

## Curriculum Vitae

### Erwan Faou

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#### Contact:

Ecole Normale Supérieure de Rennes,  
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#### Current position:

Senior researcher (*Directeur de Recherche*) in the MINGuS Project,  
INRIA Bretagne Atlantique & IRMAR - UMR 6625 du CNRS

#### Main employment:

2009–present : Senior researcher at INRIA (1st class since 2014)

2001–2009 : Junior researcher (*chargé de recherche*) at INRIA Bretagne Atlantique.

1998–2001 : Research assistant at the Mathematics Research Institute, University of Rennes.

#### Associate positions:

2012-2016 : Researcher at the DMA, ENS Paris.

Spring 2010 : Invited professor, FIM, ETH Zürich.

#### Distinctions:

2015: SIAM Germund Dahlquist prize.

2013: Blaise Pascal prize (GAMNI/SMAI and French Academy of Sciences).

2011: ERC starting grant Geopardi

2010: ETH Nachdiplom lecture.

#### Degrees & Education:

2007 : Habilitation degree in Mathematics, University of Rennes 1, *Some geometrical aspects in shell theory and in numerical integration of Hamiltonian systems* (defended 16.10.2007).

2003-2004 : Post-doctoral fellowships in the Universities of Tübingen and Geneva.

2000 : PhD in mathematics, University of Rennes 1, *Asymptotic expansions in thin linear elastic shells* (defended 01.06.2000). Advisor: Monique Dauge.

1997 : Agrégation de Mathématiques, with rank 10.

1996 : Master of Science in mathematics, University of Paris 7, with rank 1.

Former student of the Ecole Normale Supérieure de Cachan Bretagne (1996-1998).

**PhD Student advising:**

- Torryanand Seetohul, *Nonlinear damping around non homogeneous states for Vlasov equations*.
- Yoann Le Hénaff, *Particle methods for PDEs*, 2021–present. Co-advisor: N. Crouseilles.
- Quentin Chauleur, *Singular vlasov equations and related problems*. 2019–present. Co-advisor: Rémi Carles.
- Joackim Bernier, *Mathematical and numerical analysis of nonlinear Schrödinger equations*. 2016–2019, now CNRS researcher in Nantes. Co-advisor: Nicolas Crouseilles.
- Romain Horsin, *Mathematical and numerical analysis of the Vlasov-HMF model*. 2014–2017, now working for the private sector. Co-advisor: Frédéric Rousset.
- Marie Kopec, *Langevin equation in finite and infinite dimension: Mathematical and numerical analysis*. 2011–2014, now teacher in classes préparatoires. Co-advisor: A. Debussche.
- Charles-Edouard Bréhier, *Numerical methods for multiscale stochastic partial differential equations*. 2009–2012, now CNRS researcher in Lyon. Co-advisor: Arnaud Debussche.
- Marie Chaussade-Beaudouin, *Studying of eigenvalues of axisymmetric shells*. 2007–2010, now teacher in classes préparatoires. Co-advisor: Monique Dauge.
- Guillaume Dujardin, *Analysis of splitting methods for the Schrödinger equation*. 2005–2008, now INRIA researcher in Lille. Co-advisor: François Castella.

**Main post-doc mentoring:**

- Yvonne Alama-Bronsard, Numerical methods for Hamiltonian PDEs, 2024-2025. Cofunding: MIT.
- Antoine Mouzard, Scattering and wave turbulence, 2021-2023. Funding: Simons collaboration on wave turbulence.
- Nathalie Ayi, Numerical analysis of Boltzmann models with noise, 2016-2017, now Maître de conférence at Sorbonne University. Funding: ERC Geopardi.
- Tiphaine Jézéquel, numerical analysis of Hamiltonian PDEs, 2013-2014, now PRAG in Lannion. Funding: ERC Geopardi.
- Katharina Schratz, numerical analysis of Hamiltonian PDEs, 2012-2013, now professor at Sorbonne University. Funding: ERC Geopardi.

**Professional and scientific responsibilities:**

- 2019–2023: Director of the **Henri Lebesgue Center** (Excellence laboratory of the program *investissement d'avenir*).
- 2019–2023: Member of the organization committee of the **Agence Lebesgue de Mathématiques pour l'innovation**.
- November 2019: Member of the HCERES committee for the evaluation of the Mathematics Institute of Toulouse.
- 2018–present: **AMIÉS** correspondent (Agency for Interaction in Mathematics with Business and Society) for INRIA Rennes Bretagne atlantique and IRMAR. laboratory.
- 2018 & 2019: Member of the jury of the best PhD award SMAI-GAMNI.
- 2015–2019 : Member of the CNU 26.
- 2015–2023 : Member of the Scientific Council of the Pôle Universitaire Léonard de Vinci.
- 2011-2016: Member of the COST- GTRI (Comité d'orientation scientifique et technologique, groupe de travail pour les relations internationales) at INRIA.

2011–2016 : Principal investigator of the ERC Starting Grant Project **GEOPARDI**.

2009–2010 : Coordinator the INRIA Collaborative Research Initiative **Hybrid**.

2008–2010 : Leader of the INRIA associated team MIMOL grouping members of:

- The IPSO team (INRIA Rennes, France),
- The numerical analysis group of the University of Tübingen (Germany, head: C. Lubich)
- The computer science department of the University of the Basque country, (Spain, San-Sebastian, head: A. Murua).

2006–2007 : French leader of the Procope project: *Geometric integration and applications to quantum and classical molecular dynamics*, in collaboration with the numerical analysis group of the University of Tübingen (head: C. Lubich).

2005–2008 : Member of the INRIA evaluation board.

2003–2004 : Coordinator the INRIA Collaborative Research Initiative **Prestissimo**.

### Teaching:

2020–2021: Master course on Numerical transport, University of Rennes.

2017–2019 : Master course on Hamiltonian PDEs, University of Rennes.

2016–2019 : Reading group in Analysis, ENS Rennes.

2012–2016 : *Modélisation et analyse numérique des EDPs*, ENS Paris, in collaboration with D. Lannes (2012-2013) and E. Dormy (2013-2016).

2010 : ETH Nachdiplom lecture: *Geometric integration of Hamiltonian PDEs and applications to computational quantum mechanics*.

2008–2009 : Lecturer in the Ecole Normale Supérieure de Cachan Bretagne.

2003 : Lecturer in M.Sc. level, University of Rennes 1. Course: *Symplectic integration of integrable hamiltonian systems and long-time behavior*.

### Conference and workshop organization:

2023 : Member of the scientific committee of the Scicade Conference.

Fall 2021: Organization of the semester **Hamiltonian Methods in Dispersive and Wave Evolution Equations**, ICERM, Brown University, USA.

2021: Organization of the workshop *Numerics, Modeling, and Experiments in Wave Phenomena*, with D. Cordoba, E. Dormy, T. Sapsis and L. Vega, ICERM, Brown University, USA.

2019 : Member of the scientific committee of the Scicade Conference.

2018: Head of organization of the semester *scientific computing* sponsored by the Labex Lebesgue (2 international summer schools, 7 workshops and international conferences).

2017: Organization of a work-group on *Mathematics of deep learning* (INRIA, IRMAR and Technicolor).

2017: Organization of a mini-symposium *Methods for the nonlinear Schroedinger equations, solitary waves and discrete patterns*, with T. Matsuo (University of Tokyo).

2017: Organization of the conference ANSIVAL on the occasion of the 60th birthday of Monique Dauge.

2016: Workshop *Geometric Numerical Integration*, March 20-26, Oberwolfach, Germany. Organized with E. Hairer, M. Hochbruck and C. Lubich.

2015: Summer school *PDE and large asymptotics*, June 22-July 3, Nantes. Organized with B. Grébert and L. Thomann (Univ. Nantes).

2015: Organization of a mini-symposium *Geometric numerical integration* in the conference SciCADE, Potsdam, Germany.

2013 : Conference NASDPE13, *Numerical analysis of stochastic Partial Differential equations*, September 10-11, Rennes, France. Organized with J. Erhel (Rennes) and T. Lelièvre (CERMICS).

2011 : Workshop : *KAM theory and geometric integrators*, June 5-10, BIRS, Banff, Canada. Organized with W. Craig (McMaster) and B. Grébert (Nantes).

2011 : Workshop : *Advanced Numerical Studies in Nonlinear Partial Differential Equations*, January 18-21, University of Edinburgh, UK. Organized with S. Kuksin (CNRS), B. Leimkuhler (Edinburgh) and C. Sulem (Toronto).

2010 : Ecole d'été EDF-DEA-INRIA: *Simulation of hybrid dynamical systems and applications to molecular dynamics*, 27- 30 septembre 2010 - IHP - Paris. Organized with F. Legoll, T. Lelièvre and G. Stoltz (CERMICS).

2007 : SciCADE 07, *International Conference on Scientific Computation And Differential Equations*, July 9–13, Saint-Malo.

2004 : MSAMA: *Molecular simulation: Algorithmic and Mathematical aspects*. International conference, December 1–3, Institut Henri Poincaré, Paris.

#### Funding ID:

2023–present: Principal investigator of the ANR Project K.E.N. (*Kinetic, EDP and Numerics*).

2022–present: Principal investigator of the INRIA associated team *Bubbles* with P. Raphaël (Cambridge University).

2019–present: PI of the Simons Collaboration program *Wave Turbulence*. Head: Jalal Shatah (NYU).

2018- 2020: Member of the IPL (Inria Project Lab) SURF: *Sea Uncertainty Representation and Forecast*. Head: Patrick Vidard.

2012-2015 : Member of the International Associated Laboratory CNRS/University of Illinois at Urbana-Champaign. Head: C. Chipot and K. Schulten.

2011-2016: Principal investigator of the ERC project Geopardi.

2009–2011 : Member of the ANR project<sup>1</sup> MEGAS, *Geometric methods and sampling: applications to molecular simulation*. Head: Tony Lelièvre (CERMICS).

2009–2011 : Member of the INRIA Collaborative Research Initiative *Vitelbio*. Head: Alain Rapaport (INRA) .

2005–2008 : Member of the ANR project : *Ingemol*, devoted to geometric integration and molecular simulation. Head: P. Chartier.

2004–2007 : Member of the ACI project “Nouvelles interfaces des mathématiques”: *Molecular Simulation*. Head: C. Le Bris.

2003–2006 : Member of the ACI project<sup>2</sup> Jeunes chercheuses et jeunes chercheurs”: *High-frequency methods for ordinary and partial differential equations*. Head: F. Castella.

#### Main recent invitations:

Novembre 2024: Seminar at the University of Oxford, UK.

September 2024: Workshop *Singularity formation for nonlinear PDE*, Cambridge, UK. Organized by Y. Martel, F. Merle, B. Premoselli and P. Raphaël.

<sup>1</sup>granted by the French Research Agency.

<sup>2</sup>ACI: Actions Concertées Incitatives, granted by the french research ministry.

- May 2024: Webinar Kinetic and fluid equations for collective behavior, organized by the French-Korea IRL in Mathematics.
- February 2024: Workshop on Molecular dynamics, Angers, organized by R. Carles, C. Fermanian, C. Lasser and N. Raymond.
- February 2024: Conference *Nonlinear Waves and Hamiltonian PDEs*, Courmayeur, Italy, organized by D. Lafontaine, O. Ivanovici, F. Planchon, P. Raphaël and N. Visciglia.
- September 2023: Conference *Harmonic Analysis and Differential Equations: new questions and challenges* in honor of Luis Vega, Bilbao.
- February 2023: Conference *Nonlinear Waves and Hamiltonian PDEs*, La Thuile, Italy, organized by D. Lafontaine, O. Ivanovici, F. Planchon and N. Visciglia.
- April-May 2022: Invitation at the Newton Institute for the semester *Frontiers in numerical analysis of kinetic equations*. ICMS Conference *Frontiers in The Interplay Between Probability and Kinetic Theory* in Edinburgh.
- March 2022: Seminar at the University of Rennes.
- March 2022: Seminars at the University Paris XIII.
- March 2022: Invitation at the Newton Institute for the semester *Frontiers in numerical analysis of kinetic equations*.
- February 2022: Conference *Dynamics of Hamiltonian PDEs*, La Thuile, Italy, organized by D. Lafontaine, O. Ivanovici, F. Planchon and N. Visciglia.
- September 2021: Paris-Moscow seminar *Dynamical systems and PDEs* managed by S. Kuksin and D. Treschev. Online.
- September 2021: Seminar at the University of Nantes.
- January 2021: Lecture series on wave turbulence, New-York University. Online
- January 2021: Wave turbulence seminar, New-York University. Online.
- September 2020: Conference *Algorithms in Quantum Molecular Dynamics*, CIRM, Luminy, Marseille, France. Online.
- April 2020: Seminar *Enriques-Lebesgue* (organisator: D. Bambusi and B. Grébert). Online.
- September-december 2019: Semester *Geometry, compatibility and structure preservation in computational differential equations*, Isaac Newton Institute, Cambridge, UK (3 months stay).
- October 2019: Workshop *The future of structure-preserving algorithms*, ICMS, Edinburgh, UK.
- October 2019: Analysis seminar, CMS University of Cambridge, UK.
- October 2019: Talk in the *Plasma day* section, at the Isaac Newton Institute, Cambridge, UK.
- April 2019: Colloquium, University of Bielefeld, Germany.
- February 2019: Workshop *Dynamics of nonlinear dispersive PDEs*, organized by F. Planchon, P. Raphaël and N. Visciglia, La Thuile, Italy.
- February 2019: Workshop *Nonlinear Evolution Equations: Analysis and Numerics*, organized by M. Hochbruck, H. Koch, S.-J. Oh, and A. Ostermann, Oberwolfach, Germany.
- December 2018: Workshop *Integrating the Integrators for Nonlinear Evolution Equations: from Analysis to Numerical Methods, High-Performance-Computing and Applications* organized by A. Ostermann and M. Tokman Banff, Canada.
- November 2018: Presentation at the Journée Géométrie et Mécanique, IRMAR.
- July 2018: Conference on Mathematics of Wave Phenomena, KIT Karlsruhe, Germany. Plenary speaker.

April 2018: Presentation at the IA days IRISA/INRIA.

March 2018: Seminar at the University of Nancy.

October 2017: Seminar at the University of Toulouse.

September 2017: Invitation at the mini-symposium *Modelling, theory and approximation of nonlinear waves*, SCICADE conference, University of Bath, UK.

July 2017: Invitation at the conference *Asymptotic analysis of evolution equations*, organized by Nicolas Burq, Jean-Marc Delort, Patrick Gérard, Herbert Koch and Laurent Thomann, CIRM, Marseille.

June 2017: Seminar at the University of Cambridge, UK.

May 2017: Workshop on *Mathematical questions in wave turbulence theory*, organized by Tristan Buckmaster, Pierre Germain, Zaher Hani and Jalal Shatah. AIM workshop at San Jose, California.

March 2017: Workshop *Modern Numerical Methods for Quantum Mechanics* organized by Karolina Kropielnicka and Arieh Iserles, Polish Academy of sciences, Warsaw, Poland.

December 2016: Seminar at the CERMICS, Marne-La-Vallée.

October 2016: Workshop *Structure and scaling in computational field theories*, organized by Snorre H. Christiansen, Oslo, Norway.

October 2016: Seminar at the University of Trondheim, Norway.

May 2016: Conference *Nonlinear waves*, IHES, organized by F. Merle and P. Raphaël.

May 2016: Invitation at the workshop *Nonlinear Evolution Problems* organized by K. Ecker, J. Shatah, G. Staffilani and M. Struwe, Oberwolfach, Germany.

April 2016: Invitation at the workshop *Recent trends in nonlinear evolution equations*, organized by Y. Sire and E. Lenzmann, CIRM, Luminy.

October 2015: Seminar at the University of Bordeaux I.

September 2015: Dahlquist prize lecture, Scicade conference, Potsdam, Germany.

## Publications

Erwan Faou.

Most of the following publications can be downloaded on the webpage

<http://people.rennes.inria.fr/Erwan.Faou/>

### Book

1. E. Faou, *Geometric numerical integration and Schrödinger equations*. European Math. Soc. 2012.

### Journal papers

2. M. Dauge, I. Djurdjevic, E. Faou and A. Roessle, *Eigenmode Asymptotics in Thin Elastic Plates*, J. Math. Pures Appl. **78** (1999) 925-964.
3. E. Faou, *Elasticité linéarisée tridimensionnelle pour une coque mince : Résolution en série formelle en puissances de l'épaisseur*, C. R. Acad. Sci. Paris, Sér. I. **330** (2000) 415-420.
4. G. Andreoiu, M. Dauge and E. Faou, *Développements asymptotiques complets pour des coques faiblement courbées encastrées ou libres*, C. R. Acad. Sci. Paris, Sér. I. **330** (2000) 523-528.
5. G. Andreoiu and E. Faou, *Complete asymptotics for shallow shells*, Asympt. Anal. **25** (2001) 239-270.
6. E. Faou, *Développements asymptotiques dans les coques elliptiques : Modèle de Koiter*, C. R. Acad. Sci. Paris, Sér. I. **333** (2001) 139-143.
7. E. Faou, *Développements asymptotiques dans les coques elliptiques : Equations tridimensionnelles linéarisés*, C. R. Acad. Sci. Paris, Sér. I. **333** (2001) 389-394.
8. E. Faou, *Elasticity on a thin shell: Formal series solution*, Asympt. Anal. **31** (2002) 317-361.
9. F. Castella, P. Chartier and E. Faou, *Analysis of a Poisson system with boundary conditions*, C. R. Acad. Sci. Paris, Sér. I. **336** (2003) 703-708.
10. M. Dauge, E. Faou and Z. Yosibash : *Plates and shells: Asymptotic expansions and hierarchical models. Chapter 8*, Vol I of the Encyclopedia for Computational Mechanics. Edited by Erwin Stein, René de Borst, Thomas J.R. Hughes (2004).
11. F. Castella, P. Chartier, E. Faou, D. Bayart, F. Leplingard and C. Martinelli, *Raman Laser Modeling: Mathematical and Numerical Analysis*, Math. Model. Numer. Anal. (M2AN) **38** (2004) 457-475.
12. E. Cancès, F. Castella, P. Chartier, E. Faou, C. Le Bris, F. Legoll and G. Turinici, *High-order averaging schemes with error bounds for thermodynamical properties calculations by molecular dynamics simulations*, J. Chem. Phys. **121** (2004) 10346-10355.
13. E. Faou, *Multiscale expansions for linear clamped elliptic shells*, Comm. P.D.E. **29** Vol. 11 & 12 (2004) 1799-1845 .
14. F. Leplingard, C. Martinelli, S. Borne, L. Lorcy, T. Lopez, D. Bayart, F. Castella, P. Chartier and E. Faou, *Modeling of multi-wavelength Raman fiber lasers using a new and fast algorithm*, IEEE Photonics Technology Letters **16** (2004) 2601-2603.
15. E. Faou, E. Hairer and T.-L. Pham, *Energy conservation with non-symplectic methods: Examples and counter-examples*, BIT **44** (2004) 699-709.
16. E. Cancès, F. Castella, P. Chartier, E. Faou, C. Le Bris, F. Legoll and G. Turinici, *Long-time averaging for integrable Hamiltonian dynamics*, Numer. Math. **100** (2005) 211-232.
17. E. Faou and C. Lubich, *A Poisson integrator for Gaussian wavepacket dynamics*, Comput. Vis. Sci. **9** No 2 (2006) 45-55.
18. E. Faou, *Nosé-Hoover dynamics in a shaker*, J. Chem. Phys. **124** (2006) 184104.

19. P. Chartier, E. Faou and A. Murua, *An algebraic approach to invariant preserving integrators: The case of quadratic and Hamiltonian invariants*, Numer. Math. **103** No 4 (2006) 575–590.
20. G. Dujardin and E. Faou, *Long-time behaviour of splitting methods applied to the linear Schrödinger equation*, C. R. Acad. Sci. Paris, Sér. I. **344** (2007) 89–92.
21. G. Dujardin and E. Faou, *Normal form and long time analysis of splitting schemes for the linear Schrödinger equation with small potential*, Numer. Math. **106** No 2 (2007) 223–262.
22. P. Chartier and E. Faou, *Geometric integrators for piecewise smooth Hamiltonian systems*. Math. Model. Numer. Anal. (M2AN) **42** (2008) 223–241.
23. P. Chartier and E. Faou, *A simple proof of the existence of adiabatic invariants for perturbed reversible problems*. J. Phys. A: Math. Theor. **41** No 47 (2008) 475204.
24. E. Faou and V. Gradinaru: *Gauss-Hermite wavepacket dynamics: convergence of the spectral and pseudo-spectral approximation*. IMA J. Numer. Anal. **29** (2009) 1023–1045.
25. E. Faou, *Analysis of splitting methods for reaction-diffusion problems using stochastic calculus*. Math. Comp. **78** (2009) 1467–1483.
26. F. Castella, P. Chartier and E. Faou, *An averaging technique for highly-oscillatory Hamiltonian problems*. SIAM J. Numer. Anal. **47** No 4 (2009) 2808–2837.
27. E. Faou and T. Lelièvre, *Conservative stochastic differential equations: Mathematical and numerical analysis*. Math. Comp. **78** (2009) 2047–2074.
28. E. Faou, V. Gradinaru and C. Lubich, *Computational semi-classical quantum dynamics with Hagedorn wavepackets*. SIAM J. Sci. Comp. **31** No 4 (2009) 3027–3041.
29. A. Debussche and E. Faou, *Modified energy for split-step methods applied to the linear Schrödinger equation*. SIAM J. Numer. Anal. **47** No 5 (2009) 3705–3719
30. M. Dauge and E. Faou, *Koiter estimate revisited*. Math. Models Methods Appl. Sci. (M3AS) **20** No 1 (2010) 1–42.
31. E. Faou, B. Grébert and E. Paturel, *Birkhoff normal form for splitting methods applied to semi linear Hamiltonian PDEs. Part I: Finite dimensional discretization*. Numer. Math. **114** (2010) 429–458.
32. E. Faou, B. Grébert and E. Paturel, *Birkhoff normal form for splitting methods applied to semi linear Hamiltonian PDEs. Part II: Abstract splitting*. Numer. Math. **114** (2010) 459–490.
33. E. Faou and B. Grébert, *Quasi invariant modified Sobolev norms for semi linear reversible PDEs*. Non-linearity **23** (2010) 429–443
34. M. Dauge, E. Faou and V. Péron, *Comportement asymptotique à haute conductivité de l'épaisseur de peau en électromagnétisme*. C. R. Acad. Sci. Paris, Sér. I. **348** (2010) 385–390.
35. P. Chartier, E. Darrigrand and E. Faou, *A Regular Fast Multipole Method for geometric numerical integrations of Hamiltonian systems*. BIT **50** (2010) 23–40.
36. G. Caloz, M. Dauge, E. Faou and V. Péron, *On the influence of the geometry on skin effect in electromagnetism*. Comput. Methods Appl. Mech. Engrg. **200** (2011) 1053–1068.
37. N. Champagnat, C. Chipot and E. Faou, *Reconciling alternate methods for the determination of charge distributions: A probabilistic approach for high-dimensional least-squares approximations*. J. Math. Chem. **49** (2011) 296
38. E. Faou and B. Grébert, *Hamiltonian interpolation of splitting approximations for nonlinear PDEs*. Found. Comput. Math. **11** (2011) 381–415
39. R. Carles and E. Faou, *Energy cascades for NLS on the torus*. Discrete Contin. Dyn. Syst. **32** (2012) 2063–2077.
40. A. Debussche and E. Faou, *Weak backward error analysis for SDEs*. SIAM J. Numer. Anal. **50** (2012) 1735–1752.
41. N. Crouseilles and E. Faou, *Quasi-periodic solutions of the 2D Euler equation*. Asympt. Anal. **81** (2013) 31–34.



42. D. Bambusi, E. Faou and B. Grébert, *Existence and stability of solitons for fully discrete approximations of the nonlinear Schrödinger equation*. Numer. Math. **123** (2013) 461–492.
43. E. Faou and B. Grébert, *A Nekhoroshev type theorem for the nonlinear Schrödinger equation on the torus*. Analysis & PDE **6** (2013) 1243–1262.
44. E. Faou, L. Gauckler and C. Lubich, *Sobolev stability of plane wave solutions to the cubic nonlinear Schrödinger equation on the torus*. Comm. PDE **38** (2013) 1123–1140.
45. E. Faou and K. Schratz, *Asymptotic preserving schemes for the Klein-Gordon equation in the non-relativistic regime*. Numer. Math. **126** (2014) 441–469.
46. V. Banica, E. Faou and E. Miot, *Collisions of vortex filament pairs*. J. Nonlinear Sci **24** (2014) 1262–1284.
47. E. Faou, L. Gauckler and C. Lubich, *Plane wave stability of the split-step Fourier method for the nonlinear Schrödinger equation*. Forum of Math. Sigma **2** (2014) e5, 45 pages.
48. B. Afeyan, F. Casas, N. Crouseilles, A. Dodhy, E. Faou, M. Mehrenberger, E. Sonnendrücker, *Simulations of Kinetic Electrostatic Electron Nonlinear (KEEN) Waves with Two-Grid, Variable Velocity Resolution and High-Order Time-Splitting*, EUR. Phys. J. D **68** (2014) 295.
49. E. Faou, A. Ostermann and K. Schratz, *Analysis of exponential splitting methods for inhomogeneous parabolic equations*. IMA J. Numer. Anal. **35** (2015) 161–178.
50. N. Crouseilles, L. Einkemmer and E. Faou, *Hamiltonian splitting for the Vlasov-Maxwell equations*. J. Comput. Phys. **283** (2015) 224–240.
51. C.-E. Bréhier and E. Faou, *Analysis of the Monte-Carlo error in a hybrid semi-lagrangian scheme*. AMRX (2015) 167–203.
52. E. Faou and T. Jézéquel, *Resonant time steps and instabilities in the numerical integration of Schrödinger equations*. Differential and Integral Equations **28** (2015) 221–238.
53. A. Bouillard, E. Faou and M. Zavidovique, *Fast weak-KAM integrators*. Math. Comp. **85** (2016) 85–117.
54. E. Faou and F. Rousset, *Landau damping in Sobolev spaces for the Vlasov-HMF model*. Arch. Ration. Mech. Anal. **219** (2016) 887–902.
55. E. Faou, P. Germain and Z. Hani, *The weakly nonlinear large box limit for the 2D cubic nonlinear Schrödinger equation*. J. Amer. Math. Soc. **29** (2016) 915–982.
56. N. Crouseilles, L. Einkemmer and E. Faou, *An asymptotic preserving scheme for the relativistic Vlasov-Maxwell equations in the classical limit*. Comput. Phys. Comm. **209** (2016) 13–26.
57. E. Faou, R. Horsin and F. Rousset, *On numerical Landau damping for splitting methods applied to the Vlasov-HMF model*. Found. Comput. Math. (2016) <https://doi.org/10.1007/s10208-016-9333-9>
58. M. Chaussade-Beaudouin, M. Dauge, E. Faou and Z. Yosibash, *High frequency oscillations of first eigenmodes in axisymmetric shells as the thickness tends to zero*. Operator Theory: Advances and Applications. **258** (2017) 89–110.
59. V. Banica, E. Faou and E. Miot, *Collision of almost parallel vortex filaments*. Comm. Pure Appl. Math. **70** (2017) 378–405.
60. F. Casas, N. Crouseilles, E. Faou and M. Mehrenberger, *High order Hamiltonian splitting for Vlasov-Poisson equations*. Numer. Math. **135** (2017) 769–801.
61. S. Baumstark, E. Faou and K. Schratz, *Uniformly accurate exponential-type integrators for Klein-Gordon equations with asymptotic convergence to classical splitting schemes in the nonlinear Schrödinger limit*. Math. Comp. (2017) <https://doi.org/10.1090/mcom/3263>
62. E. Faou and T. Jézéquel, *Convergence of a normalized gradient algorithm for computing ground states*. IMA J. Numer. Anal. (2017) <https://doi.org/10.1093/imanum/drx009>
63. M. Chaussade-Beaudouin, M. Dauge, E. Faou and Z. Yosibash, *Free vibrations of axisymmetric shells: Parabolic and elliptic cases*. Asympt. Anal. **104** (2017) 1–47.

64. J. Bernier and E. Faou, *Existence and stability of traveling waves for discrete nonlinear Schrödinger equations over long times*. SIAM J. Math. Anal. **51** (2019) 1607–1656.
65. N. Ayi and E. Faou, *Analysis of an asymptotic preserving scheme for stochastic linear kinetic equations in the diffusion limit*. SIAM/ASA J. Uncertainty Quantification. **7** (2019) 760–785.
66. J. Bernier, E. Faou and B. Grébert, *Long time behavior of the solutions of NLW on the  $d$ -dimensional torus*. Forum of Math. Sigma. (2020), 26 pages [doi:10.1017/fms.2020.8](https://doi.org/10.1017/fms.2020.8)
67. E. Faou, *Linearized wave turbulence convergence results for three-wave systems*. Commun. Math. Phys. **378** (2020) 807–849
68. J. Bernier, E. Faou and B. Grébert, *Rational normal forms and stability of small solutions to nonlinear Schrödinger equations*. Annals of PDE. **6**, article number: 14 (2020) 65p.
69. E. Faou and P. Raphaël, *On weakly turbulent solutions to the perturbed linear Harmonic oscillator*. American Journal of Mathematics. **145** (2020) 1465–1507.
70. E. Faou, R. Horsin and F. Rousset, *On linear damping around inhomogeneous stationary states of the Vlasov-HMF model*. J. Dyn. Diff. Equat. **33** (2021) 1531–1577. *Special issue in memory of Walter Craig*.
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