Alberto Maspero

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Personal Information

Place and Date of Birth:	Milan (Italy)	September 12, 1986
Nationality:	Italian	
Civil Status:	Married	

Experience

Since April 2019	Researcher (Rtd b), **SISSA**, Mathematics Area, Trieste (Italy)
April 2017 - March 2019	Postdoc researcher, **SISSA**, Mathematics Area, Trieste (Italy) Scientific host: Massimiliano Berti
November 2015 - March 2017	Postdoc researcher, **Laboratoire de Mathématiques Jean Leray (LMJL)**, University of Nantes, Nantes (France) Scientific host: Benoît Grébert
May 2015 - October 2015	Postdoc researcher, **Università la Sapienza di Roma**, Rome (Italy) Granted by ERC Project "HamPDEs" Scientific host: Michela Procesi

Education

January 2011 - December 2014
PhD in Mathematics,
Universität Zürich & Università degli Studi di Milano
Zurich (Switzerland) & Milan (Italy)
Cotutelle project | Subject: Analysis and Hamiltonian PDE's
Thesis: "Birkhoff Coordinates of Integrable Hamiltonian systems in Asymptotic Regimes"
Advisors: Prof. Thomas Kappeler & Prof. Dario Bambusi
Date and Place of Thesis Defence: December 22, 2014, Milan (Italy)
Commitee: Prof. Thomas Kappeler - Universität Zürich (Supervisor)
Prof. Dario Bambusi - University of Milan (Supervisor)
Prof. Camillo De Lellis - Universität Zürich (Examiner)
Prof. Antonio Ponno - University of Padua (Examiner)

September 2008 - July 2010
Master in Mathematics,
Università degli Studi di Milano, Milan (Italy)
110/110 *summa cum laude* | Major: Dynamical Systems
Thesis: "Coordinate di Birkhoff per la catena di Toda e limite di infinite particelle"
Advisor: Prof. Dario Bambusi

September 2005 - July 2008
Bachelor in Applied Mathematics
Università degli Studi di Milano, Milan (Italy)
110/110 *summa cum laude* | Major: Dynamical Systems
Thesis: "Persistenza di tori invarianti in sistemi con simmetrie"
Advisor: Prof. Dario Bambusi

July 2005
Diploma di Maturità
Liceo Scientifico "M. Curie", Tradate (Italy)
Final Grade: 100/100

Scientific Work

Publications

1. M. Guardia, Z. Hani, E. Haus, A. Maspero, M. Procesi: Strong nonlinear instability and growth of Sobolev norms near quasiperiodic finite-gap tori for the 2D cubic NLS equation. *J. Eur. Math. Soc. (JEMS)*, in press. https://www.ems-ph.org/journals/forthcoming.php?jrn=jems
2. D. Bambusi, B. Grébert, A. Maspero, D. Robert. Growth of Sobolev norms for abstract linear Schrödinger equations. *J. Eur. Math. Soc. (JEMS)*, 23 (2), 557-583, 2021.
3. M. Berti, L. Franzoi, A. Maspero: Traveling quasi-periodic water waves with constant vorticity. *ARMA* 240(1): 99 – 202, 2021.
4. M. Berti, A. Maspero, F. Murgante: Local well posedness of the Euler-Korteweg equations on $\mathbb{T}^d$. *J Dyn Diff Equat*, https://doi.org/10.1007/s10884-020-09927-3, 2021.
5. T. Grava, A. Maspero, G. Mazzuca, A. Ponno: Adiabatic invariants for the FPUT and Toda chain in the thermodynamic limit. *Comm. Math. Phys.* 380, 811–851, 2021.
6. E. Haus, A. Maspero: Growth of Sobolev norms in time dependent semiclassical anharmonic oscillators. *J. Funct. Anal.*, 278(2), 108316, 2020.
7. M. Guardia, Z. Hani, E. Haus, A. Maspero, M. Procesi: A note on growth of Sobolev norms near quasiperiodic finite-gap tori for the 2D cubic NLS equation. *Rendiconti Lincei-Matematica e Applicazioni*, 30(4): 865–880, 2019.

8. M. Berti, A. Maspero. Long time dynamics of Schrödinger and wave equations on rectangular tori. *J. Diff. Eq.*, 267(2): 1167–1200, 2019.
9. L. Franzoi, A. Maspero. Reducibility for a fast driven linear Klein-Gordon equation. *Annali di Matematica Pura ed Applicata*, 198: 1407–1439, 2019.
10. A. Maspero. Lower bounds on the growth of Sobolev norms in some linear time dependent Schrödinger equations. *Math. Res. Lett.*, 26(4): 1197 – 1215, 2019.
11. A. Maspero, M. Procesi. Long time stability of small finite gap solutions of the cubic Nonlinear Schrödinger equation on $\mathbb{T}^2$. *J. Diff. Eq.*, 265(7): 3212–3309, 2018.
12. A. Maspero. Tame majorant analyticity for the Birkhoff map of the defocusing Nonlinear Schrödinger equation on the circle. *Nonlinearity*, 31(5): 1981–2030, 2018.
13. D. Bambusi, B. Grébert, A. Maspero, D. Robert. Reducibility of the quantum harmonic oscillator in d-dimensions with polynomial time dependent perturbation. *Anal. PDE.*, 11(3): 775–799, 2018.
14. A. Maspero, D. Robert. On time dependent Schrödinger equations: global well-posedness and growth of Sobolev norms. *J. Funct. Anal.*, 273(2): 721–781, 2017.
15. D. Bambusi, A. Maspero. Freezing of energy of a soliton in an external potential. *Comm. Math. Phys.*, 344(1): 155–191, 2016.
16. T. Kappeler, A. Maspero, J.C. Molnar, P. Topalov. On the convexity of the KdV Hamiltonian. *Comm. Math. Phys.*, 346(1):, 191–236, 2016.
17. D. Bambusi, A. Maspero. Birkhoff coordinates for the Toda Lattice in the limit of infinitely many particles with an application to FPU. *J. Funct. Anal.*, 270(5): 1818–1887, 2016.
18. A. Maspero, B. Schaad. One smoothing property of the scattering map of the KdV on $\mathbb{R}$. *Discrete Contin. Dyn. Syst.*, 36(3): 1493–1537 2016.

Preprints

19. A. Maspero: Growth of Sobolev norms in linear Schrödinger equations as a dispersive phenomenon. ArXiv e-print, https://arxiv.org/abs/2101.09055, 2021.
20. M. Berti, L. Franzoi, A. Maspero: Pure gravity traveling quasi-periodic water waves with constant vorticity. ArXiv e-print, https://arxiv.org/abs/2101.12006, 2021.

Proceedings

21. D. Bambusi, M. Alberto. Sistemi integrabili infinito dimensionali e loro perturbazioni, to appear in *La matematica nella società e nella cultura, Rivista dell'UMI*, 2018.
22. D. Bambusi, A. Carati, A. Maiocchi, A. Maspero. Some analytic results on the FPU paradox, in *Hamiltonian Partial Differential Equations and Applications*, Fields Communications Series, no. 75, 2015.

PhD thesis

1. A. Maspero. *Birkhoff Coordinates of Integrable Hamiltonian systems in Asymptotic Regimes*, Download at http://hdl.handle.net/2434/246796.

Grants

2018-2019: PI of GNAMPA grant "Moti stabili ed instabili in equazioni di tipo Schrödinger"

Co-direction of PhD thesis:

2017 – 2020: Luca Franzoi, SISSA, co-direction with Prof. M. Berti.
2018 – ongoing: Guido Mazzuca, SISSA, co-direction with Prof. T. Grava.
2019 – ongoing: Federico Murgante, SISSA, co-direction with Prof. M. Berti.
2020 – ongoing: Paolo Ventura, SISSA, co-direction with Prof. M. Berti.

Direction of Master, Bachelor thesis and internships:

Master thesis

2020: Augusto del Zotto, *Mixing and diffusion in incompressible fluids*, SISSA.

Bachelor thesis

2021: Rodolfo Tolloi, *Formulazione di problemi di ottimizzazione col sistema D-Wave*, UNITS.
2020: Roberto Netti, *Modelli di tipo SEIR per la diffusione di malattie infettive*, UNITS.

Internships

2021: Pawan Shrestha, *Chaos in fluid particle dynamics*, TWAS scholarship.
2018: Stefania Baronio, *Numerical methods for long time simulation of Hamiltonian systems*, UNITS.
2018 Vincenzo di Florio, *Sparse identification of nonlinear dynamics via machine learning methods*, UNITS.

Teaching

Teaching at PhD level

2020 *Pseudodifferential operators, applications and dynamics*, SISSA, 20h
2019 *Introduction to pseudodifferential operators and applications in dynamical systems*, SISSA, 20h

Teaching at Master level

2021 Functional Analysis, SISSA/UniTS, 48h, Lecturer
2014 Functional Analysis, Universität Zürich, 30h, TA

Teaching at Bachelor level

2019 Dynamical Systems, UniTS, 48h, Lecturer
2018 Dynamical Systems, UniTS, 48h, Lecturer
2014 Introduction to Python Universität Zürich, 30h, TA
2012 Analysis 2 Universität Zürich, 30h, TA
2011 Analysis 1 Universität Zürich, 30h, TA

Mini-courses

2018 *Calculus in Banach spaces and applications to dynamical systems*, SISSA, 8h
2017 *Long time stability of finite gap solutions of nonlinear Schrödinger equations on* $\mathbb{T}^2$, SISSA, 8h
2015 *Interaction between discrete and continuous spectrum in dynamical systems*, University of Nantes, 3h

Scientific organization

2020 – 2021	Co-organizer of Analysis and Mathematical seminars at SISSA, with F. Cavalletti and M. Porta
2019 – 2020	Co-organizer of Analysis seminars at SISSA, with F. Cavalletti
2018 – 2019	Co-organizer of Analysis seminars at SISSA, with F. Cavalletti
2017 – 2018	Co-organizer of Analysis seminars at SISSA, with L. De Luca and G. De Philippis
2016	Co-organizer of the conference "Hamiltonian Dynamics, PDEs and Waves on the Amalfi coast", with M. Procesi, P. Baldi, E. Haus, V. Coti Zelati, L. Biasco, R. Feola. September 5-10, Maiori

Responsabilities

2020– ongoing	Library committee: representative of Mathematical area, SISSA
2019	Postdoc representative of Mathematical area, SISSA

Invited Talks at Workshops and Conferences

October 2021	*Generic Behavior of Dispersive Solutions and Wave Turbulence*, ICERM, Brown University (USA)
December 2019	*Variational methods*, Venice (Italy)
June 2019	*Hamiltonian PDEs: KAM, Reducibility, Normal Forms and Applications*, Oaxaca (Mexico)
May 2019	*IperPA 2019* , Palermo (Italy)
May 2019	*Integrable Turbulence* , CIRM Marseille (France)
September 2018	*Linear and Nonlinear Wave Phenomena*, Cortona (Italy)
April 2018	*Il problema di Fermi-Pasta-Ulam: stato dell'arte e prospettive*, Padua (Italy)
February 2018	*Variational Methods in Analysis, Geometry and Physics*, Pisa (Italy)
September 2017	*IperPV 2017*, Pavia (Italy)
January 2017	*Winter School in PDE's*, Saint Etienne de Tinèe (France)
July 2016	*Dynamical Systems, Differential Equations and Applications*, 11^{th} AIMS Conference Orlando (USA)
September 2015	*Nonlinear Analysis and Hamiltonian systems*, XX Congress of UMI, Siena (Italy)
June 2015	*Hamiltonian systems and their applications*, Saint Petersburg (Russia)
December 2014	*KAM theory and Hamiltonian PDE's*, Milan (Italy)
September 2014	*KAM theory and dispersive PDE's*, Rome (Italy)
June 2014	*Geometric and Analytic Aspects of Integrable and nearly-Integrable Hamiltonian System*, Milan (Italy)
October 2012	*Hamiltonian partial differential equations*, Roscoff (France)
February 2011	*Dynamical Systems and Applications*, Pisa (Italy)

Invited Talks at university seminars

April 2021	Applied Math seminar, University of Toronto (Canada), online
November 2020	Wave turbulence seminar, online
May 2020	Water waves seminar, Berkeley (USA), online
April 2020	Enrique-Lebesgue online seminars, Milan/Nantes, online
May 2018	Seminar of Analysis, University of Zürich, Zürich, (Switzerland)
April 2018	Seminar of Analysis, Georgiatech, Atlanta (USA)
January 2018	Seminar of Analysis, Università di Napoli Federico II, Naples (Italy)
November 2017	Seminar of Analysis, GSSI, L'Aquila (Italy)
October 2017	Seminar of Analysis, Università Roma 3, Rome (Italy)
April 2017	Séminaire Équations aux Dérivées Partielles, Université de Rennes, Rennes (France)
March 2017	Seminar of Analysis, SISSA, Trieste (Italy)
January 2017	Séminaire Équations aux Dérivées Partielles, Université de la Lorreine, Nancy (France)
January 2017	Séminaire Équations aux Dérivées Partielles, Université Paris XIII, Villetaneuse (France)
December 2016	Seminar of Mathematical Physics, Centre de Physique Théorique, Luminy (France)
November 2016	Séminaire de Analysis, Université de Lille, Lille (France)
November 2016	Séminaire de Analysis, Université de Bordeaux, Bordeaux (France)
October 2016	Problèmes Spectraux en Physique Mathématique, IHP, Paris (France)
Mai 2016	Séminaire Dynamique et Géométrie, Université Sophia Antipolis, Nice (France)
November 2015	Séminaire d'Analyse, Université de Nantes, Nantes (France)
September 2015	Seminari de Sistemes Dinàmics, Universitat Politècnica de Catalunya, Barcelona (Spain)
May 2015	Seminari di Analisi, Università Roma Tre, Rome (Italy)
April 2015	Seminari di Analisi, La Sapienza, Rome (Italy)
July 2011	Seminari di Analisi, Università di Napoli Federico II, Naples (Italy)

Qualification

2020 *Abilitazione scientifica nazionale a professore di seconda fascia*, V quadrimestre
validità: 09/11/2020 – 09/11/2029
2016 *Maître de conférences*, section 25 of CNU, n° 16225291045.

Languages

Italian:	Mothertongue	French:	Working Knowledge
English:	Fluent	German:	Basic Knowledge

Computer Skills

Basic Knowledge:	java, C, Matlab, Git, Github
Intermediate Knowledge:	LaTeX, R
Advanced Knowledge:	python