CARLANGELO LIVERANI

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EDUCATION

1/10/1988 Ph.D. in Mathematics, Rutgers University, New Brunswick, New Jersey, U.S.A. (Thesis Advisor: J.L. Lebowitz).
1980 B.A. in Physics, *cum laude*, Università degli Studi di Bologna, Bologna, Italy (Thesis Advisor: G. Turchetti).

ACADEMIC APPOINTMENTS

–01 Professor, University of Rome *Tor Vergata*, Rome, Italy.
2019 Heilbronn Distinguised Visiting Professor, Bristol, UK (2 weeks).
2018 Visiting Professor, Universite Paris Dauphine, Paris, France (one month).
2017 Visiting Professor, Universite Lille, Lille, France (one month).
2017 Visiting Professor, CARMIN senior position, joint IHP- IHES, Paris, France (six months).
2013 Visiting Professor, Centre Interfacultaire Bernoulli, École Polytenique Fédérale de Lausanne, Switzerland (one month).
2010 Visiting Professor, Fields Institute, Toronto, Canada (four months).
2010 Professor, Universite Paris Dauphine, Paris, France (one month).
2008 Visiting Professor, Ecole Normale Superiore, Paris, France (one month).
2008 Visiting Professor, Universite Paris Dauphine, Paris, France (one month).
2007 Visiting Professor, CIRM, Marseille, France (one month).
2007 Visiting Professor, Penn State University, State College, PA, USA (one month).
2006 Visiting Professor, Universite Paris Dauphine, Paris, France (one month).
2006 Visiting Professor, Universite Paris XIII, Paris, France (one month).
2006 Visiting Professor, University of Maryland, College Park, M.D., USA (one month).
2005 Visiting Researcher, CNRS, Paris, France (three months)
2004 Visiting Professor, Universite Paris VII, Paris, France (one month).
2001 Visiting Scholar, Courant Institute, New York University, New York, USA (one month).
2001 Visiting Professor, IHES, Paris, France (six months).
01–99 Associate Professor, University of Rome II, Rome, Italy.
99–88 Ricercatore (Tenured Assistant Professor), University of Rome II, Rome, Italy.
1992 Visiting Prof., Institute for Math.Sciences, Stony Brook University, Stony Brook, New York (one year).
1991 Visiting Scientist, Center for Applied Math., Cornell University, Ithaca, New York (six months).
1990 Visiting Scientist, Center for Applied Math., Cornell University, Ithaca, New York (six months).
1989 Visiting Professor, University of Arizona, Tucson, Arizona (one year).

AREAS OF INTEREST AND SPECIALIZATION

- *Dynamical Systems*–ᴇʀɢᴏᴅɪᴄ ᴛʜᴇᴏʀʏ: Study of the statistical properties of Dynamical Systems with particular emphasis to applications in non-equilibrium statistical mechanics. In particular, I obtained results in the following topics: Decay of correlations for billiard flows. Partially hyperbolic fast-slow systems and their relations to transport problems (e.g. heat transport and fluido dynamics). Limit Laws for Dynamical Systems with applications to non-equilibrium Statistical Mechanics. Piecewise expanding coupled map lattices in the weak coupling regime. Dynamical determinants and zeta functions for Anosov systems. Geodesic flows in negative curvature. New techniques to investigate the decay of correlations, convergence to equilibrium and various limit theorems in hyperbolic systems and their random perturbations, both for maps and flows. General techniques for establishing ergodicity of piecewise smooth Hamiltonian Systems or Symplectic Maps. Concrete examples of ergodic Hamiltonian Systems.
- *Quantum Mechanics*–ʟᴏɴɢ ᴛɪᴍᴇ ʙᴇʜᴀᴠɪᴏᴜʀ: In particular, I am interested to, and I obtained results in, the ergodic properties of non-KMS states for non linear quantum evolutions. Decoherence and problems related to measurement.

- *Statistical Mechanics*–NON EQUILIBRIUM: I obtained results for infinite dynamics and invariant measures for Hamiltonian systems with small noise; hydrodynamics. Microscopic models for the Fourier law.
- *Probability*–LIMIT THEOREMS: I obtained sharp conditions implying the CLT for observables of chaotic deterministic systems. I have obtained several results concerning random walks in random (evolving) environment.

PUBLICATIONS

Most of the articles are downloadable from the web page:
http://www.mat.uniroma2.it/ liverani

1 *Approximate Solution of KdV Equation from Perturbation Expansion*, with G. Turchetti, *Lettere al Nuovo Cimento*, **30**, 1, p. 9, (1981).

2 *Approximate Solutions of Some Solitonic Equations*, *Lettere al Nuovo Cimento*, **34**, 16, pp. 481–486, (1982).

3 *Existence and Asymptotic Behavior of Padè Approximants to the KdV Multisoliton Solutions*, with G. Turchetti, *Journal of Mathematical Physics*, **24**, 1, pp. 53–64, (1983).

4 *Some KAM Estimates for the Siegel Center Problem*, with G. Servizi, G. Turchetti, *Lettere al Nuovo Cimento*, **39**, pp. 417–423, (1984).

5 *Improved KAM Estimates for the Siegel Radius*, with G. Turchetti, *Journal of Statistical Physics*, **45**, 5/6, pp. 1071–1086, (1986).

6 *Quantum System in Contact with a Thermal Environment: Rigorous Treatment of a Simple Model*, with P. de Smet, D. Dürr, J.Lebowitz, *Communications in Mathematical Physics*, **120**, pp. 195–231, (1988).

7 *Dissipative Quantum Dynamics in a Boson Bath*, with Y.-C. Chen, J.L. Lebowitz, *Physical Review B*, **40**, 7, pp. 4664–4682, (1989).

8 *Potential on the Two-Torus for which the Hamiltonian Flow is Ergodic*, with V. Donnay, *Communications in Mathematical Physics*, **135**, pp. 267–302, (1991).

9 *Ergodic Systems of n Balls in a Billiard Table*, with L. Bunimovich, S. Pellegrinotti and Y.Suhov, *Communications in Mathematical Physics*, **146**, pp. 357-396, (1992).

10 *Generalization of the Hilbert Metric to the Space of Positive Definite Matrices*, with M.Wojtkowski, *Pacific Journal of Mathematics*, **166**, N.2, pp. 339-355, (1994).

11 *Ergodicity in Hamiltonian Systems*, with M. Wojtkowski, *Dynamics Reported*, **4**, C.K.R.T. Jones, U.Kirchgraber, H.O.Walther edts., Springer-Verlag, Berling, Heidelgerg, New York, pp. 130-202, (1995).

12 *Decay of Correlations*, *Annals of Mathematics*, **142**, pp. 239-301 (1995).

13 *Decay of Correlations in Piecewise Expanding maps*, *Journal of Statistical Physics*, **78**, 3/4, pp. 1111-1129, (1995).

14 *Decay of Correlations in Hyperbolic Systems*, *Proceedings of the International Conference on Dynamical Systems and Chaos–Tokyo 94*, World Scientific Publ. Co., Singapore, pp. 163-166 (1995).

15 *Ergodicity in Infinite Hamiltonian Systems with Conservative Noise*, with S. Olla, *Probability Theory and Related Fields*, **106**, pp. 401–445, (1996).

16 *Central Limit Theorem for Deterministic Systems*, *International Conference on Dynamical Systems, Montevideo 1995, a tribute to Ricardo Mañe*, Pitman Research Notes in Mathematics Series, **362**, editors F.Ledrappier, J.Levovicz, S.Newhouse, pp. 56–75 (1996).

17 *Reversibility in Infinite Hamiltonian Systems with Conservative Noise*, with József Fritz and Stefano Olla , *Communication in Mathematical Physics*, **189**, 2, pp. 481–496 (1997).

18 *Conformally Symplectic Dynamics and Symmetry of the Lyapunov Spectrum*, with M. Wojtkowski, *Communication in Mathematical Physics*, **194**,1, pp. 47–60 (1998).

19 *Conformal Measure and Decay of Correlations for Covering Weighted Systems*, with B. Saussol and S.Vaienti, *Ergodic Theory and Dynamical Systems*, **18**, 6, pp. 1399–1420 (1998).

20 *Flows, Random Perturbations and Rate of Mixing*, *Ergodic Theory and Dynamical Systems*, **18**, 6, pp. 1421–1446 (1998).

21 *A Probabilistic Approach to Intermittency*, with B. Saussol and S.Vaienti, *Ergodic Theory and Dynamical Systems*, **19**, pp. 671–685 (1999).

22 *Stability of the Spectral Gap for transfer operators*, with G.Keller, *Annali della Scuola Normale di Pisa, Classe di Scienze* (4) Vol. XXVIII, pp. 141–152 (1999).

23 *Ergodic Properties for a quantum nonlinear dynamics*, con F.Fidaleo, *Journal of Statistical Physics*, **97**, 5/6, pp. 957–1009 (1999).

24 *Interacting particles*, in "Hard Balls Systems and the Lorentz gas" D.Szasz edt., Encyclopaedia of Mathematical Sciences **101**, Springer, New York (2000).

25 *Rigorous numerical investigation of the statistical properties of piecewise expanding maps–A feasibility study*, *Nonlinearity*, **14**, n. 3, pp. 463–490, (2001).

26 *Return to equilibrium in classical and quantum systems*, in "Long Tine Behaviour of Classical and Quantum Systems" S. Graffi and A. Martinez edts, Series on Concrete and Applicable Mathematics Vol. 1, World Scientific, Singapore, pp. 1-32 (2001).

27 *Anosov diffeomorphism and coupling*, with X. Bressaud, Ergodic Theory and Dynamical Systems, **22**, n. 1, pp. 129–152, (2002)

28 *Ruelle-Perron-Frobenius spectrum for Anosov maps*, with M.Blank and G.Keller, *Nonlinearity*, **15**, n.6, pp. 1905-1973 (2002).

29 *Computing the rate of decay of correlations in expanding and hyperbolic systems*, *Markov Processes and Related Fields*, **8**, n.2, pp. 155-162 (2002).

30 *Lasota-Yorke maps with holes: conditionally invariant probability measures and invariant probability measures on the survivor set*, with V. Maume-Deschamps, *Annales de l'Institut Henri Poincaré Probability and Statistics*, **39** (3), 385-412 (2003).

31 *Ergodic properties of a model related to disordered quantum anharmonic crystals*, with F.Fidaleo, *Communications in Mathematical Physics*, **235**, 169-189 (2003).

32 *Invariant measures and their properties. A functional analytic point of view*, *Dynamical Systems. Part II: Topological Geometrical and Ergodic Properties of Dynamics. Pubblicazioni della Classe di Scienze*, Scuola Normale Superiore, Pisa. Centro di Ricerca Matematica "Ennio De Giorgi" : Proceedings. Published by the Scuola Normale Superiore in Pisa (2004).

33 *Statistical properties of disordered quantum systems*, with F.Fidaleo, *Operator Theory: Advances and Applications*, **153**, Proceedings of the XIXth International Conference on Operator Theory, Timisoara (Romania), 2002; D.Gaspar. I.Gohberg, D.Timotin, F.H.Vasilescu and L.Zsido editors, Birkhauser Verlag Basel/Switzerland, pp. 123-141 (2004)

34 *Birth of an elliptic island in a chaotic sea*, *Mathematical Physics Electronic Journal*, **10**, 1 (2004).

35 *On Contact Anosov flows*, *Annals of Mathematics*, **159**, 3, 1275–1312 (2004).

36 *Coupled map lattices without cluster expansion*, with G.Keller, *Discrete and Continuous Dynamical Systems*, **11**, n.2, 3, 325–335 (2004).

37 *Fredholm determinants for Anosov maps*, *Discrete and Continuous Dynamical Systems*, **13**, 5, 1203-1215 (2005).

38 *Spectral gap for a one-dimensional lattice of coupled piecewise expanding interval maps*, with G.Keller, in "Dynamics of Coupled Map Lattices and of Related Spatially Extended Systems", J.Chazottes and B.Fernandez Eds., *Lecture Notes in Physics*, Lecture Notes in Physics, Vol. **671**, pp. 115–151, Springer (2005).

39 *Convergence to equilibrium for intermittent symplectic maps*, with M.Martens, *Communications in Mathematical Physics*, **260**, n.3, pp. 527–556 (2005).

40 *Banach Spaces adapted to Anosov Systems*, with S.Gouezel, *Ergodic Theory and Dynamical Systems*, **26**, 1, 189–217, (2006).

41 *Uniqueness of the SRB measure for piecewise expanding weakly coupled map lattices in any dimension*, with G.Keller, *Communications in Mathematical Physics*, **262**, 1, 33–50, (2006).

42 *Special Issue on Ergodic Theory and Non-uniform Dynamical Systems*, Guest Editor with Xavier Bressaud, Yves Lacroix, and Sandro Vaienti, Discrete and Continuous Dynamical Systems - Series A, **15**, 1, (2006).

43 *Zeta functions and Dynamical Systems*, with M.Tsujii, *Nonlinearity*, **19**, No 10 (October 2006) 2467-2473.

44 *Smooth Anosov flows: correlation spectra and stability*, with Oliver Butterley, *Journal of Modern Dynamics*, **1**, 2, (2007) 301-322.

45 *Random Classical Fidelity*, with Ph. Marie and S.Vaienti, *Journal of Statistical Mechanics* **128**, n. 4, (2007) 1079-1091.

46 *Stability of Statistical Properties in Two-dimensional Piecewise Hyperbolic Maps*, with Mark F. Demers, *Transactions of the American Mathematical Society*, **360** (2008), 4777-4814.

47 *Compact locally maximal hyperbolic sets for smooth maps: fine statistical properties*, with S.Gouëzel, *Journal of Differential Geometry*, **79** (2008) 433-477.

48 *Random Walk in Markovian Enviroment*, with Dmitry Dolgopyat and Gerhard Keller, *Annals of Probability*, **36**, Number 5 (2008), 1676-1710.

49 *Random Walk in Deterministically Changing Environment*, with Dmitry Dolgopyat, *ALEA*, **4**, 89-116 (2008).

50 *Quenched CLT for random toral automorphism* , with Arvind Ayyer and Mikko Stenlund, *Discrete and Continuos Dynamical Systems*, **24**, 2, 331-348 (2009).

51 *Non-perturbative approach to random walk in markovian environment*, with Dmitry Dolgopyat, *Electronic Communications in Probability*, **14** (2009), 245-251.

52 *Rare events, escape rates and quasistationarity: some exact formulae*, with Gerhard Keller, *Journal of Statistical Physics*, **135**, Issue 3 (2009), Page 519-534.

53 *Map Lattices coupled by collisions*, with Gerhard Keller, *Communications in Mathematical Physics*, **291**, Issue 2 (2009), 591–597.

54 *On the work and vision of Dmitry Dolgopyat*, *Journal of Modern Dynamics*, 4, n. 2 (2010) 211–225.

55 *Heat equation from microscopic dynamics: a weak coupling approach, XVIth International Congress on Mathematical Physics*, 397–400, World Sci. Publ., Hackensack, NJ, 2010.

56 *Energy transfer in a fast-slow Hamiltonian system*, with Dmitry Dolgopyat, *Communications in Mathematical Physics*, **308**, Number 1, 201-225 (2011).

57 *Toward the Fourier law for a weakly interacting anharmonic crystal*, with Stefano Olla, *Journal of the American Mathematical Society*, **25** (2012) 555-583.

58 *Exponential decay of correlations for piecewise cone hyperbolic contact flows*, with Viviane Baladi, *Communications in Mathematical Physics*, **314**, Number 3 (2012) 689-773.

59 *Multidimensional expanding maps with singularities: a pedestrian approach. Ergodic Theory and Dynamical Systems.* **33**, 1 (2013) 168−182.

60 *A footnote on Expanding maps. Discrete and Continuos Dynamical Systems*, **33**, 8, (2013) 3741−3751.

61 *Anosov Flows and Dynamical Zeta Functions*, with Paolo Giulietti and Mark Pollicott. *Annals of Mathematics*, **178**, 2 (2013) 687−773.

62 *Robustly invariant sets in fibre contracting bundle flows* with O. Butterley. Journal of Modern Dynamics, **7**, 2 (2013) 153-208.

63 *Mixing for some non-uniformly hyperbolic systems* with Dalia Terhesiu. Annales Henri Poincarè, **17**, (2016), 179-226.

64 *Green-Kubo formula for weakly coupled systems with dynamical noise* with Cedric Bernardin, Francois Huveneers, Joel Lebowitz and Stefano Olla. *Communication in Mathematical Physics*, **334** (2015), no. 3, 1377−1412.

65 *The Martingale approach after Varadhan and Dolpogpyat* with Jacopo De Simoi. In "Hyperbolic Dynamics, Fluctuations and Large Deviations", Dolgopyat, Pesin, Pollicott, Stoyanov editors, *Proceedings of Symposia in Pure Mathematics*, **89**, AMS (2015).

66 *Statistical properties of mostly contracting fast-slow partially hyperbolic systems*, with Jacopo De Simoi. *Inventiones Mathematicae.* 206, 1, (2016) 147−227.

67 *Fast-slow partially hyperbolic systems versus Friedlin–Wentzell random systems*, with Jacopo de Simoi, Christophe Poquet, Denis Volk. *Journal of Statistical Physics*, **166**, Issue 3 (2017) pp 650−679.

68 *Spectral properties of integral operators in bounded, large intervals*, with Enza Orlandi. *Journal of Mathematical Analysis and Applications*, **450**, Issue 1, (2017) Pages 330−350.

69 *Exponential Decay of Correlations for Finite Horizon Sinai Billiard Flows*, with Viviane Baladi and Mark Demers. *Inventiones Mathematicae*, **211**, 1, pp. 39−177 (2018).

70 *Fast-slow partially hyperbolic systems beyond averaging. Limit Theorems*, with Jacopo De Simoi. *Inventiones Mathematicae* **213** (2018), no. 3, 811-1016.

71 *Parabolic dynamics and Anisotropic Banach spaces*, with Paolo Giulietti. *Journal of the European Mathematical Society.* **21**, no. 9, 2793−2858 (2019). arXiv:1412.7181.

72 *Deterministic walks in random environment*, with R.Aimino. To appear in *Annals of Probability.* arXiv:1804.11114.

73 *Transport in partially hyperbolic fast-slow systems. Contribution to the ICM 2018, Rio de Janeiro 2018.* Vol. III. Invited lectures, 2643−2667, World Sci. Publ., Hackensack, NJ, 2018. arXiv:1803.06137.

74 *Statistical properties of uniformly hyperbolic maps and transfer operators' spectrum*, Notes of courses given in China and Iran. Preprint Arxiv: 1810.05924.

75 *Edgeworth expansions for weakly dependent random variables*, with Kasun Fernando. Preprint arXiv:1803.07667.

76 *Mixing rates for symplectic almost Anosov maps*, with Peyman Eslami. Preprint arXiv:2003.07551.

77 *Anosov diffeomorphisms, anisotropic BV spaces and regularity of foliations*, with Wael Bahsoun. Preprint arXiv:2003.06811.

LANGUAGES

Italian (mother tongue), English (fluent), French (reading knowledge).

TEACHING EXPERIENCE

2019	Mathematical Physics 1, (*Tor Vergata*, Roma).
2019	Geometry 1, (*Tor Vergata*, Roma).
2017-2018	Calculus 2, Physics, (*Tor Vergata*, Roma).
2010-2018	Dynamical Systems, Mathematical Physics I (*Tor Vergata*, Roma).
2009	Calculus 3, Computer Sciences (*Tor Vergata*, Roma).
2004-8	Calculus 1, Computer Sciences (*Tor Vergata*, Roma).
2005-09	Dynamical Systems, Laurea Specialistica (*Tor Vergata*, Roma).
2007	Dynamical Systems, Ph.D. Program (*La Sapienza*, Roma).
2004	Dynamical Systems, Laurea Specialistica and Ph.D. Program (*Tor Vergata*, Roma).
2003	Analisi Matematica 2, Informatica (*Tor Vergata*, Roma).
2003	Fisica Matematica 2 (PDE) (*Tor Vergata*, Roma)
2003	University of Roma II: Dynamical Systems (Ph.D. course)

2002 University of Trieste (SISSA): Dynamical Systems (Ph.D. course)

02-00 University of Roma II: Calculus I, II.

1999 University of Rome II: Calculus I; University of Padova: Dynamical Systems (Ph.D. course); University of Rome II: Dynamical Systems (Ph.D. course)

1998 University of Rome II: Istituzioni di matematica I (Calculus I); University of Rome II: Analytical Mechanics (O.D.E., Variational Principles, Lagrangian and Hamiltonian Systems).

1997 University of Rome II: Dynamical Systems; University of Rome II: Analytical Mechanics.

1996 University of Rome II: Analytical Mechanics.

1995 University of Rome II: Dynamical Systems; University of Rome II: Analytical Mechanics.

1994 University of Rome II: analysis II (Multivariable Calculus, introduction to Differential Geometry); University of Rome II: Analytical Mechanics.

1993 University of Rome II: Analytical Mechanics.

1992 SUNY at Stony Brook: second semester calculus.

1991 University of Rome II: analysis II; University of Rome II: Analytical Mechanics.

1989 Arizona University : second semester calculus.

1988 University of Rome II : Analytical Mechanics.

84-87 Rutgers University : Pre-Calculus, First Semester Calculus, Second Semester Calculus, Third Semester Calculus, Ordinary Differential Equation.

OTHER PROFESSIONAL ACTIVITIES

- **Grants, Awards and managing of Scientific Projects or Organisations**
  - Member Academia Europaea (Elected 2020).
  - 2019 International Prize *Cataldo Agostinelli ed Angiola Gili Agostinelli* for Mechanics or Mathematical Physics assigned by the Italian National Academy.
  - PI of the PRIN Grant *Regular and stochastic behaviour in dynamical systems* (PRIN 2017S35EHN), 2019-2022. (527.740 euros)
  - Member of the Brin Prize selection Committee (2018-2023).
  - Member of the Advisory board of the Centre for Nonlinear Mathematics and Applications at Loughborough, UK (2017-present).
  - Member of the Scientific Committee of the *Laboratorio Fibonacci*, SNS, Pisa, Italy (2017-2019).
  - Local coordinator of the PRIN Grant *Teorie geometriche e analitiche dei sistemi Hamiltoniani in dimensioni finite e infinite* (PRIN 2010JJ4KPA_009), 2013-2016. (80.595 euros)
  - Principal Investigator of the European Advanced Grant *Macroscopic Laws and Dynamical Systems* (MALADY, **ERC AdG 246953**), 2010-2015. url: http://maladyerc.wordpress.com. (1.372.720,00 euros).
  - Member of the Scientific Council of the Center for Mathematics and Theoretical Physics (2010–present). url: http://cmtp.uniroma2.it.
  - Member of the Scientific Committee of the GNFM (Gruppo Nazionale di Fisica Matematica, 544 members) (2009-2012).
  - Principal Investigator the PRIN Grant *Dynamical Systems and applications* (PRIN 2007B3RBEY), 2008-2009. (109.129 euros)
  - Italian coordinator of the GDRE (Groupement de Recherche Européen) *GREFI-MEFI*, created by an agreement between CNRS and INDAM (2005-2009). Member of the GDRE Scientific Committee (2009-2013). (about 50.000 euros)
  - Coordinator of the project *Interacting Dynamical Systems*, INDAM, 2003. (about 10.000 euro)
  - Member of the *Steering Commitee* of the European Science Foundation Program *Probabilistic methods in Non-Hyperbolic Dynamics* (PRODYN) (1998-2002).
- **Editorial and refereeing activities**
  - Member of the Editorial Board of *Rendiconti di Matematica e delle sue applicazioni*, since 2016.
  - Member of the Editorial Board of *Communications in Mathematical Physics*, since 2015.
  - Member of the Editorial Board of *Journal of Dynamical and Control Systems*, 2014-2019.
  - Member of the Editorial Board of *Bollettino Matematica Italiana*, since 2014.
  - Member of the Editorial Board of *Nonlinearity* Board member 2002-2014. Co-editor in Chief 2015-2019.
  - Member of the Editorial Board of *Ergodic Theory and Dynamical System*, since 2000.
  - Member of the Editorial Board of *Journal of Statistical Physics*, 2013-2018.
  - Member of the Editorial Board of *Discrete and Continuous Dynamical Systems-A* 2003–2015.
  - Member of the Editorial Board of *Mathematical Physics Electronic Journal*, 2002–2010.

- Acted as referee for many journals, among which: *Acta Mathematica; Acta Mathematica Sinica; Advances in Mathematics; Annales de l'I.H.P. Analyse Non Linéaire; Annales de l'I.H.P. Probabilités et Statistiques; Annales Scientifique de l'Ecole Normale Supérieure; Annals of Mathematics; Annals of Probability; Annali della Scuola Normale di Pisa; Bollettino UMI; Cambridge Journal of Mathematics; Chaos; Communications in Mathematical Physics; Discrete and Continuous Dynamical Systems; Ergodic Theory and Dynamical Systems; Europhysics Letters; Israel Journal of Mathematics; International Journal of Bifurcation and Chaos; Journal of Applied Probability/Advances in Applied Probability; Inventiones; Journal of Dynamical and Control Systems; Journal of Mathematical Physics; Journal of Mathematical Sciences, the University of Tokyo; Journal of Modern Dynamics; Journal of Physics A: Mathematical and General; Journal of Statistical Mechanics: Theory and Experiment; Journal of Statistical Physics; Journal of the American Mathematical Society; Journal of the Mathematical Society of Japan; Forum Mathematicum; Linear Algebra and its Applications; Mathematical Physics Electronic Journal; Memoirs fo the American Mathematical Society; Mathematical Reviews; Nonlinearity; Physica D; Physical Review E; Potential Analisys; Probability Theory and Related Fields; Proceedings of the AMS; Regular and Chaotic Dynamics; Stochastics and Dynamics; SIAM Journal on Control and Optimization; Transactions of the AMS; The Open Mathematics Journal; ZAMP.*
- Acted as referee for the following istitutions: *European Research Council (Europe), FWF Austrian Science Fund (Vienna, Austria), Royal Society (London, England), Agence Nationale de la Recherche (France), Ministero dell'Istruzione, dell'Università e della Ricerca (Italy), National Commission for Scientific & Technological Research (FONDECYT, Santiago, Chile), Natural Sciences and Engineering Research Council (Canada), OTKA (Hungary); Chalmers University of Technology, (Sweden), University of Bristol (England), Bryn Mawr College (Pennsylvania, U.S.A.), Michigan State University (Michigan, U.S.A.), Queen Mary London University (London, England), University of Maryland (MD, USA), Université de la Méditerranée (Marseille, France), University of Massachusetts Amherst, (Massachusetts, U.S.A.), University of Houston, (Houston, U.S.A.), University of Padua (Italy), TATA Institute of Fundamental Research (India), The Hebrew University of Jerusalem (Israel), University of Stony Brook (USA), Leverhulme Trust (UK)*
- Member of the *Ph.D. Committee* for: Comlan Edmond Koudjinan [*Referee*] (Rome-2018), Julien Sedro [*Referee*] (Paris-2018), Matteo Tanzi [*Referee*] Imperial, (London-2017), Andrey Dymov [*Referee*] (Paris-2015), Paolo Giulietti [*Advisor*] (Roma-2011), Marco Discendenti [*Advisor*] (Roma-2010), Agustine de Maere [*Referee*] (Louvain-la-Neuve-2009), Loic Dubois [*Referee*] (Paris-2009), Manuela Giampieri [*Advisor*] (Roma-2006), Imre Peter Toth [*Referee*] (Budapest-2006), Stefano Galatolo [*Referee*] (Pisa-2002), Benoit Saussol (Marseille-1999) and Véronique Maume-Deschamps [*Referee*] (Dijon-1999).

- **Organization of Conferences and Schools**
  - Organizer with W. Bahsoun, V. Baladi and M. Demers: *Dynamics,Transfer Operators, and Spectra.* Semester at the Bernoulli Center, EPFL, Lausanne, 01/2021−06/2021.
  - Organizer with A. Sorrentino and O. Butterley: *Regular and stochastic behaviour in dynamical systems.* Rome, Italy 12/02/2020−14/02/2020.
  - Organizer with F. Bracci, A. Celletti, A. Sorrentino: *Dynamical Systems: from geometry to mechanics*, Rome, February 5-8, 2019.
  - Organizer with Giovanni Forni (U. of Maryland). *Analytical Methods in classical and quantum systems.* Centro De Giorgi, Pisa, 27 June-2 July 2016.
  - Organizer with P. Balint (TU Budapest), H. Bruin (U Vienna), I. Melbourne (U Warwick), D. Terhesiu (U Vienna) *Mixing Flows and Averaging Methods*, ESI, Wien, April 04 2016 to May 25, 2016. url: http://www.esi.ac.at/activities/events/2016/mixing-flows-and-averaging-methods.
  - Organizer, with Ian Melbourne (University of Warwick) Grigorios Pavliotis (Imperial College London) Stefano Olla (Univ. Paris-Dauphine). *Moyennisation et homognènèisation dans les systèmes dèterministes et stochastiques.* Marseille, CIRM, 11/15 May 2015.
  - Organizer, with Stefano Luzzatto, *Chaos at Tor Vergata.* Tor Vergata, Roma, 2-3 April 2014. Coorganizer with S. Luzzatto.
  - Organizer, with Stefano Olla and Lai-Sang Young of *Workshop on the Fourier Law and Related Topics* April 4-8, 2011. Fields Institute, Toronto, Canada.
  - Organizer, with Antonio Giorgilli, Stefano Marmi and Giancarlo Benettin of *Sistemi dinamici nonlineari e applicazioni.* Pisa, Centro Ennio de Giorgi (Italy) 18-19 February 2011.
  - Organizer of *A Dynamics Day in Tor Vergata.* Roma, Dipartimento di Matematica, UniverstiĹ di Roma Tor Vergata (Italy) 11 February 2011.
  - Organizer, together with Viviane Baladi and Gerhard Keller of the miniworkshop *Spectrum of Transfer Operators*, Oberwolfach, Germany, November 2009.

- Organizer, together with Stefano Olla, Pierre Picco and Sandro Vaienti of the workshop *Grefi-Mefi 2008, From dynamical systems to Statistical Mechanics*, Marseille, February 2008.
- Organizer, together with P.Collet, V.Baladi, J.Bricmont, F.Ledrappier of the trimester "TIME AT WORK" at the Institut Henri Poincaré, Paris, April-June 2005.
- Organizer, together with G.Forni and R.de la Llave of the workshop *Recent and future developments in Hamiltonian Systems: theory and applications* at the Institut Henri Poincaré, Paris, 24-27 May 2005.
- Organizer, with M.Abate and S.Marmi of the workshop *Dinamica Italiana*, Pisa 25–27 June 2003.
- Organizer, with M.Berti, A.Ambrosetti and S.Luzzatto, of the Prodyn-Sissa trimester *Geometric, Probabilistic, and Variational Methods in Dynamical Systems*, SISSA, Triestre (2002).
- Organizer, with A.Celletti, L.Chierchia and G.Mancini, of the international conference *Regular and unstable motion in Hamiltonian Systems*, Rome, Italy from 5 to 9 Settembre 2000.
- Organizer, together with Viviane Baladi, of the *Winter School on Smooth ergodic Theory*, Sils-Segl-Maria (Switzerland) from 24-1-99 to 31-1-99.
- Organizer, together with D. Szasz and P. Choquard, of the "Workshop on Hyperbolic Systems with Singularities," Vien, Austria, form 1 settembre 1996 to 30 dicembre 1996 at the Ervin Schrödinger Institute.
- Member of the Scientific Committee for the following conferences:
  * *Probabilistic Limit Theorems for Dynamical Systems*, CIRM, Marseille, France, 29 October-2 November 2018.
  * *Dynamics Days 2018*, Louhborough, UK, 3-7 September 2018.
  * *From order to chaos*, Pisa, Italy, 9-14 April 2018.
  * *Modern Trends in the Ergodic Theory of Dynamical Systems*, Indam Workshop, Roma, 5-9 June 2017.
  * *Geometric, Analytic and Probabilistic approaches to dynamics in negative curvature.* Indam Workshop, Roma, 13-17 May 2013.
  * *Hyperbolic Dynamical Systems in the Sciences*, Corinaldo, Italy, May 31-June 4, 2010.
  * *AIMS' Sixth International Conference on Dynamical Systems, Differential Equations and Applications*, University of Poitiers, Poitiers, France, June 25-28, 2006.
  * *Ergodic Theory and non-uniformly Hyperbolic Dynamical Systems*, CIRM, Marseille, France, 23-28 May 2004.
- **Students and Post-Docs** I had the following official Ph.D. students: Manuela Giampieri (2005), Marco Discendenti (2010), Paolo Giulietti (2010). Moreover, I had the following Post-Docs: Romain Aimino, Oliver Butterley, Armando Castro, Jacopo De Simoi, Peyman Eslami, Ian Morris, Christophe Poquet, Mikko Stenlund, Dalia Terhesiu, Denis Volk. In addition, I have, unofficially, followed the Ph.D. thesis of Benoit Saussol and Oliver Butterley. I had also strict collaborations with Veronique Maume-Deschamp and Sebastien Gouezel during their Post-Docs. Finally, I had the following master students: Marco Mazzolena (2007), Viviana Letizia (2011), Roberto Castorrini (2016), Giorgio Cipolloni (2017), Flavia Carafone (2019).

PROFESSIONAL AFFILIATION

Ordinary Member Academia Europaea (Elected 2020). Elected Fellow of the Institute of Physics, UK (since 2004). National Group for Mathematical Physics, Italy (since 1981). American Mathematical Society, USA (since 1984). Unione Matematica Italiana (since 2007). International Association of Mathematical Physics (since 2007). European Mathematical Society (since 2017).

INVITED CONFERENCES AND SEMINARS (2000- PRESENT)

2019 *Seminar* "Statistical properties of some partially hyperbolic maps", University of Maryland, U.S.A., 5 December.

- *Seminars* "Deterministic walks in random environment" and "Quantitive statistical properties for partially hyperbolic system", Bristol, U.K., 4-15 November.
- *Conference* "Parabolic dynamics and distributions," in *Smooth and Homogeneous Dynamics*, ICTS, Bangalore, India, 25 September- 4 October.
- *Conference* "Deterministic walks in random environment," in *Workshop large scale stochastic dynamics*, Oberwolfach, Germany, 16-10 September.
- *Conference* "Fast slow partially hyperbolic systems," in *Thermodynamic Formalism, Ergodic Theory and Geometry Workshop Accommodation*, Warwick, U.K., 22-26 July.
- *School* "Averaging and beyond for fast-slow hyperbolic systems", four lectures in the research School *Thermodynamic Formalism: Modern Techniques in Smooth Ergodic Theory*, Marseille, France, 01-05 July.
- *Conference* "Deterministic walks in random environment", in *Probaϕ_{19}^6, International Conference on Probability Theory and Mathematical Physics*, Moscow, Russia, 24-28 June.

- *Seminar* "Where does noise come from?" Giornata INDAM. Bari, Italy, 3 June.
- *Seminar* " Non-equilibrium Statistical Mechanics and dynamical systems" Kac Seminar, Utrech, 3 May.
- *Seminar* " The hydrodynamics limit for fast slow partially hyperbolic systems", Helsinki, Finland, 14 February.
- Seminar "Quantitative statistical properties of partially hyperbolic systems", Pisa, Italy, 25 April.
- Seminar "Dynamical systems as Markov chains", Roma Tre, Roma, Italy, 8 Jenuary.
2018 *Conference* "From microscopic to macroscopic: the Hydrodynamic limit." at *Journées de Dynamique, Dédíees à la mémoire d'Anatole Katok* Paris, France, 6 December.
- *Seminar* "Beyond averaging", SNS, Pisa, 21 November.
- *Seminar* "Deterministic walks in random environment." Toronto, Canada, 2 November.
- *Seminars* " From microscopic to macroscopic: the Hydrodynamic limit." Series of two seminars at *Workshop: Entropic Fluctuation Relations in Mathematics and Physics*, Montreal, Canada, 24-26 October.
- *Seminar* "Non-Equilibrium Statistical Mechanics, Dynamical Systems and Probability", Assemblea GNFM, Montecatini, Italy, 4 October.
- ***International Congress of Mathematicians 2018***. Rio de Janeiro. Invited speaker for Section 9: Dynamical Systems and O. D. E. and Section 11: Mathematical Physics.
- *Seminar*: "Deterministic walks in random environment", Paris Diderot, Paris, France, 26 June.
- *Seminar*: "Long time behaviour for chaotic fast-slow systems," ICMAT Madrid, Spain, 13 June.
- *Seminar*: "Long time behaviour for chaotic fast-slow systems", Loughborough, U.K., 25 May.
- *School*: "Statistical properties of dynamical systems (an introduction)", Tehran, 5-10 May.
- *Conference*: "Deterministic walks in random environment ", in New Developments in Open Dynamical Systems and Their Applications, Banff, Canada, 18-23 March.
- *Colloqium*: "Beyond averaging", SISSA, Trieste, Italy, 12 March.
- *School*: "Chaos and averaging", DANCE (Dinámica, Atractores y Nolinealidad: Caos y Estabilidad) school, Logroño, Spain. 22-26 January.
2017 *Conference*: "Statistical Properties of hyperbolic Billiards " in Analysis and Dynamics, Marina di San Gregorio, Lecce, Italy 12-15 October.
- *Lectures*: "Chernov Memorial Lectures", biannual lecture series (each consisting of three lectures by the same speaker) instituted by Michael Brin in memory of Nikolai Chernov.
- *Conference*: "Energy Transport in Hamiltonian systems", Conference "Advances in Mathematical and Theoretical Physics", Rome 19–22 September.
- *Minicourse*: "Functional Analytic Approach to Dynamical Systems", Summer School "Analytical aspects of hyperbolic flows", Centre Henri Lebesgue, Nantes, France, 3-7 July.
- *Seminar*: "Deterministic walk in random environment", Cergy-Pontoise (26 June).
- *Seminar*: "Parabolic dynamics and distributions", Workshop on Hyperbolic Dynamics, ICTP, Trieste (19-23 June).
- *Conference*: "Deterministic fast-slow systems: beyond averaging", in Stochastic dynamics out of equilibrium, Institut Henry Poincaré, Paris, 12-16 June.
- *Minicourse*: " Invariant distributions of parabolic dynamics and the spectrum of the Ruelle-Perron-Frobenius operator" in Dynamics Beyond Uniform Hyperbolicity, Provo, UT, USA, June 5-16.
- *Minicourse*: "The appearance of noise like behaviour in deterministic dynamical systems", in Stochastic dynamics out of equilibrium, Institut Henry Poincaré, Paris (29-31 May).
- *Seminar*: "Parabolic dynamics and distributions", Paris Diderot, Paris, France (26 May).
- *Seminar*: "Anosov flows via spectral theory", Université de Nice Sophia-Antipolis, Nice, France (3 May).
- *Colloquium*: "Fast-Slow deterministic systems and random processes", Nice, Prance, Nice, France (2 May).
- *Colloquium*: "Fast-Slow deterministic systems and random processes", Jussieu, Paris, France (20 April).
- *Conference* : "Hyperbolic billiards" in "Dynamics Days", Loughborough, UK (7-8 April).
- *Conference* : "Parabolic dynamics and distributions" in "Ergodic Theory, Algorithms and rigorous computations". Warwick, UK (3-7 April).
- *Colloquium*: "Isolated systems and noise: a persistent (and useful) illusion." Lille, France (27 February).
- *Conference*: "Fast-Slow partially hyperbolic systems: an example", in "Non Uniformly Hyperbolic Dynamical Systems. Coupling and Renewal Theory". CIRM, Marseille, February 20 - 24.
2016 *Seminar* : "Distributions and dynamical systems". University of New South Wales, Sidney, Australia. (9 December).
- *Conference*: "Hyperbolic billiards" in "Advances in Ergodic Theory, Hyperbolic Dynamics and Statistical Laws", MATHSFEST The Australian National University, Camberra, Australia. 28 November Ð 2 December.
- *Seminar*: "Functional analytic approach to dynamical systems". Basel, Switzerland (11 November).

- *Seminar*: "Strong statistical properties for some partially hyperbolic dynamical systems", ETH, Zurich, Switzerland (13 October).
- *School*: "Noise and Chaos". Six hours Minicourse. XLI SUMMER SCHOOL ON MATHEMATICAL PHYSICS (RAVELLO - SEPTEMBER 5 - 17).
- *Plenary Talk*: "Strong statistical properties for some partially hyperbolic systems". 1st Joint Meeting Brazil - Italy in Mathematics, Rio de Janeiro, August 29 - September 2.
- *Conference*: "Fast-slow partially hyperbolic systems" in "Statistical properties of Nonequilibrium dynamical systems", Shenzhen, China July 27–August 2.
- *School*: "Spectral analysis of transfer operators for smooth hyperbolic maps". Six hours Minicourse. "Statistical properties of Nonequilibrium dynamical systems", Shenzhen, China July 20–July 22.
- *School*: "Deterministic Noise", Six hours minicourse. 14th WORKSHOP ON INTERACTIONS BETWEEN DYNAMICAL SYSTEMS AND PARTIAL DIFFERENTIAL EQUATIONS (JISD2016), Barcellona, July 11-15.
- *Conference*: "Random Lorentz Gas", Conference: "Hyperbolic Dynamics and Statistical Physics Ó on the occasion of the 75th birthday of Domokos SzĞsz, Vienna, May 16-20.
- *Conference*: "Parabolic dynamics and Anisotropic Banach spaces," Workshop "Renormalization in Dynamics". Centro de Giorgi, Pisa, Aprile 4-8.
- *Conference*: "Large deviations and metastability in deterministic systems". Workshop "Variational Structures and Large Deviations for Interacting Particle Systems and Partial Differential Equations". Eurandom, Eindhoven, The Netherlands. March 14-18.
- *Colloquium*: "Fast-slow deterministic systems: beyond averaging". University of Rome Tre, Rome, Italy. 24 February.

2015 *Plenary Talk*: "Geodesic and horocycle flows from a dynamical systems point of view". XX Congresso dell'Unione Matematica Italiana, Siena 7-12 Settembre 2015
- *Conference* Invited to deliver an invited talk at the thematic session: Dynamical systems (including integrable systems) of the XVIII International Congress on Mathematical Physics Santiago de Chile, July 27 - August 1, 2015. Declined due to personal reasons.
- *Conference* Plenary Talk:"Deterministic noise (beyond averaging and fluctuations)", EquaDiff, Lyon, France, 6–10 July.
- *School* "Strong statistical properties of hyperbolic and partially hyperbolic dynamical systems", course in Statistical Properties of Dynamical Systems. LMS-CMI Research School, Loughborough, 13-17 April 2015

2014 *Workshop* "Martingale approach after Varadhan and Dolgopyat" six hours mini course in "Stochastic and PDE methods in mathematical physics" University of Paris-Diderot, 15–17 September.
- *Workshop* "Weak coupling and non-equilibrium statistical mechanics", in "Nonequilibrium Problems in Physics and Mathematics", Centro Stefano Franceschini, Monte Verità, Ascona, Switzerland, June 1-6.
- *Workshop* "Beyond averaging in fast-slow partially hyperbolic systems" in "Advances and Perspectives in Ergodic Theory", 30-31 May 2014, Erlangen, Germany.

2013 *Workshop* "Fast-slow partially hyperbolic systems: Beyond averaging ", in Visegrad Conference on Dynamical Systems, 2-6 September 2013, Olsztyn, Poland.
- *Workshop* "Heat transport and weak coupling", in XIV Arrábida meeting "Caminos da Complexidade", Arrábida, Portugal.
- *Workshop* "Understanding the Lorenz system, where do we stand?" in the INDAM conference "Mathematical paradigms of climate science", Rome, Italy.
- *Workshop* "Fast-slow hyperbolic systems: averaging", in "Limit Theorems for dynamical systems", EPFL, Lausanne, Switzerland.
- *Seminar* "Partially hyperbolic systems close to trivial extensions", University of Wien, Austria.
- *Workshop* "Geodesic flows in negative curvature", in Large deviations and thermodynamical formalism, EPFL, Lausanne, Switzerland.
- *Conference* "Dynamical Systems and Non-equilibrium Statistical Mechanics", Centre Henri Lebesgue Opening Conference, Rennes, France, 8-12 April.

2012 *Workshop* "Fast-slow systems and statistical mechanics", in Non-equilibrium Statistical Mechanics: Mathematical Understanding and Numerical Simulation, Banff, Canada.
- *Workshop*: "Partially hyperbolic systems close to trivial extensions", in "Open Dynamical Systems: Ergodic Theory, Probabilistic Methods and Applications", Banff, Canada.

2011 *Conference*: "Toward the rigorous derivation of the Fourier law", in "Weak chaos, Infinite Ergodic Theory, and Anomalous Dynamics" Max-Planck, Dresden, Germany, July.
- *Workshop*: Minicourse "Fourier Law from a Dynamical Systems point of view" in Summer school on "Non-equilibrium statistical mechanics", Montreal, Canada, July.

- *Conference*: "Spectral gap in dynamical systems, number theory and PDE" in Peyresq, France, May 30 - June 3.
- *Conference*: "Fourier law and the weak coupling limit", 105th Statistical Mechanics Conference, Rutgers, USA.
- *Workshop*: "Stochastic Interacting Systems and Hydrodynamic Limits" Graduate corse, Fields Institute, Toronto, Canada.

2010 *Conference*: ÒSome models related to the derivation of the Fourier Law," INdAM Meeting "Hyperbolic Dynamical Systems in the Sciences", May 31 - June 4, 2010, Corinaldo, Italy.

- *Conference*: "Energy transport in a fast-slow hamiltonian system" in the Workshop "Large Scale Stochastic Dynamics", Oberwolfach, Germany.
- *Conference*: "Ruelle zeta functions for smooth Anosov flows," EPSRC Symposium Workshop on Ergodic Theory and Dynamical Systems: 30th Anniversary of the Journal, Warwick, UK.
- *Conference*: "Energy transport in weakly coupled mixing Hamiltonian flows," JournÕe Dynamique P6 - P7, Vendredi 19 novembre 2010, Paris.
- *Conference*: "Zeta functions for Anosov flows", Workshop Periodic Approximation in Dynamics, CRM, Pisa, Italy (January).
- *Conference*: "Toward the rigorous derivation of the Fourier law," Celebrating Joel Lebowitz 80th birthday, MEETING OF STATISTICAL MECHANICS AT IHP, IHP, Paris.
- *Workshop*: "Concerning the derivation of the Fourier Law", Dynamics and PDE's, Institut Mittag-Leffler, Stockholm, Sweeden.
- *Workshop*: "Something I learned from Dolgopyat (he claims is Varadhan's)", Dynamics and PDE's, Institut Mittag-Leffler, Stockholm, Sweeden.

2009 *Conference*: "Zeta functions for Anosov flows", School in Periodic Approximation in Dynamics, Centro Ennio de Giorgi, Pisa, Italy.

- *Seminar*: "Some rigorous results in linear response theory", Warwick University, UK.
- *Conference*: "Various attempts toward deriving the Fourier Law", EPSRC Symposium Workshop on Space-time phases for spatially extended systems, Warwick University, UK
- *Conference*: "Random walks in evolving environments", Dynamic Random Environments, Eurandom, Holland.
- *Conference*: "Transfer operators of Uniformly Hyperbolic Dynamical Systems, a review", New directions in Dynamical Systems, Lorentz Center, Leiden, Holland.
- *Conference*: "On the work and vision of Dmitry Dolgopyat", keynote speech for the awarding of the Brin Prize to Dmitry Dolgopyat, Penn. State, USA.
- *Conference*: "Limit theorems for hyperbolic systems ", series of 3 lectures at the International Workshop on Global Dynamics Beyond Uniform Hyperbolicity, Beijing, China.
- *Conference*: "Toward the Fourier law for a weakly interacting anharmonic crystal", SPA, 33rd Conference of Stochastic Processes and Their Applications, Berlin, Germany.
- *Seminar*: "Systems with mixed phase space", ICTP, Trieste, Italy.
- *Seminar*: "Toward the Fourier law for a weakly interacting anharmonic crystal", Louvain, Belgium.
- *Conference*: "I have a dream", Dynamics and Statistics of Spatially Extended Systems (dedicated to 60th birthday of Leonid Bunimovich), Banff International Research Station, Banff, Alberta, Canada.

2008 *Seminar*: "Some microscopic models for the heat equation and the Fourier law", Ecole Normale Superiore, Lyon.

- *Seminar*: "Coupled map lattices", Ecole Normale Superiore, Paris.
- *Conference*: "Probability and uniformly hyperbolic systems", course at the Summer School in Dynamical Systems, Coimbra - Portugal
- *Conference*: "Statistical properties of infinite dimensional systems", minicourse at the programme "Hyperbolic Dynamical Systems", Erwin Schroedinger Institute, Vienna.
- *Conference*: "Heat equation and Non-equilibrium (Classical) Statistical Mechanics," 7th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, May 18 - 21, 2008, The University of Texas at Arlington, Texas, USA. **Plenary speaker**.
- *Conference*: "Random walks in deterministic dynamical environents," Marches aleéatoires, milieux aléatories, Cergy-Pontoise, Paris, France.
- *Seminar*: "Fourier law and random walks in random environment," École Polytechnique, Sèminaire sur les problèmes alÕatoires dans les EDP et systémes de grande dimension, 14 April.
- *Seminar*: "Statistical properties of infinite dimensional dynamical systems," Jussieu, SÕminaire de SystŘmes Dynamiques, 11 April.

- *Conference*: "Transfer operator methods in dynamical systems," Workshop on Ergodic Theory and Geometry, Manchester Institute for Mathematical Sciences, University of Manchester Tuesday 1st April 2008 to Friday 4th April 2008, U.K.
- *Seminar*: "Fourier Law And Random Walks In Dynamical Environment", Scuola Normale Superiore, Pisa.

2007 *Seminar*: "CLT for iterated map systems", Roma III, Roma.
- *Conference*: "Fourier Law And Random Walks In Dynamical Environment", Microscopic Origins of Dissipation and Noise, Leipzig. Germany.
- *Colloquium*: "Statistical Properties of Dynamical Systems with many degree of freedom," CPT, Marseille, France.
- *Conference*:"Fourier Law And Random Walks In Dynamical Environment," Miniworkshop de Biomathematique et Systemes Dynamiques: Bifurcations et symetries en genetique et en neurosciences; Proprietes statistiques des systemes dynamiques, CIRM, Marseille, France.
- *Conference*:"Random Walks in dynamical environment", Rencontres de Probas a Rouen, Rouen, France .
- *Seminar*: "Transfer operators and limit laws", Penn State, State College, PA, USA.
- *Seminar* "Dependence of the statistical properties of a Dynamical Systems from a parameter", Courant, NYU, New York, Usa.

2006 *Conference*:"Random Walks in evolving environment", Dynamical Systems: Classical, Quantum and Stochastic, Rome, Italy.
- *Conference*:"Random Walks and Dynamical Systems", Randomness and Hyperbolicity in Dynamical systems: Workshop dedicated to Domokos Szasz on occasion of his 65th Birthday, Budapset, Hungary.
- *Conference*:"Random Walks in evolving environment", International Congress of Mathematical Physics, Rio, Brasil.
- *Conference*:"Fourier law and random walks in evolving environments", Mathematics and its Application, joint Meeting of UMI and SMF, Torino, Italy.
- *Seminar*:"Dynamical systems from a functional analytic point of view: a brief overview", University of Paris XIII, Paris, France.
- *Seminar*: "Dynamical systems from a functional analytic point of view: a brief overview", University of Marylands, College Park, MD, USA.
- *Seminar*: "Stability of Statistical Properties in Two-dimensional Piecewise Hyperbolic Maps," Technical University Budapest, Hungary.

2005 *Conference*:"Markov chains and Coupled Map lattices", Chaos and disorder in mathematics and physics, A conference in honor of the seventieth birthday of Yakov G. Sinai, Bressanone, South Tirol, Italy.
- *Conference*:"Dynamical Systems as degenerated Markov Chains", Nonlinarity Scientific Meeting, Lonndon, U.K.
- *Seminar*: "Dynamics of almost product dynamical systems", Warwick, U.K.
- *Conference*: "Hyperbolic systems as Markov Chains",Propriétés Stochastiques des Systèmes Dynamiques et Milieux aléatoires, Roscoff, France.
- *Conference*: "Coupled Markov chains and coupled map lattices", Rencontres de Probabilitès Systémes de Particules, Mécanique Statistique, Rouen, France.
- *Conference*: "Stability of spectral data and related limit laws for Anosov systems", Workshop on Probabilistic Limit Laws for Dynamical Systems, Edinburgh, England.
- *Conference*: "Banach spaces adapted to Anosov systems", Colloquium on Dynamical Systems and Smooth Ergodic Theory, Bordeaux, France

2004 *Conference*: "Statistical Properties of certain Coupled map lattices", Mathematical Problems in Dynamics and Statistical Physics, Camerino, Italy.
- *Conference*: "Coupled Map lattices", Nonlinear Dynamics, Ergodic Theory and Renormalization, Lorentz Center, Leiden, The Netherlands.
- *Conference*: "Uniqueness of the SRB measure for piecewise expanding coupled map lattices in any dimension", ICTP Triestre.
- *Conference* "Banach spaces adapted to Anosov systems", ESF Exploratory Workshop, Bonn.
- *Conference* "Entropy and Chaos, ambiguous liaisons", Padova, Italy.
- *Seminar* " Banach spaces adapted to Anosov systems", U. of Maryland, Washington D.C., USA.
- *Seminar* "Banach spaces adapted to Anosov systems", U. of Arizona, Tucson, USA.
- *Seminar* "Birth of an elliptic island in a chaotic sea," Georgia Institute of Technology, Atlanta, USA.
- *Seminar* "Banach spaces adapted to Anosov systems", Université Paris VII, Paris, France.
- *Seminar* "Coupled map lattices without cluster expansion," Université Paris VII, Paris, France.
- *Conference* "Proprietà statistiche dei sistemi dinamici: passato e futuro", Assemblea GNFM, Montecatini, Italy.

- *Seminar* "Banach spaces adapted to Anosov systems", Université de Lille, Lille, France.

2003 *Conference*:"Coupled map lattices without cluster expansion," Coupled Map Lattices workshop, Centre Emil Borel, IHP, Paris, France.

- *Seminar*:"Birth of an elliptic island in a chaotic sea," Imperial College, London, UK.
- *Conference*:"Transfer operators in dynamical systems (a brief idiosyncratic review of Perron-Frobenius operators theory)", three lectures, LMS Durham Symposium: Markov Chains, University of Durham, UK.
- *Conference*: "Statistical properties of dynamical systems", two lectures, Geometric and Probabilistic Aspects of Dynamical Systems, Warwick, UK.
- *Conference*:"Strong statistical properties of geodesic flows," Dynamical Systems, Denton, USA.
- *Conference*: "Ergodic properties of a family of area preserving maps" , Symplectic Geometry and Physics Workshop II: Chaotic Dynamics and Transport, IPAM, UCLA, Los Angeles, USA.
- *Seminar*: "Geodesic flows",Cambridge University, Cambridge, UK.

2002 *Seminar*: "On Anosov Flows", KTH, Stockholm, Sweden.

- *Conference*: "Geodesic flows", Perspectives in mathematical Physics, Rome, Italy.
- *Conference*: "Invariant measures and their properties. A functional analytic point of view", Research Trimester on Dynamical Systems Pisa, Italy.
- *Conference*:"Geodesic flows", AMS-UMI first Joint meeting, Pisa, Italy.
- *Conference*:"Spectral stability", Recent trend in Dynamical Systems III, Porto, Portugal.

2001 *Seminario*: "Piecewise expanding maps with Holes," Polytechnique, Paris, France.

- *Colloquium*::"Spectral properties of Dynamical Systems," Dijon University, Dijon, France.
- *Conference*:"Ruelle-Perron-Frobenius spectrum for Anosov system," Queen Mary College, London, UK.
- *seminar*:"Ruelle-Perron-Frobenius spectrum for Anosov systems", Paris VII, Paris, France.
- *seminar*:"On the physical relevance of the Ruelle-Perron-Frobenius spectrum", Rutgers University, New Jersey, USA.
- *Seminar*: "Ruelle-Perron-Frobenius spectrum for Anosov Systems", Courant Institute, New York University, USA.
- *Conference*: "Computing the rate of decay of correlations in expanding and hyperbolic systems," Workshop *Rapidity of convergence to equilibrium or stationary states*, Paris, France.
- *Seminar*: "On Anosov Systems," Universitá di Bologna, Bologna, Italy.

2000 *Conference*: "Perron-Frobenius spectrum for Anosov maps," Karuizawa, Japan.

- *Seminar*: "Ergodic Properties of an infinite Quantum System," Tokyo Technical University, Japan.
- *Conference*: "Convergence to equilibrium in deterministic systems," conference *Dynamical Systems, classical, quantum, stochastic*, Porto Malu, Teulada (Cagliari), Italy.
- *Conference*: "Ergodicity in infinite systems," Workshop on Statistical Mechanics of Space-Time Chaos, Max Planck Institute, Dresda, Germany.
- *Conference*: "On the spectrum of the transfer operator," Workshop on Transfer Operators, Paderborn, Germany.