Co-organiser of the “Schweizer Numerik Kolloquium” (University of Basel, 2009)
- ♦ Organiser of a minisymposium at the conference in honour of E. Hairer’s 60th birthday (University of Geneva, 2009)

Miscellaneous

- ♦ Chairman of the environment and sustainability group (department of mathematics and mathematical statistics, Umeå University, 01.11.2019–31.03.2020)
- ♦ Qualified Teacher at the Faculty of Science and Technology (Umeå University, 04.06.2019)
- ♦ Nominated as Umeå University’s candidate for the Göran Gustafssons prize (2017 and 2018)
- ♦ Research and leadership programme Step 2 (Umeå University, 09.2017–03.2018)
- ♦ Faculty’s “young” research leader (Umeå University, 09.2014–02.2015)
- ♦ Co-responsible for the homepage of the department of Mathematics and mathematical Statistics (Umeå University, 2014–2016)
- ♦ Co-responsible for the homepage of the institute of mathematics (University of Basel, 2010–2012)

Hobbies and Interests

Cross-country skiing, cycling, swimming and running

References

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