## CARLANGELO LIVERANI

## 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** *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.
- 72 Parabolic dynamics and Anisotropic Banach spaces, with Paolo Giulietti. Journal of the European Mathematical Society. 21, no. 9, 2793–2858 (2019). arXiv:1412.7181.
- **73** *Deterministic walks in random environment*, with R.Aimino. Annals of Probability, Volume **48**, Number 5 (2020), 2212-2257.
- 74 *Edgeworth expansions for weakly dependent random variables*, with Kasun Fernando. Annales de l'Institut Henri Poincarè Probability and Statistics, volume **57**, number 1 (2021) 469–505.
- 75 Mixing rates for symplectic almost Anosov maps, with Peyman Eslami. Nonlinearity 34 (2021), no. 6, 3709–3731.

- **76** *Transfer operators in Hyperbolic Dynamics An introduction*, with Mark Demers and Niloofar Kiamari. 33 Colloquio Brasilero de Matematica. Editora do IMPA. pp.252 (2021). ISBN 978-65-89124-26-9.
- 77 Anosov diffeomorphisms, anisotropic BV spaces and regularity of foliations, with Wael Bahsoun. To appear in Ergodic Theory and Dynamical Systems.
- 4