

Facoltà di Scienze e Tecnologie

Curriculum

Docente: Dario Paolo Bambusi

Foto



Academic degrees

* Degree 4/02/1986 in Fisica, Università' statale di Milano, tutor Prof. Loinger, 110/100 cum laude

* Phd in Mathematics 1993, Università' Statale di Milano, tutors Luigi Galgani e Antonio Giorgilli (Tesis on my webpage).

*2003 Premio Finzi for results on normal form theory in PDEs

Invited speaker in several international workshops

Curriculum

*1990 Researcher at Dipartimento di Matematica, Università' degli Studi di Milano.

*2001 Associated Professor at Dipartimento di Matematica, Università' degli Studi di Milano.

*2002 Full Professor at Dipartimento di Matematica, Università' degli Studi di Milano.

Selected Publications

Dispersive Hamiltonian systems

1. D. Bambusi, A. Maspero: *Freezing of energy of a soliton in an external potential*. *Comm. Math. Phys.* 344 (2016), no. 1, 155–191.
2. D. Bambusi: *Asymptotic stability of breathers in some Hamiltonian networks of weakly coupled oscillators*. *Comm. Math. Phys.* 324 (2013), no. 2, 515–547.
3. D. Bambusi: *Asymptotic stability of ground states in some Hamiltonian PDEs with symmetry*. *Comm. Math. Phys.* 320 (2013), no. 2, 499–542.
4. D. Bambusi, S. Cuccagna, *On dispersion of small energy solutions of the nonlinear Klein Gordon equation with a potential*, *Amer. J. of Math.* **133** 5, (2011), 1421-1468

Non dispersive PDEs: Normal form and KAM type results

1. D. Bambusi: *Reducibility of 1-d Schroedinger equation with time quasiperiodic unbounded perturbations, II*. Preprint 2016.
2. D. Bambusi: *Reducibility of 1-d Schroedinger equation with time quasiperiodic unbounded perturbations, I*. Preprint 2016.
3. Bambusi, D.; Berti, M.; Magistrelli, E. *Degenerate KAM theory for partial differential equations*. *J. Differential Equations* 250 (2011), 8, 3379–3397,
4. D. Bambusi, *A Birkhoff normal form theorem for some nonlinear PDEs*. *Hamiltonian dynamical systems and applications*, 213–247, NATO Sci. Peace Secur. Ser. B Phys. Biophys., Springer, Dordrecht, 2008.
5. D. Bambusi, B. Grebert: *Birkhoff normal form for PDEs with tame modulus*. *Duke Math. J.* **135**, (3) (2006) 507-567.
6. D. Bambusi: *Nekhoroshev theorem for small amplitude solutions in nonlinear Schroedinger equations*. *Math. Z.*, **130**, 345-387, (1999).
7. D. Bambusi, N.N Nekhoroshev: *A property of exponential stability in the nonlinear wave equation close to main linear mode*. *Physica D*, **122**, 73-104 (1998).
8. D. Bambusi, S. Paleari: *Families of periodic solutions in resonant PDE's*. *J. Nonlinear Science*, **11**, 69-87 (2001).

Chains of particles and the FPU problem

1. D. Bambusi, A. Carati, A. Maiocchi, Alberto Maspero: *Some analytic results on the FPU paradox*. *Hamiltonian partial differential equations and applications*, 235–254, Fields Inst. Commun., 75, Fields Inst. Res. Math. Sci., Toronto, ON, 2015.
2. Maiocchi, A., Bambusi, D., Carati, A.: *An averaging theorem for FPU in the thermodynamic limit*. *J. Stat. Phys.* 155 (2014), no. 2, 300–322.
3. 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 (2016), no. 5, 1818–1887.
4. D. Bambusi, T. Kappeler, T. Paul: *Dynamics of periodic Toda chains with a large number of particles*. *J. Differential Equations* 258, (2015), 12, 4209–4274.
5. D. Bambusi, T. Kappeler, T. Paul: *From Toda to KdV*. *Nonlinearity* 28 (2015), no. 7, 2461–2496.
6. D. Bambusi, A. Ponno: *On metastability in FPU*. *Comm. Math. Phys.* **264** (2006), no. 2, 539–561.
7. D. Bambusi, A. Giorgilli: *Exponential stability of states close to resonance in infinite dimensional hamiltonian systems*. *Jour. Stat. Phys.*: **71** p. 569 (1993).

Spin Orbit Interaction

1. E. Haus, D. Bambusi: [Asymptotic behavior of an elastic satellite with internal friction](#). *Math. Phys. Anal. Geom.* 18 (2015), no. 1, Art. 14, 18 pp.

Semiclassical limit

1. D. Bambusi: [Normal forms and semi-classical approximation](#). To appear in Encyclopedia of Mathematical Physics.
2. D. Bambusi, S. Graffi, T. Paul: [Normal forms and quantization formulae](#). *Commun. Math. Phys.*, **207**, 173-195, (1999).
3. D. Bambusi, S. Graffi, T. Paul: [Long time semiclassical approximation of quantum flows: a proof of the Ehrenfest time](#), *Asymptotic Anal.*, **21**, 149-160 (1999).

Research interests

Dynamics of infinite dimensional hamiltonian systems, in particular

- Dynamics of Hamiltonian PDEs,
- Dynamics in chains of particles, FPU problem.