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 2017	Postdoc researcher, **SISSA (Scuola Internazionale Superiore di Studi Avanzati)**, 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 200 — 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

Research interests

My research sets in the intersection between dispersive PDE's and infinite dimensional Hamiltonian systems, with an emphasis on the following problems:

- *Growth of Sobolev norms:* construction on solutions with growing Sobolev norms, upper bounds on the speed of transfer of energy. [2, 3, 8, 10]
- *Long time stability:* investigate the long time orbital stability of special solutions of nonlinear Schrödinger equations both on the euclidean space and on compact manifold. [4, 9].
- *Infinite dimensional integrable systems:* construction of Birkhoff coordinates, qualitative analysis of the dynamics, properties of the action-to-frequency map. [1, 5, 6, 7]

Scientific Work

Publications

1. A. Maspero. Tame majorant analyticity for the Birkhoff map of the defocusing Nonlinear Schrödinger equation on the circle. *Nonlinearity*, in press 2018.
2. D. Bambusi, B. Grebert, A. Maspero, D. Robert. Reducibility of the quantum harmonic oscillator in d-dimensions with polynomial time dependent perturbation. *Anal. PDE.*, Vol. 11, no. 3, 775–799, 2018.
3. A. Maspero, D. Robert. On time dependent Schrödinger equations: global well-posedness and growth of Sobolev norms. *J. Funct. Anal.*, Vol. 273, no.2, 721–781, 2017.
4. D. Bambusi, A. Maspero. Freezing of energy of a soliton in an external potential. *Comm. Math. Phys.*, Vol. 344, no. 1, 155–191, 2016.
5. T. Kappeler, A. Maspero, J.C. Molnar, P. Topalov. On the convexity of the KdV Hamiltonian. *Comm. Math. Phys.*, Vol 346, no. 1, 191–236, 2016.
6. 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.*, Vol. 270, no. 5, 1818–1887, 2016.
7. A. Maspero, B. Schaad. One smoothing property of the scattering map of the KdV on $\mathbb{R}$. *Discrete Contin. Dyn. Syst.*, Vol. 36, no. 3, 2016.

Preprints

8. D. Bambusi, B. Grebert, A. Maspero, D. Robert. Growth of Sobolev norms for abstract linear Schrödinger equations. ArXiv e-print, arXiv:1706.09708.
9. A. Maspero, M. Procesi. Long time stability of small finite gap solutions of the cubic Nonlinear Schrödinger equation on $\mathbb{T}^2$. ArXiv e-print, arXiv:1710.08168.
10. A. Maspero. Examples of growth of Sobolev norms in some linear time dependent Schrödinger equations. ArXiv e-print, arxiv:1801.06813.

Proceedings

1. 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.
2. 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.

Students Mentoring

PhD student: L. Franzoi, since September 2017, SISSA

Minicourses

June 2017 *Long time stability of finite gap solutions of nonlinear Schrödinger equations on* $\mathbb{T}^2$
SISSA, 8 hours

December 2015 *Interaction between discrete and continuous spectrum in dynamical systems*
University of Nantes, 3 hours

Teaching

FS 2014	Introduction to Python	TA	1^{st} year Bach. Math.	30h	Universität Zürich
SS 2014	Functional Analysis	TA	1^{st} year Mast. Math.	30h	Universität Zürich
FS 2012	Analysis 1	TA	1^{st} year Bach. Eng.	30h	Università dell'Insubria
SS 2012	Analysis 2	TA	1^{st} year Bach. Math.	30h	Universität Zürich
FS 2011	Analysis 1	TA	1^{st} year Bach. Math.	30h	Universität Zürich

Organizing activities

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
http://ricerca.mat.uniroma3.it/users/procesi/maiori2016/home.html

Talks at Workshops and Conferences

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)

Talks at university seminars

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)

Other activities

Referee activities:	Physica D, Journal of Spectral Theory, Journal of Nonlinear Analysis, Comm. in Pure and Applied Analysis, Comm. in Contemporary Mathematics
Science communication:	volunteer in the activities of "Sissa for School", SISSA

Qualification

Qualification for "maître de conférences" for section 25 of CNU obtained in February 2016, n° 16225291045

Scholarships and Certificates

2009 Fondazione Famiglia Legnanese Scholarship

Languages

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

Computer Skills

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