

# Some “new” Banach spaces and why they are useful for dynamics

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ABSTRACT. Bibliography for the course on Decay and correlations via spectral properties of transfer operators, Goettingen, July 2009

## REFERENCES

This bibliography is not complete, in particular does not cover the analytic setting or the continuous-time case.

### Surveys and books (transfer operators/functional analysis)

- [BBB] V. Baladi, *Positive transfer operators and the decay of correlations*, vol. 16, World Scientific (Advanced Series in Nonlinear Dynamics), Singapore, 2000.
- [BB] V. Baladi, *Decay of correlations*, 1999 AMS Summer Institute on Smooth ergodic theory and applications, Seattle., AMS (Proc. Symposia in Pure Math. Vol. 69), 2001, pp. 297-325.
- [BT0] V. Baladi and M. Tsujii, *Spectra of differentiable hyperbolic maps*, (see also more detailed preliminary version on [www.dma.ens.fr/~baladi/ecole.html](http://www.dma.ens.fr/~baladi/ecole.html)), Traces in number theory, geometry and quantum fields (S. Albeverio, M. Marcolli, S. Paycha, ed.), Proceedings MPIM Bonn 2005, Vieweg Verlag, Aspects of Mathematics E38, 2008, pp. 1–21.
- [BL] J. Bergh and J. Löfström, *Interpolation spaces. An introduction*, Grundlehren der Mathematischen Wissenschaften, No. 223, Springer-Verlag., Berlin-New York, 1976.
- [E] J.-P. Eckmann, *Resonances in dynamical systems*, IXth International Congress on Mathematical Physics (Swansea, 1988), Hilger, Bristol, 1989, pp. 192–207.
- [Li00] C. Liverani, *Computing the rate of decay of correlations in expanding and hyperbolic systems*, Markov Processes and Related Fields **8** (2002), 155-162.
- [Li0] C. Liverani, *Invariant measures and their properties. A functional analytic point of view*, Dynamical systems. Part II, Pubbl. Cent. Ric. Mat. Ennio Giorgi, Scuola Norm. Sup., Pisa, 2003, pp. 185–237.
- [Ru1] D. Ruelle, *Resonances of chaotic dynamical systems*, Phys. Rev. Lett **56** (1986), 405–407.
- [Tr1] H. Triebel, *General function spaces III (spaces  $B_{p,q}^{g(x)}$  and  $F_{p,q}^{g(x)}$ ,  $1 < p < \infty$ : basic properties)*, Analysis Math. **3** (1977), 221–249.
- [Tr2] H. Triebel, *Interpolation Theory, Function Spaces, Differential Operators*, North Holland, Amsterdam, 1978.
- [Tr3] H. Triebel, *Theory of function spaces II*, Birkhäuser, Basel, 1992.

### Differentiable framework: expanding maps

- [BB] V. Baladi et M. Baillif, *Kneading determinants and spectra of transfer operators in higher dimensions, the isotropic case*, Ergodic Theory Dynam. Systems **25** (2005), 1437–1470.
- [CE] P. Collet, and J.-P. Eckmann, *Liapunov Multipliers and Decay of Correlations in Dynamical Systems*, J. Statist. Phys. **115** (2004), 217–254.

Typeset by  $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{T}\mathcal{E}\mathcal{X}$

- [CI] P. Collet and S. Isola, *On the essential spectrum of the transfer operator for expanding Markov maps*, Comm. Math. Phys. **139** (1991), 551–557.
- [Fr] D. Fried, *The flat-trace asymptotics of a uniform system of contractions*, Ergodic Theory Dynamical Systems **15** (1995), 1061–1073.
- [GL] V.M. Gundlach and Y. Latushkin, *A sharp formula for the essential spectral radius of the Ruelle transfer operator on smooth and Holder spaces*, Ergodic Theory Dynam. Systems **23** (2003), 175–191.
- [KR] G. Keller and H.H. Rugh, Hans Henrik, *Eigenfunctions for smooth expanding circle maps*, Nonlinearity **17** (2004), 1723–1730.
- [Ru3] D. Ruelle, *The thermodynamic formalism for expanding maps*, Comm. Math. Phys **125** (1989), 239–262.
- [Ru4] D. Ruelle, *An extension of the theory of Fredholm determinants*, Inst. Hautes Etudes Sci. Publ. Math. **72** (1991), 175–193.

**Differentiable framework: hyperbolic maps (anisotropic approach)**

- [B00] V. Baladi, *Anisotropic Sobolev spaces and dynamical transfer operators:  $C^\infty$  foliations*, Algebraic and Topological Dynamics (S. Kolyada, Y. Manin & T. Ward, ed.), Contemporary Mathematics, Amer. Math. Society, 2005, pp. 123–136.
- [BT1] V. Baladi and M. Tsujii, *Anisotropic Hölder and Sobolev spaces for hyperbolic diffeomorphisms*, Ann. Inst. Fourier **57** (2007), 127–154.
- [BT2] V. Baladi and M. Tsujii, *Dynamical determinants and spectrum for hyperbolic diffeomorphisms*, , Probabilistic and Geometric Structures in Dynamics, (K. Burns, D. Dolgopyat and Ya. Pesin, ed.), Volume in honour of M. Brin’s 60th birthday, Amer. Math. Soc. (Contemp. Math. 469), 2008, pp. 29–68.
- [BKL] M. Blank, G. Keller, and C. Liverani, *Ruelle-Perron-Frobenius spectrum for Anosov maps*, Nonlinearity **15** (2002), 1905–1973.
- [FRS] F. Faure, N. Roy, J. Sjöstrand, *Semi-classical approach for Anosov diffeomorphisms and Ruelle resonances*, The Open Mathematics Journal **1** (2008), 35–81.
- [GL1] S. Gouëzel and C. Liverani, *Compact locally maximal hyperbolic sets for smooth maps: fine statistical properties*, J. Diff. Geom. **79** (2008), 433–477.
- [GL2] S. Gouëzel and C. Liverani, *Banach spaces adapted to Anosov systems*, Ergodic Theory and Dynamical Systems **26** (2006), 189–217.
- [Ki] A. Kitaev, *Fredholm determinants for hyperbolic diffeomorphisms of finite smoothness*, (see also Corrigendum, 1717–1719), Nonlinearity **12** (1999), 141–179.
- [Li] C. Liverani, *Fredholm determinants, Anosov maps and Ruelle resonances*, Discrete Contin. Dyn. Syst. **13** (2005), 1203–1215.
- [LT] C. Liverani and M. Tsujii, *Zeta functions and Dynamical Systems*, Nonlinearity **19** (2006), 2467–2473.

**Piecewise differentiable framework: pw hyperbolic maps (anisotropic approach)**

- [BG1] V. Baladi and S. Gouëzel, *Good Banach spaces for piecewise hyperbolic maps via interpolation*, Annales de l’Institut Henri Poincaré / Analyse non linéaire **26** (2009), 1453–1481.
- [BG2] V. Baladi and S. Gouëzel, *Banach spaces for piecewise cone hyperbolic maps*, Arxiv preprint (2009) submitted for publication.
- [DL] M.F. Demers and C. Liverani, *Stability of Statistical Properties in Two-dimensional Piecewise Hyperbolic Maps*, Transactions of the American Mathematical Society **360** (2008), 4777–4814.