# References

Abadi, M. 2001. Exponential approximation for hitting times in mixing processes. *Math. Phys. Electron. J.*, **7**, Paper 2, (electronic).

Abadi, M. and Galves, A. 2001. Inequalities for the occurrence times of rare events in mixing processes. The state of the art. *Markov Process. Related Fields*, **7**(1), 97–112. Inhomogeneous random systems (Cergy-Pontoise, 2000).

Abramov, L. M. 1959. The entropy of a derived automorphism. *Dokl. Akad. Nauk SSSR*, **128**, 647–650.

Abramov, L. M. and Rokhlin, V. A. 1962. Entropy of a skew product of mappings with invariant measure. *Vestnik Leningrad. Univ.*, **17**(7), 5–13.

Adler, R. L., Konheim, A. G. and McAndrew, M. H. 1965. Topological entropy. *Trans. Amer. Math. Soc.*, **114**, 309–319.

Alicki, R., Andries, J., Fannes, M. and Tuyls, P. 1996. An algebraic approach to the Kolmogorov-Sinai entropy. *Rev. Math. Phys.*, **8**(2), 167–184.

Asimow, L. and Ellis, A. J. 1980. *Convexity Theory and Its Applications in Functional Analysis*. London Mathematical Society Monographs, vol. 16. London: Academic Press Inc. [Harcourt Brace Jovanovich Publishers].

Birkhoff, G. 1946. Three observations on linear algebra. *Univ. Nac. Tucumán. Revista A.*, **5**, 147–151.

Blanchard, F. 1993. A disjointness theorem involving topological entropy. *Bull. Soc. Math. France*, **121**(4), 465–478.

Blanchard, F., Host, B. and Ruette, S. 2002. Asymptotic pairs in positive-entropy systems. *Ergodic Theory Dynam. Systems*, **22**(3), 671–686.

Blanchard, F. and Lacroix, Y. 1993. Zero entropy factors of topological flows. *Proc. Amer. Math. Soc.*, **119**(3), 985–992.

Boltzmann, L. 1877. Über die beziehung dem zweiten Haubtsatze der mechanischen Wärmetheorie und der Wahrscheinlichkeitsrechnung respektive den Sätzen über das Wärmegleichgewicht. *Wiener Berichte*, **76**, 373–435.

Bowen, R. 1971. Entropy for group endomorphisms and homogeneous spaces. *Trans. Amer. Math. Soc.*, **153**, 401–414.

Boyle, M. 1983. Lower entropy factors of sofic systems. *Ergodic Theory Dynam. Systems*, **3**(4), 541–557.

Boyle, M. 1991. Quotients of subshifts. Adler conference lecture. Unpublished.

Boyle, M. and Downarowicz, T. 2004. The entropy theory of symbolic extensions. *Invent. Math.*, **156**(1), 119–161.

Boyle, M. and Downarowicz, T. 2006. Symbolic extension entropy: $C^r$ examples, products and flows. *Discrete Contin. Dyn. Syst.*, **16**(2), 329–341.

Boyle, M., Fiebig, D. and Fiebig, U.-R. 2002. Residual entropy, conditional entropy and subshift covers. *Forum Math.*, **14**(5), 713–757.

Breiman, L. 1957. The individual ergodic theorem of information theory. *Ann. Math. Statist.*, **28**, 809–811.

Brin, M. and Katok, A. 1983. On local entropy, in *Geometic Dynamics* (Rio de Janeiro 1981). Springer Lecture Notes in Mathematics, vol. 1007. Berlin: Springer-Verlag, pp. 30–38.

Bryant, B. F., and Walters, P. 1969. Asymptotic properties of expansive homeomorphisms. *Math. Systems Theory*, **3**, 60–66.

Burguet, D. $C^2$ surface diffeomorphisms have symbolic extensions. *Invent. Math.* in print.

Burguet, D. 2010. Symbolic extensions for nonuniformly entropy expanding maps. *Colloq. Math.*, **121**, 129–151.

Burguet, D. 2008. Entropie et complexité locale des systèmes dynamiques différentiables. Doctoral Dissertation. Unpublished.

Burguet, D. 2009. A direct proof of the tail variational principle and its extension to maps. *Ergodic Theory Dynam. Systems*, **29**(2), 357–369.

Burguet, D. 2010. Examples of $C^r$ interval map with large symbolic extension entropy. *Discrete Contin. Dyn. Syst.*, **26**(3), 873–899.

Burguet, D. and McGoff, K. Orders of accumulation of entropy. *Fund. Math.* in print.

Burton, R. M., Keane, M. S. and Serafin, J. 2000. Residuality of dynamical morphisms. *Colloq. Math.*, **84/85**(, part 2), 307–317. Dedicated to the memory of Anzelm Iwanik.

Buzzi, J. 1997. Intrinsic ergodicity of smooth interval maps. *Israel J. Math.*, **100**, 125–161.

Carnot, S. 1824. *Reflections on the Motive Power of Fire and on Machines Fitted to Develop that Power*. Paris: Bachelier. French title: *Réflexions sur la puissance motrice du feu et sur les machines propres à développer cette puissance*.

Cheng, W.-C. and Newhouse, S. E. 2005. Pre-image entropy. *Ergodic Theory Dynam. Systems*, **25**(4), 1091–1113.

Choquet, G. 1969. *Lectures on Analysis. Vol. II: Representation Theory*. Edited by J. Marsden, T. Lance and S. Gelbart. New York, Amsterdam: W. A. Benjamin, Inc.

Chung, K. L. 1961. A note on the ergodic theorem of information theory. *Ann. Math. Statist.*, **32**, 612–614.

Ciesielski, K. 1997. *Set Theory for the Working Mathematician*. London Mathematical Society Student Texts, vol. 39. Cambridge: Cambridge University Press.

Clausius, R. 1850. Über die bewegende Kraft der Wärme, Part I, Part II. *Annalen der Physik*, **79**, 368–397, 500–524. English translation "On the Moving Force of Heat, and the Laws regarding the Nature of Heat itself which are deducible therefrom" Phil. Mag. (1851), 2, 1–21, 102–119.

Coelho, Z. 2000. Asymptotic laws for symbolic dynamical systems, in *Topics in Symbolic Dynamics and Applications* (Temuco, 1997). London Mathematical

Society Lecture Note Series, vol. 279. Cambridge: Cambridge University Press, pp. 123–165.

Cover, T. M. and Thomas, J. A. 1991. *Elements of Information Theory*. Wiley Series in Telecommunications. New York: John Wiley & Sons Inc. A Wiley-Interscience Publication.

del Junco, A. 1981. Finitary codes between one-sided Bernoulli shifts. *Ergodic Theory Dynam. Systems*, **1**(3), 285–301 (1982).

Diaconis, P., Holmes, S. and Montgomery, R. 2007. Dynamical bias in the coin toss. *SIAM Rev.*, **49**(2), 211–235.

Dinaburg, E. I. 1970. A correlation between topological entropy and metric entropy. *Dokl. Akad. Nauk SSSR*, **190**, 19–22.

Downarowicz, T. 2001. Entropy of a symbolic extension of a dynamical system. *Ergodic Theory Dynam. Systems*, **21**(4), 1051–1070.

Downarowicz, T. 2005a. Entropy structure. *J. Anal. Math.*, **96**, 57–116.

Downarowicz, T. 2005b. Survey of odometers and Toeplitz flows, in *Algebraic and Topological Dynamics*. Contemporary Mathematics, vol. 385. Providence, RI: American Mathematical Society, pp. 7–37.

Downarowicz, T. 2006. Minimal models for noninvertible and not uniquely ergodic systems. *Israel J. Math.*, **156**, 93–110.

Downarowicz, T. 2008. Faces of simplexes of invariant measures. *Israel J. Math.*, **165**, 189–210.

Downarowicz, T. and Frej, B. 2005. Measure-theoretic and topological entropy of operators on function spaces. *Ergodic Theory Dynam. Systems*, **25**(2), 455–481.

Downarowicz, T., Grzegorek, P. and Lacroix, Y. 2010. Attracting and repelling in homogeneous signal processes. *Nonlinearity*, **23**(11), 2793–2813.

Downarowicz, T. and Huczek, D. Zero-dimensional principal extensions. *Acta Appl. Math.* in print.

Downarowicz, T. and Lacroix, Y. 2011. The law of series. *Ergodic Theory Dynam. Systems*, **31**, 351–367.

Downarowicz, T. and Lacroix, Y. Topological entropy zero and asymptotic pairs. *Israel J. Math.* in print.

Downarowicz, T., Lacroix, Y. and Leandri, D. 2010. Spontaneous clustering in theoretical and some empirical stochastic processes. *ESAIM. Probab. Statist.*, **14**, 256–262.

Downarowicz, T. and Maass, A. 2009. Smooth interval maps have symbolic extensions: the antarctic theorem. *Invent. Math.*, **176**(3), 617–636.

Downarowicz, T. and Newhouse, S. E. 2005. Symbolic extensions and smooth dynamical systems. *Invent. Math.*, **160**(3), 453–499.

Downarowicz, T. and Serafin, J. 2002. Fiber entropy and conditional variational principle in compact non-metrizable spaces. *Fund. Math.*, **172**(3), 217–247.

Downarowicz, T. and Serafin, J. 2003. Possible entropy functions. *Israel J. Math.*, **135**, 221–250.

Downarowicz, T., and Serafin, J. A short proof of the Ornstein Theorem. *Ergodic Theory Dynam. Systems*. in print.

Durand, F. and Maass, A. 2001. Limit laws of entrance times for low-complexity Cantor minimal systems. *Nonlinearity*, **14**(4), 683–700.

Feller, W. 1968. *An Introduction to Probability Theory and Its Applications. Vol. I.* Third edn. New York: John Wiley & Sons Inc.

Fiebig, D., Fiebig, U.-R. and Nitecki, Z. 2003. Entropy and preimage sets. *Ergodic Theory Dynam. Systems*, **23**(6), 1785–1806.

Frej, B. 2006. Maličký-Riečan's entropy as a version of operator entropy. *Fund. Math.*, **189**(2), 185–193.

Frej, B., and Frej, P. An integral formula for entropy of doubly stochastic operators. preprint.

Furstenberg, H. 1967. Disjointness in ergodic theory, minimal sets, and a problem in Diophantine approximation. *Math. Systems Theory*, **1**, 1–49.

Furstenberg, H. 1981. *Recurrence in Ergodic Theory and Combinatorial Number Theory*. Princeton, NJ: Princeton University Press. M. B. Porter Lectures.

Ghys, É., Langevin, R. and Walczak, P. 1986. Entropie mesurée et partitions de l'unité. *C. R. Acad. Sci. Paris Sér. I Math.*, **303**(6), 251–254.

Glasner, S. 2003. *Ergodic Theory via Joinings*. Mathematical Surveys and Monographs, vol. 101. Providence, RI: American Mathematical Society.

Glasner, S. and Weiss, B. 2003. Quasifactors of ergodic systems with positive entropy. *Israel J. Math.*, **134**, 363–380.

Goodman, T. N. T. 1971. Relating topological entropy and measure entropy. *Bull. London Math. Soc.*, **3**, 176–180.

Goodwyn, L. W. 1971. Topological entropy bounds measure-theoretic entropy, in *Global Differentiable Dynamics*. Lecture Notes in Mathematics, vol. 235 Berlin: Springer-Verlag, pp. 69–84.

Grzegorek, P. and Kupsa, M. 2009. Return times in a process generated by a typical partition. *Nonlinearity*, **22**(2), 371–379.

Hart, Klaas Pieter, Nagata, Jun-iti and Vaughan, Jerry E. (eds). 2004. *Encyclopedia of General Topology*. Amsterdam: Elsevier Science Publishers B.V.

Haydn, N., Lacroix, Y. and Vaienti, S. 2005. Hitting and return times in ergodic dynamical systems. *Ann. Probab.*, **33**(5), 2043–2050.

Hirata, M., Saussol, B. and Vaienti, S. 1999. Statistics of return times: a general framework and new applications. *Comm. Math. Phys.*, **206**(1), 33–55.

Hirsch, M. W. 1994. *Differential Topology*. Graduate Texts in Mathematics, vol. 33. New York: Springer-Verlag. Corrected reprint of the 1976 original.

Hurley, M. 1995. On topological entropy of maps. *Ergodic Theory Dynam. Systems*, **15**(3), 557–568.

Ionescu-Tulcea, C. T. 1949. Mesures dan les espaces produits. *Atti Accad. Naz. Lincei. Rend. Cl. Sci. Fis. Mat. Nat. (8)*, **7**, 208–211 (1950).

Jung, C. G. 1977. *Jung on Synchronicity and the Paranormal: Key Readings*. Routledge.

Jung, C. G. and Pauli, W. 1955. *The Interpretation of Nature and Psyche*. New York: Pantheon Books.

Kac, M. 1947. On the notion of recurrence in discrete stochastic processes. *Bull. Amer. Math. Soc.*, **53**, 1002–1010.

Kalikow, S. A. 1982. $T, T^{-1}$ transformation is not loosely Bernoulli. *Ann. of Math. (2)*, **115**(2), 393–409.

Kamiński, B. and de Sam Lazaro, J. 2000. A note on the entropy of a doubly stochastic operator. *Colloq. Math.*, **84/85**(, part 1), 245–254. Dedicated to the memory of Anzelm Iwanik.

Kamiński, B., Siemaszko, A. and Szymański, J. 2003. The determinism and the Kolmogorov property in topological dynamics. *Bull. Polish Acad. Sci. Math.*, **51**(4), 401–417.

Kammerer, P. 1919. *Das Gesetz der Serie. Eine Lehre von den Wiederholungen im Lebens- und Weltgeschehen*. Stuttgart/Berlin: Deutsche Verlags-Anstalt. Mit 8 Tafeln und 26 Abb.

Katok, A. 1980. Lyapunov exponents, entropy and periodic orbits for diffeomorphisms. *Inst. Hautes Études Sci. Publ. Math.*, 137–173.

Katok, A. 2007. Fifty years of entropy in dynamics: 1958–2007. *J. Mod. Dyn.*, **1**(4), 545–596.

Katok, A. and Hasselblatt, B. 1995. *Introduction to the Modern Theory of Dynamical Systems*. Encyclopedia of Mathematics and its Applications, vol. 54. Cambridge: Cambridge University Press. With a supplementary chapter by Katok and Leonardo Mendoza.

Keane, M. S. and Smorodinsky, M. 1979. Bernoulli schemes of the same entropy are finitarily isomorphic. *Ann. of Math. (2)*, **109**(2), 397–406.

Kolmogorov, A. N. 1958. A new metric invariant of transient dynamical systems and automorphisms in Lebesgue spaces. *Dokl. Akad. Nauk SSSR (N.S.)*, **119**, 861–864.

Kolmogorov, A. N. 1959. Entropy per unit time as a metric invariant of automorphisms. *Dokl. Akad. Nauk SSSR*, **124**, 754–755.

Krengel, U. 1985. *Ergodic Theorems*. de Gruyter Studies in Mathematics, vol. 6. Berlin: Walter de Gruyter & Co. With a supplement by Antoine Brunel.

Krieger, W. 1970. On entropy and generators of measure-preserving transformations. *Trans. Amer. Math. Soc.*, **149**, 453–464.

Kruskal, W. 1988. Miracles and statistics: the casual assumption of independence. *J. Amer. Statist. Assoc.*, **83**(404), 929–940.

Kryloff, N. and Bogoliouboff, N. 1937. La théorie générale de la mesure dans son application à l'étude des systèmes dynamiques de la mécanique non linéaire. *Ann. of Math. (2)*, **38**(1), 65–113.

Langevin, R. and Walczak, P. 1994. Entropy, transverse entropy and partitions of unity. *Ergodic Theory Dynam. Systems*, **14**(3), 551–563.

Ledrappier, F. 1979. A variational principle for the topological conditional entropy, in *Ergodic theory, Proc., Oberwolfach 1978*. Lect. Notes Math. 729, Springer. pp. 78–88.

Ledrappier, F. and Walters, P. 1977. A relativised variational principle for continuous transformations. *J. London Math. Soc. (2)*, **16**(3), 568–576.

Lindenstrauss, E. 1999. Mean dimension, small entropy factors and an embedding theorem. *Inst. Hautes Études Sci. Publ. Math.*, 227–262 (2000).

Lindenstrauss, E. and Weiss, B. 2000. Mean topological dimension. *Israel J. Math.*, **115**, 1–24.

Liu, P.-D. 1998. Pesin's entropy formula for endomorphisms. *Nagoya Math. J.*, **150**, 197–209.

Makarov, I. I. 2000. Dynamical entropy for Markov operators. *J. Dynam. Control Systems*, **6**(1), 1–11.

Makarychev, K., Makarychev, Y., Romashchenko, A. and Vereshchagin, N. 2002. A new class of non-Shannon-type inequalities for entropies. *Commun. Inf. Syst.*, **2**(2), 147–165.

Maličký, P., and Riečan, B. 1987. On the entropy of dynamical systems, in *Proceedings of the Conference on Ergodic Theory and Related Topics, II (Georgenthal, 1986)*. Teubner-Texte Math., vol. 94, Leipzig: Teubner. pp. 135–138.

Maxwell, J. C. 1871. *Theory of Heat*. Unveränderter Nachdruck der ersten Auflage von 1932. Die Grundlehren der mathematischen Wissenschaften, Band 38. Dover Publications, Inc.

McGoff, K. Orders of accumulation of entropy on manifolds. *J. Anal. Math.* in print.

McMillan, B. 1953. The basic theorems of information theory. *Ann. Math. Statistics*, **24**, 196–219.

Mešalkin, L. D. 1959. A case of isomorphism of Bernoulli schemes. *Dokl. Akad. Nauk SSSR*, **128**, 41–44.

Misiurewicz, M. 1976. Topological conditional entropy. *Studia Math.*, **55**(2), 175–200.

Moisset, J. 2000. *La loi des séries*. Ed. JMG Editions.

Natanson, I. P. 1950. *Teoriya funkciĭ veščestvennoĭ peremennoĭ*. Gosudarstv. Izdat. Tehn.-Teor. Lit. Moscow-Leningrad.

Neveu, J. 1965. *Mathematical Foundations of the Calculus of Probability*. Translated by Amiel Feinstein. San Francisco, CA: Holden-Day Inc.

Newhouse, S. E. 1989. Continuity properties of entropy. *Ann. of Math.*, **129**(2), 215–235.

Newhouse, S. E. 1990. Corrections to: "Continuity properties of entropy" [Ann. of Math. (2) **129** (1989), no. 2, 215–235]. *Ann. of Math.*, **131**(2), 409–410.

Nitecki, Z. and Przytycki, F. 1999. Preimage entropy for mappings. *Internat. J. Bifur. Chaos Appl. Sci. Engrg.*, **9**(9), 1815–1843. Discrete dynamical systems.

Ornstein, D. S. 1970a. Bernoulli shifts with the same entropy are isomorphic. *Advances in Math.*, **4**, 337–352 (1970).

Ornstein, D. S. 1970b. Factors of Bernoulli shifts are Bernoulli shifts. *Advances in Math.*, **5**, 349–364 (1970).

Ornstein, D. S. 1970c. Two Bernoulli shifts with infinite entropy are isomorphic. *Advances in Math.*, **5**, 339–348 (1970).

Ornstein, D. S. 1973. An example of a Kolmogorov automorphism that is not a Bernoulli shift. *Advances in Math.*, **10**, 49–62.

Ornstein, D. S. and Shields, P. C. 1973. An uncountable family of $K$-automorphisms. *Advances in Math.*, **10**, 63–88.

Ornstein, D. S. and Weiss, B. 1975. Every transformation is bilaterally deterministic. *Israel J. Math.*, **21**(2-3), 154–158. Conference on Ergodic Theory and Topological Dynamics (Kibbutz Lavi, 1974).

Ornstein, D. S. and Weiss, B. 1993. Entropy and data compression schemes. *IEEE Trans. Inform. Theory*, **39**(1), 78–83.

Oseledets, V. I. 1968. A multiplicative ergodic theorem. Characteristic Ljapunov, exponents of dynamical systems. *Trudy Moskov. Mat. Obšč.*, **19**, 179–210.

Oxtoby, J. C. 1952. Ergodic sets. *Bull. Amer. Math. Soc.*, **58**, 116–136.

Pesin, Y. B. 1977. Characteristic Ljapunov exponents, and smooth ergodic theory. *Uspehi Mat. Nauk*, **32**(4 (196)), 55–112, 287.

Petersen, K. 1983. *Ergodic Theory*. Cambridge Studies in Advanced Mathematics, vol. 2. Cambridge: Cambridge University Press.

Phelps, R. R. 2001. *Lectures on Choquet's Theorem*. Second edn. Lecture Notes in Mathematics, vol. 1757. Berlin: Springer-Verlag.

Qian, M., Xie, J.-S. and Zhu, S. 2009. *Smooth Ergodic Theory for Endomorphisms*. Lecture Notes in Mathematics, vol. 1978. Berlin: Springer-Verlag.

Rokhlin, V. A. 1952. On the fundamental ideas of measure theory. *Amer. Math. Soc. Translation*, **1952**(71), 55.

Rokhlin, V. A. and Sinai, Y. G. 1961. The structure and properties of invariant measurable partitions. *Dokl. Akad. Nauk SSSR*, **141**, 1038–1041.

Romagnoli, P.-P. 2003. A local variational principle for the topological entropy. *Ergodic Theory Dynam. Systems*, **23**(5), 1601–1610.

Rudin, W. 1974. *Real and Complex Analysis*. Second edn. McGraw-Hill Series in Higher Mathematics. New York: McGraw-Hill.

Rudin, W. 1991. *Functional Analysis*. Second edn. International Series in Pure and Applied Mathematics. New York: McGraw-Hill.

Rudolph, D. J. 1978. If a two-point extension of a Bernoulli shift has an ergodic square, then it is Bernoulli. *Israel J. Math.*, **30**(1-2), 159–180.

Shannon, C. E. 1948. A Mathematical theory of communication. *Bell System Tech.*, 379–423, 623–656.

Shields, P. C. 1996. *The Ergodic Theory of Discrete Sample Paths*. Graduate Studies in Mathematics, vol. 13. Providence, RI: American Mathematical Society.

Sierpinski, W. 1952. *General Topology*. Mathematical Expositions, No. 7. Toronto: University of Toronto Press. Translated by C. Cecilia Krieger.

Sinai, Y. G. 1959. On the concept of entropy for a dynamic system. *Dokl. Akad. Nauk SSSR*, **124**, 768–771.

Sinai, Y. G. 1962. A weak isomorphism of transformations with invariant measure. *Dokl. Akad. Nauk SSSR*, **147**, 797–800.

Smorodinsky, M. 1972. On Ornstein's isomorphism theorem for Bernoulli shifts. *Advances in Math.*, **9**, 1–9.

Tarski, A. 1955. A lattice-theoretical fixpoint theorem and its applications. *Pacific J. Math.*, **5**, 285–309.

Tong, H. 1952. Some characterizations of normal and perfectly normal spaces. *Duke Math. J.*, **19**, 289–292.

von Mises, R. 1981. *Probability, Statistics and Truth*. English edn. New York: Dover Publications Inc.

von Neumann, J. 1968. *Mathematische Grundlagen der Quantenmechanik*. Unveränderter Nachdruck der ersten Auflage von 1932. Die Grundlehren der mathematischen Wissenschaften, Band 38. Berlin: Springer-Verlag.

Walters, P. 1982. *An Introduction to Ergodic Theory*. Graduate Texts in Mathematics, vol. 79. New York: Springer-Verlag.

Yomdin, Y. 1987. Volume growth and entropy. *Israel J. Math.*, **57**(3), 285–300.

Young, W. H. 1910. On the new theory of integration. *Proc. London Math. Soc.*, **9**, 15–50.

Zhang, Z. and Yeung, R. W. 1997. A non-Shannon-type conditional inequality of information quantities. *IEEE Trans. Inform. Theory*, **43**(6), 1982–1986.