References

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[AgKu04a] B. Agard and A. Kusiak, *A data-mining based methodology for the design of product families*, International Journal of Production Research **42** (2004), no. 15, 2955–2969.

[AgKu04b] B. Agard and A. Kusiak, *Data mining for subassembly selection*, ASME Transactions: Journal of Manufacturing Science and Engineering **126** (2004), no. 3, 627–631.

[ACM04] A. Aldroubi, C.A. Cabrelli, and U.M. Molter, *How to construct wavelet frames on irregular grids and arbitrary dilations in* $\mathbb{R}^d$, Wavelets, Frames and Operator Theory (College Park, MD, 2003) (C. Heil, P.E.T. Jorgensen, and D.R. Larson, eds.), Contemp. Math., vol. 345, American Mathematical Society, Providence, 2004, pp. 1–9.

[AlGr01] A. Aldroubi and K. Gröchenig, *Nonuniform sampling and reconstruction in shift-invariant spaces*, SIAM Rev. **43** (2001), 585–620.

[Arv04] W. Arveson, *The free cover of a row contraction*, Doc. Math. **9** (2004), 137–161.

[Ash90] R.B. Ash, *Information Theory*, Dover, New York, 1990, corrected reprint of the original 1965 Interscience/Wiley edition.

[AyTa03] A. Ayache and M.S. Taqqu, *Rate optimality of wavelet series approximations of fractional Brownian motion*, J. Fourier Anal. Appl. **9** (2003), 451–471.

[BaCM02] L.W. Baggett, J.E. Courter, and K.D. Merrill, *The construction of wavelets from generalized conjugate mirror filters in* $L^2(\mathbb{R}^n)$, Appl. Comput. Harmon. Anal. **13** (2002), 201–223.

[BaJMP04] L.W. Baggett, P.E.T. Jorgensen, K.D. Merrill, and J.A. Packer, *An analogue of Bratteli-Jorgensen loop group actions for GMRA's*, Wavelets, Frames, and Operator Theory (College Park, MD, 2003) (C. Heil, P.E.T. Jorgensen, and D.R. Larson, eds.), Contemp. Math., vol. 345, American Mathematical Society, Providence, 2004, pp. 11–25.

[BaJMP05] L.W. Baggett, P.E.T. Jorgensen, K.D. Merrill, and J.A. Packer, *Construction of Parseval wavelets from redundant filter systems*, J. Math. Phys. **46** (2005), no. 8, 083502, 28 pp., doi:10.1063/1.1982768.

[BaJMP06] L.W. Baggett, P.E.T. Jorgensen, K.D. Merrill, and J.A. Packer, *A non-MRA* C^r *frame wavelet with rapid decay*, Acta Appl. Math. **89** (2006), 251–270, doi:10.1007/s10440-005-9011-4.

[BaMM99] L.W. Baggett, H.A. Medina, and K.D. Merrill, *Generalized multi-resolution analyses and a construction procedure for all wavelet sets in* $\mathbf{R}^n$, J. Fourier Anal. Appl. **5** (1999), 563–573.

[BaMe99] L.W. Baggett and K.D. Merrill, *Abstract harmonic analysis and wavelets in* $\mathbf{R}^n$, The Functional and Harmonic Analysis of Wavelets and Frames (San Antonio, 1999) (L.W. Baggett and D.R. Larson, eds.), Contemp. Math., vol. 247, American Mathematical Society, Providence, 1999, pp. 17–27.

[Bal00] V. Baladi, *Positive Transfer Operators and Decay of Correlations*, World Scientific, River Edge, NJ, Singapore, 2000.

[BaCV05] J.A. Ball, C. Sadosky, and V. Vinnikov, *Conservative input-state-output systems with evolution on a multidimensional integer lattice*, Multidimens. Syst. Signal Process. **16** (2005), no. 2, 133–198.

[BaVi05] J.A. Ball and V. Vinnikov, *Lax–Phillips Scattering and Conservative Linear Systems: A Cuntz-Algebra Multidimensional Setting*, Mem. Amer. Math. Soc. **178** (2005), no. 837.

[BaNi70] M.N. Barber and B.W. Ninham, *Random and Restricted Walks: Theory and Applications*, Gordon and Breach, New York, 1970.

[Bas95] R.F. Bass, *Probabilistic Techniques in Analysis*, Probability and Its Applications, Springer-Verlag, New York, 1995.

[Bas03] R.F. Bass, *Stochastic differential equations driven by symmetric stable processes*, Séminaire de Probabilités, XXXVI (J. Azéma, M. Émery, M. Ledoux, and M. Yor, eds.), Lecture Notes in Math., vol. 1801, Springer-Verlag, Berlin, 2003, pp. 302–313.

[Bat87] G. Battle, *A block spin construction of ondelettes, I: Lemarié functions*, Comm. Math. Phys. **110** (1987), 601–615.

[Bea91] A.F. Beardon, *Iteration of Rational Functions: Complex Analytic Dynamical Systems*, Graduate Texts in Mathematics, vol. 132, Springer-Verlag, New York, 1991.

[BeBe95] J.J. Benedetto and E.G. Bernstein, *Pyramidal Riesz products associated with subband coding and self-similarity*, Wavelet Applications II (H.H. Szu, ed.), Proceedings of SPIE, vol. 2491, SPIE, Bellingham, WA, 1995, pp. 212–221.

[BeBK05] J.J. Benedetto, E. Bernstein, and I. Konstantinidis, *Multiscale Riesz products and their support properties*, Acta Appl. Math. **88** (2005), no. 2, 201–227.

[Bil99] P. Billingsley, *Convergence of Probability Measures*, second ed., Wiley Series in Probability and Statistics, Wiley-Interscience, New York, 1999.

[BoNe03] E. Bondarenko and V.V. Nekrashevych, *Post-critically finite self-similar groups*, Algebra Discrete Math. **2003**, 21–32.

[BrEJ00] O. Bratteli, D.E. Evans, and P.E.T. Jorgensen, *Compactly supported wavelets and representations of the Cuntz relations*, Appl. Comput. Harmon. Anal. **8** (2000), 166–196.

[BrJo97] O. Bratteli and P.E.T. Jorgensen, *Isometries, shifts, Cuntz algebras and multiresolution wavelet analysis of scale N*, Integral Equations Operator Theory **28** (1997), 382–443.

[BrJo99a] O. Bratteli and P.E.T. Jorgensen, *Iterated function systems and permutation representations of the Cuntz algebra*, Mem. Amer. Math. Soc. **139** (1999), no. 663.

[BrJo99b] O. Bratteli and P.E.T. Jorgensen, *Convergence of the cascade algorithm at irregular scaling functions*, The Functional and Harmonic Analysis of Wavelets and Frames (San Antonio, 1999) (L.W. Baggett and D.R. Larson, eds.), Contemp. Math., vol. 247, American Mathematical Society, Providence, 1999, pp. 93–130.

[BrJo02a] O. Bratteli and P.E.T. Jorgensen, *Wavelet filters and infinite-dimensional unitary groups*, Wavelet Analysis and Applications (Guangzhou, China, 1999) (D. Deng, D. Huang, R.-Q. Jia, W. Lin, and J. Wang, eds.), AMS/IP Studies in Advanced Mathematics, vol. 25, American Mathematical Society, Providence, International Press, Boston, 2002, pp. 35–65.

[BrJo02b] O. Bratteli and P.E.T. Jorgensen, *Wavelets through a Looking Glass: The World of the Spectrum*, Applied and Numerical Harmonic Analysis, Birkhäuser, Boston, 2002.

[BrJKW00] O. Bratteli, P.E.T. Jorgensen, A. Kishimoto, and R. Werner, *Pure states on $\mathcal{O}_d$*, J. Operator Theory **43** (2000), 97–143.

[BrJO04] O. Bratteli, P.E.T. Jorgensen, and V. Ostrovs'kyĭ, *Representation Theory and Numerical AF-invariants: The Representations and Centralizers of Certain States on $\mathcal{O}_d$*, Mem. Amer. Math. Soc. **168** (2004), no. 797.

[BrJP96] O. Bratteli, P.E.T. Jorgensen, and G.L. Price, *Endomorphisms of $\mathcal{B}(\mathcal{H})$*, Quantization, Nonlinear Partial Differential Equations, and Operator Algebra (W. Arveson, T. Branson, and I. Segal, eds.), Proc. Sympos. Pure Math., vol. 59, American Mathematical Society, Providence, 1996, pp. 93–138.

[Bri95] C. Brislawn, *Fingerprints go digital*, Notices Amer. Math. Soc. **42** (1995), 1278–1283.

[BrRo91] C. Brislawn and I.G. Rosen, *Wavelet based approximation in the optimal control of distributed parameter systems*, Numer. Funct. Anal. Optim. **12** (1991), 33–77.

[BrMo75] G. Brown and W. Moran, *Products of random variables and Kakutani's criterion for orthogonality of product measures*, J. London Math. Soc. (2) **10** (1975), no. part 4, 401–405.

[CaHM04] C.A. Cabrelli, C. Heil, and U.M. Molter, *Self-similarity and multiwavelets in higher dimensions*, Mem. Amer. Math. Soc. **170** (2004), no. 807.

[Chr03] O. Christensen, *An Introduction to Frames and Riesz Bases*, Applied and Numerical Harmonic Analysis, Birkhäuser, Boston, 2003.

[Coh90] A. Cohen, *Ondelettes, analyses multirésolutions et filtres miroirs en quadrature*, Ann. Inst. H. Poincaré Anal. Non Linéaire **7** (1990), 439–459.

[Coh03] A. Cohen, *Numerical Analysis of Wavelet Methods*, Studies in Mathematics and Its Applications, vol. 32, North-Holland, Amsterdam, 2003.

[CoMW95] R.R. Coifman, Y. Meyer, and V. Wickerhauser, *Numerical harmonic analysis*, Essays on Fourier Analysis in Honor of Elias M. Stein (Princeton, 1991) (C. Fefferman, R. Fefferman, and S. Wainger, eds.), Princeton Mathematical Series, vol. 42, Princeton University Press, Princeton, NJ, 1995, pp. 162–174.

[CoWi93] R.R. Coifman and M.V. Wickerhauser, *Wavelets and adapted waveform analysis: A toolkit for signal processing and numerical analysis*, Different Perspectives on Wavelets (San Antonio, TX, 1993) (I. Daubechies, ed.), Proc. Sympos. Appl. Math., vol. 47, American Mathematical Society, Providence, 1993, pp. 119–153.

[CoHR97] J.-P. Conze, L. Hervé, and A. Raugi, *Pavages auto-affines, opérateurs de transfert et critères de réseau dans* $\mathbb{R}^d$, Bol. Soc. Brasil. Mat. (N.S.) **28** (1997), 1–42.

[CoRa90] J.-P. Conze and A. Raugi, *Fonctions harmoniques pour un opérateur de transition et applications*, Bull. Soc. Math. France **118** (1990), 273–310.

[Cun77] J. Cuntz, *Simple* C^**-algebras generated by isometries*, Comm. Math. Phys. **57** (1977), 173–185.

[DaSw98] I. Daubechies and W. Sweldens, *Factoring wavelet transforms into lifting steps*, J. Fourier Anal. Appl. **4** (1998), 247–269.

[CvSS85] P. Cvitanović, B. Shraiman, and B. Söderberg, *Scaling laws for mode lockings in circle maps*, Phys. Scripta **32** (1985), 263–270.

[Dau92] I. Daubechies, *Ten Lectures on Wavelets*, CBMS-NSF Regional Conf. Ser. in Appl. Math., vol. 61, SIAM, Philadelphia, 1992.

[DaHRS03] I. Daubechies, B. Han, A. Ron, and Z. Shen, *Framelets: MRA-based constructions of wavelet frames*, Appl. Comput. Harmon. Anal. **14** (2003), 1–46.

[Dav96] K.R. Davidson, C^**-algebras by Example*, Fields Institute Monographs, vol. 6, American Mathematical Society, Providence, 1996.

[DaKS01] K.R. Davidson, D.W. Kribs, and M.E. Shpigel, *Isometric dilations of non-commuting finite rank n-tuples*, Canad. J. Math. **53** (2001), 506–545, http://arxiv.org/abs/math.OA/0411521 .

[DeSh04] V. Deaconu and F. Shultz, *C^*-algebras associated with interval maps*, Trans. Amer. Math. Soc., to appear, math.OA/0405469.

[Dev92] R.L. Devaney, *A First Course in Chaotic Dynamical Systems: Theory and Experiment*, Addison-Wesley Studies in Nonlinearity, Addison-Wesley Advanced Book Program, Reading, MA, 1992, with a separately available computer disk.

[DiFr99] P. Diaconis and D. Freedman, *Iterated random functions*, SIAM Rev. **41** (1999), 45–76, graphical supplement 77–82.

[DoGH00] V. Dobrić, R. Gundy, and P. Hitczenko, *Characterizations of orthonormal scale functions: A probabilistic approach*, J. Geom. Anal. **10** (2000), 417–434.

[DoJo94] D.L. Donoho and I.M. Johnstone, *Ideal denoising in an orthonormal basis chosen from a library of bases*, C. R. Acad. Sci. Paris Sér. I Math. **319** (1994), 1317–1322.

[DoMSS03] D.L. Donoho, S. Mallat, R. von Sachs, and Y. Samuelides, *Locally stationary covariance and signal estimation with macrotiles*, IEEE Trans. Signal Process. **51** (2003), 614–627.

[Doo94] J.L. Doob, *Measure Theory*, Graduate Texts in Mathematics, vol. 143, Springer-Verlag, New York, 1994.

[Doo01] J.L. Doob, *Classical Potential Theory and Its Probabilistic Counterpart*, Classics in Mathematics, Springer-Verlag, Berlin, 2001, reprint of the 1984 edition.

[Dut02] D.E. Dutkay, *Harmonic analysis of signed Ruelle transfer operators*, J. Math. Anal. Appl. **273** (2002), 590–617.

[Dut04a] D.E. Dutkay, *The local trace function for super-wavelets*, Wavelets, Frames, and Operator Theory (Focused Research Group Workshop, College Park, Maryland, January 15–21, 2003) (C. Heil, P.E.T. Jorgensen, and D. Larson, eds.), Contemp. Math., vol. 345, American Mathematical Society, Providence, 2004, pp. 115–136.

[Dut04b] D.E. Dutkay, *Positive definite maps, representations and frames*, Rev. Math. Phys. **16** (2004), no. 4, 451–477.

[DuJo05a] D.E. Dutkay and P.E.T. Jorgensen, *Wavelet constructions in non-linear dynamics*, Electron. Res. Announc. Amer. Math. Soc. **11** (2005), 21–33, http://www.ams.org/era/2005-11-03/S1079-6762-05-00143-5/home.html.

[DuJo05b] D.E. Dutkay and P.E.T. Jorgensen, *Hilbert spaces of martingales supporting certain substitution-dynamical systems*, Conform. Geom. Dyn. **9** (2005), 24–45, http://www.ams.org/ecgd/2005-09-02/S1088-4173-05-00135-9/home.html.

[DuJo06a] D.E. Dutkay and P.E.T. Jorgensen, *Martingales, endomorphisms, and covariant systems of operators in Hilbert space*, J. Operator Theory, to appear (in galley proof 2006, pp. 101–145), http://arXiv.org/abs/math.CA/0407330.

[DuJo06b] D.E. Dutkay and P.E.T. Jorgensen, *Wavelets on fractals*, Rev. Mat. Iberoamericana **22** (2006), 131–180.

[DuJo06c] D.E. Dutkay and P.E.T. Jorgensen, *Oversampling generates super-wavelets*, Proc. Amer. Math. Soc., to appear, http://arxiv.org/abs/math.FA/0511399.

[Edw01] H.M. Edwards, *Riemann's Zeta Function*, Dover, Mineola, NY, 2001, reprint of the 1974 original [Academic Press, New York].

[Fal85] K.J. Falconer, *The Geometry of Fractal Sets*, Cambridge Tracts in Mathematics, vol. 85, Cambridge University Press, Cambridge, 1985.

[Fal90] K. Falconer, *Fractal Geometry: Mathematical Foundations and Applications*, Wiley, Chichester, 1990.

[FaLa99] A.H. Fan and K.-S. Lau, *Iterated function system and Ruelle operator*, J. Math. Anal. Appl. **231** (1999), 319–344.

[Fel71] W. Feller, *An Introduction to Probability Theory and Its Applications*, 3rd ed., vol. 2, Wiley, New York, 1971.

[FeLa02] D.-J. Feng and K.-S. Lau, *The pressure function for products of non-negative matrices*, Math. Res. Lett. **9** (2002), 363–378.

[FiEs61] M.E. Fisher and J.W. Essam, *Some cluster size and percolation problems*, J. Math. Phys. **2** (1961), 609–619.

[FrLM83] A. Freire, A. Lopes, and R. Mañé, *An invariant measure for rational maps*, Bol. Soc. Brasil. Mat. **14** (1983), 45–62.

[Fug74] B. Fuglede, *Commuting self-adjoint partial differential operators and a group theoretic problem*, J. Funct. Anal. **16** (1974), 101–121.

[GaNa98b] J.-P. Gabardo and M.Z. Nashed, *Nonuniform multiresolution analyses and spectral pairs*, J. Funct. Anal. **158** (1998), no. 1, 209–241.

[GaYu05] J.-P. Gabardo and X. Yu, *Wavelets associated with nonuniform multiresolution analyses and one-dimensional spectral pairs*, preprint 2005, McMaster University.

[GaNS01a] X.Q. Gao, T.Q. Nguyen, and G. Strang, *Theory and lattice structure of complex paraunitary filterbanks with filters of (Hermitian-) symmetry/antisymmetry properties*, IEEE Trans. Signal Process. **49** (2001), 1028–1043.

[GaNS01b] X.Q. Gao, T.Q. Nguyen, and G. Strang, *On factorization of M-channel paraunitary filterbanks*, IEEE Trans. Signal Process. **49** (2001), 1433–1446.

[GaNS02] X.Q. Gao, T.Q. Nguyen, and G. Strang, *A study of two-channel complex-valued filterbanks and wavelets with orthogonality and symmetry properties*, IEEE Trans. Signal Process. **50** (2002), 824–833.

[GlZu80] M.L. Glasser and I.J. Zucker, *Lattice sums*, Theor. Chem. Adv. Perspect. **5** (1980), 67–139.

[Gli60] J. Glimm, *On a certain class of operator algebras*, Trans. Amer. Math. Soc. **95** (1960), 318–340.

[GrMa92] K. Gröchenig and W.R. Madych, *Multiresolution analysis, Haar bases, and self-similar tilings of* $\mathbf{R}^n$, IEEE Trans. Inform. Theory **38** (1992), 556–568.

[Gro01] K. Gröchenig, *Foundations of Time-Frequency Analysis*, Applied and Numerical Harmonic Analysis, Birkhäuser, Boston, 2001.

[GrMo84] A. Grossmann and J. Morlet, *Decomposition of Hardy functions into square integrable wavelets of constant shape*, SIAM J. Math. Anal. **15** (1984), 723–736.

[Gun00] R.F. Gundy, *Low-pass filters, martingales, and multiresolution analyses*, Appl. Comput. Harmon. Anal. **9** (2000), 204–219.

[Gun66] R.F. Gundy, *Martingale theory and pointwise convergence of certain orthogonal series*, Trans. Amer. Math. Soc. **124** (1966), 228–248.

[Gun99] R.F. Gundy, *Two remarks concerning wavelets: Cohen's criterion for low-pass filters and Meyer's theorem on linear independence*, The Functional and Harmonic Analysis of Wavelets and Frames (San Antonio, 1999) (L.W. Baggett and D.R. Larson, eds.), Contemp. Math., vol. 247, American Mathematical Society, Providence, 1999, pp. 249–258.

[Gun04] R.F. Gundy, *Wavelets and probability*, preprint, Rutgers University, material presented during the author's lecture at the workshop "Wavelets and Applications", Barcelona, Spain, July 1–6, 2002, http://www.imub.ub.es/wavelets/Gundy.pdf.

[GuKa00] R.F. Gundy and K. Kazarian, *Stopping times and local convergence for spline wavelet expansions*, SIAM J. Math. Anal. **31** (2000), 561–573.

[Haa10] A. Haar, *Zur Theorie der orthogonalen Funktionensysteme*, Math. Ann. **69** (1910), 331–371.

[Hal83] F.D.M. Haldane, *Fractional quantization of the Hall effect: A hierarchy of incompressible quantum fluid states*, Phys. Rev. Lett. **51** (1983), 605–608.

[Hal67] P.R. Halmos, *A Hilbert Space Problem Book*, D. Van Nostrand, Princeton, Toronto, London, 1967, Springer, 2nd edition, 1982, Graduate Texts in Mathematics.

[HeJL04] C. Heil, P.E.T. Jorgensen, and D.R. Larson (eds.), *Wavelets, Frames, and Operator Theory: Papers from the Focused Research Group Workshop held at the University of Maryland, College Park, MD, January 15–21, 2003*, Contemp. Math., vol. 345, American Mathematical Society, Providence, 2004.

[HeWe96] E. Hernández and G. Weiss, *A First Course on Wavelets*, Studies in Advanced Mathematics, CRC Press, Boca Raton, Florida, 1996.

[HuTK05] C.-C. Huang, T.-L. Tseng, and A. Kusiak, *XML-based modeling of corporate memory*, IEEE Transactions on Systems, Man, and Cybernetics, Part A **35** (2005), no. 5, 629–640.

[Hug95] B.D. Hughes, *Random Walks and Random Environments, Vol. 1: Random Walks*, Oxford Science Publications, Clarendon Press, Oxford University Press, Oxford, New York, 1995.

[HuMS82] B.D. Hughes, E.W. Montroll, and M.F. Shlesinger, *Fractal random walks*, J. Statist. Phys. **28** (1982), 111–126.

[HuSM81] B.D. Hughes, M.F. Shlesinger, and E.W. Montroll, *Random walks with self-similar clusters*, Proc. Nat. Acad. Sci. U.S.A. **78** (1981), 3287–3291.

[Hut81] J.E. Hutchinson, *Fractals and self similarity*, Indiana Univ. Math. J. **30** (1981), 713–747.

[IoMa50] C.T. Ionescu Tulcea and G. Marinescu, *Théorie ergodique pour des classes d'opérations non complètement continues*, Ann. of Math. (2) **52** (1950), 140–147.

[Jaf05] S. Jaffard, *Beyond Besov spaces, II: Oscillation spaces*, Constr. Approx. **21** (2005), 29–61.

[JaMe96] S. Jaffard and Y. Meyer, *Wavelet Methods for Pointwise Regularity and Local Oscillations of Functions*, Mem. Amer. Math. Soc. **123** (1996), no. 587.

[JaMR01] S. Jaffard, Y. Meyer, and R.D. Ryan, *Wavelets: Tools for Science & Technology*, revised ed., SIAM, Philadelphia, 2001.

[Jam64] B. Jamison, *Asymptotic behavior of successive iterates of continuous functions under a Markov operator*, J. Math. Anal. Appl. **9** (1964), 203–214.

[JiJS01] R.-Q. Jia, Q. Jiang, and Z. Shen, *Convergence of cascade algorithms associated with nonhomogeneous refinement equations*, Proc. Amer. Math. Soc. **129** (2001), 415–427.

[JiSh99] Q. Jiang and Z. Shen, *On existence and weak stability of matrix refinable functions*, Constr. Approx. **15** (1999), 337–353.

[Jor99] P.E.T. Jorgensen, *A geometric approach to the cascade approximation operator for wavelets*, Integral Equations Operator Theory **35** (1999), 125–171.

[Jor01a] P.E.T. Jorgensen, *Ruelle Operators: Functions Which Are Harmonic with Respect to a Transfer Operator*, Mem. Amer. Math. Soc. **152** (2001), no. 720.

[Jor01b] P.E.T. Jorgensen, *Minimality of the data in wavelet filters*, Adv. Math. **159** (2001), 143–228.

[Jor01c] P.E.T. Jorgensen, *Representations of Cuntz algebras, loop groups and wavelets*, XIIIth International Congress on Mathematical Physics (London, 2000) (A. Fokas, A. Grigoryan, T. Kibble, and B. Zegarlinski, eds.), International Press, Boston, 2001, pp. 327–332.

[Jor03] P.E.T. Jorgensen, *Matrix factorizations, algorithms, wavelets*, Notices Amer. Math. Soc. **50** (2003), 880–894, http://www.ams.org/notices/200308/200308-toc.html.

[Jor04a] P.E.T. Jorgensen, *Iterated function systems, representations, and Hilbert space*, Internat. J. Math. **15** (2004), 813–832.

[Jor04b] P.E.T. Jorgensen, *Use of operator algebras in the analysis of measures from wavelets and iterated function systems*, accepted for Operator Theory, Operator Algebras, and Applications (Deguang Han, Palle Jorgensen, and David R. Larson, eds.), Contemp. Math., American Mathematical Society, Providence, to appear 2006. http://arxiv.org/abs/math.OA/0509360.

[Jor05] P.E.T. Jorgensen, *Measures in wavelet decompositions*, Adv. Appl. Math. **34** (2005), 561–590.

[JoKr03] P.E.T. Jorgensen and D.W. Kribs, *Wavelet representations and Fock space on positive matrices*, J. Funct. Anal. **197** (2003), 526–559.

[JoPe92] P.E.T. Jorgensen and S. Pedersen, *Spectral theory for Borel sets in $\mathbb{R}^n$ of finite measure*, J. Funct. Anal. **107** (1992), 72–104.

[JoPe93] P.E.T. Jorgensen and S. Pedersen, *Group-theoretic and geometric properties of multivariable Fourier series*, Exposition. Math. **11** (1993), 309–329.

[JoPe96] P.E.T. Jorgensen and S. Pedersen, *Harmonic analysis of fractal measures*, Constr. Approx. **12** (1996), 1–30.

[JoPe98] P.E.T. Jorgensen and S. Pedersen, *Dense analytic subspaces in fractal L^2-spaces*, J. Analyse Math. **75** (1998), 185–228.

[JoSW95] P.E.T. Jorgensen, L.M. Schmitt, and R.F. Werner, *Positive representations of general commutation relations allowing Wick ordering*, J. Funct. Anal. **134** (1995), 33–99.

[JPEG00] *The JPEG2000 resource webpage*, http://stargate.ecn.purdue.edu/˜ips/tutorials/j2k/#What-is.

[Kak48] S. Kakutani, *On equivalence of infinite product measures*, Ann. of Math. (2) **49** (1948), 214–224.

[Kat87] Y. Katznelson, *Intégrales de produits de Riesz*, C. R. Acad. Sci. Paris Sér. I Math. **305** (1987), 67–69.

[Kea72] M. Keane, *Strongly mixing g-measures*, Invent. Math. **16** (1972), 309–324.

[Kig01] J. Kigami, *Analysis on Fractals*, Cambridge Tracts in Mathematics, vol. 143, Cambridge University Press, Cambridge, 2001.

[Knu81] D.E. Knuth, *The Art of Computer Programming: Vol. 2: Seminumerical Algorithms*, 2nd ed., Addison-Wesley Series in Computer Science and Information Processing, Addison-Wesley, Reading, Mass., 1981.

[Knu84] D.E. Knuth, *An algorithm for Brownian zeroes*, Computing **33** (1984), 89–94.

[Kol77] A.N. Kolmogorov, *Grundbegriffe der Wahrscheinlichkeitsrechnung*, Springer-Verlag, Berlin–New York, 1977, reprint of the 1933 original; English translation: *Foundations of the Theory of Probability*, Chelsea, 1950.

[KoSp04] C. Köstler and R. Speicher, *On the structure of non-commutative white noises*, http://arxiv.org/abs/math.OA/0411519 .

[KuDS05] A. Kusiak, B. Dixon, and S. Shah, *Predicting survival time for kidney dialysis patients: A data mining approach*, Computers in Biology and Medicine **35** (2005), no. 4, 311–327.

[Kus01] A. Kusiak, *Feature transformation methods in data mining*, IEEE Transactions on Electronics Packaging Manufacturing **24** (2001), no. 3, 214–221.

[Kus02] A. Kusiak, *A data mining approach for generation of control signatures*, ASME Transactions: Journal of Manufacturing Science and Engineering **124** (2002), no. 4, 923–926.

[Kus05] A. Kusiak, *Selection of invariant objects with a data mining approach*, IEEE Transactions on Electronics Packaging Manufacturing **28** (2005), no. 2, 187–196.

[KuBu05] A. Kusiak and A. Burns, *Mining temporal data: A coal-fired boiler case study*, Knowledge-Based Intelligent Information and Engineering Systems, Proceedings of the 9th International Conference, KES 2005, Melbourne, Australia, September 14–16, 2005, Vol. III (R. Khosla, R.J. Howlett, and L.C. Jain, eds.), Lecture Notes in Artificial Intelligence, vol. 3683, Springer, Heidelberg, 2005, pp. 953–958.

[KuLD01] A. Kusiak, I.H. Law, and M.D. Dick, *The G-algorithm for extraction of robust decision rules: Children's postoperative intra-atrial arrhythmia case study*, IEEE Transactions on Information Technology in Biomedicine **5** (2001), no. 3, 225–235.

[ŁaWa02] I. Łaba and Y. Wang, *On spectral Cantor measures*, J. Funct. Anal. **193** (2002), 409–420.

[LaNg98] K.-S. Lau and S.-M. Ngai, *L^q-spectrum of the Bernoulli convolution associated with the golden ratio*, Studia Math. **131** (1998), 225–251.

[LaNR01] K.-S. Lau, S.-M. Ngai, and H. Rao, *Iterated function systems with overlaps and self-similar measures*, J. London Math. Soc. (2) **63** (2001), 99–116.

[LaRe91] W.M. Lawton and H.L. Resnikoff, *Multidimensional wavelet bases*, Report AD910130, AWARE, Inc., Cambridge, MA, 1991.

[Law91a] W.M. Lawton, *Necessary and sufficient conditions for constructing orthonormal wavelet bases*, J. Math. Phys. **32** (1991), 57–61.

[Law91b] W.M. Lawton, *Multiresolution properties of the wavelet Galerkin operator*, J. Math. Phys. **32** (1991), 1440–1443.

[LaLS96] W.M. Lawton, S.L. Lee, and Z. Shen, *An algorithm for matrix extension and wavelet construction*, Math. Comp. **65** (1996), no. 214, 723–737.

[LaLS98] W.M. Lawton, S.L. Lee, and Z. Shen, *Convergence of multidimensional cascade algorithm*, Numer. Math. **78** (1998), 427–438.

[LySt03] R. Lyons and J.E. Steif, *Stationary determinantal processes: phase multiplicity, Bernoullicity, entropy, and domination*, Duke Math. J. **120** (2003), 515–575.

[Mal89] S.G. Mallat, *Multiresolution approximations and wavelet orthonormal bases of* $\mathbf{L}^2(\mathbf{R})$, Trans. Amer. Math. Soc. **315** (1989), 69–87.

[Mal98] S.G. Mallat, *A Wavelet Tour of Signal Processing*, Academic Press, San Diego, 1998.

[Mar82] D. Marr, *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information*, W.H. Freeman, San Francisco, 1982.

[May91] D.H. Mayer, *Continued fractions and related transformations*, Ergodic Theory, Symbolic Dynamics, and Hyperbolic Spaces (Trieste, 1989) (T. Bedford, M. Keane, and C. Series, eds.), Oxford Science Publications, The Clarendon Press, Oxford University Press, New York, 1991, pp. 175–222.

[Mey79] Y. Meyer, *Produits de Riesz généralisés*, Séminaire d'Analyse Harmonique, 1978–1979, Publications Mathématiques d'Orsay 79, vol. 7, Université de Paris-Sud, Faculté des Sciences-Mathématiques, Orsay, 1979, pp. 38–48.

[Mey89] Y. Meyer, *Wavelets and operators*, Analysis at Urbana, Vol. I: Analysis in Function Spaces (Urbana, IL, 1986–1987) (E. Berkson and T. Peck, eds.), London Math. Soc. Lecture Note Ser., vol. 137, Cambridge University Press, Cambridge, 1989, pp. 256–365.

[Mey97] Y. Meyer, *Wavelets and fast numerical algorithms*, Handbook of Numerical Analysis, Vol. V: Techniques of Scientific Computing, Part 2 (P.G. Ciarlet and J.L. Lions, eds.), North-Holland, Amsterdam, 1997, pp. 639–713.

[Mey05] Y. Meyer, *Compression des images fixes*, Gaz. Math. (2005), no. 103, 9–23.

[MeCo97] Y. Meyer and R. Coifman, *Wavelets: Calderón-Zygmund and Multilinear Operators*, Cambridge Studies in Advanced Mathematics, vol. 48, Cambridge University Press, Cambridge, 1997, translated from the 1990 and 1991 French originals by David Salinger.

[Mon64] E.W. Montroll, *Random walks on lattices*, Stochastic Processes in Mathematical Physics and Engineering (R. Bellman, ed.), Proceedings of Symposia in Applied Mathematics, vol. 16, American Mathematical Society, Providence, 1964, reprinted 1980, pp. 193–220.

[Nek04] V.V. Nekrashevych, *Cuntz-pimsner algebras of group actions*, J. Operator Theory **52** (2004), 223–249.

[Nel59] E. Nelson, *Regular probability measures on function space*, Ann. of Math. (2) **69** (1959), 630–643.

[Nel64] E. Nelson, *Feynman integrals and the Schrödinger equation*, J. Math. Phys. **5** (1964), 332–343.

[Nel67] E. Nelson, *Dynamical Theories of Brownian Motion*, Princeton University Press, Princeton, NJ, 1967.

[Nel69] E. Nelson, *Topics in Dynamics, I: Flows*, Mathematical Notes, Princeton University Press, Princeton, NJ, 1969.

[Nel73] E. Nelson, *Construction of quantum fields from Markoff fields*, J. Funct. Anal. **12** (1973), 97–112.

[Nev65] J. Neveu, *Mathematical Foundations of the Calculus of Probability*, Holden-Day Series in Probability and Statistics, Holden-Day, San Francisco, 1965, translated from the French by A. Feinstein.

[Nev75] J. Neveu, *Discrete-Parameter Martingales*, revised ed., North-Holland Mathematical Library, vol. 10, North-Holland, Amsterdam, 1975, translated from the French by T. P. Speed.

[OED] *Oxford English Dictionary*, second ed., Oxford University Press, Oxford, 1989.

[PaSW99] M. Papadakis, H. Šikić, and G. Weiss, *The characterization of low pass filters and some basic properties of wavelets, scaling functions and related concepts*, J. Fourier Anal. Appl. **5** (1999), 495–521.

[PaPo90] W. Parry and M. Pollicott, *Zeta functions and the periodic orbit structure of hyperbolic dynamics*, Astérisque, vol. 187–188, Société Mathématique de France, Paris, 1990.

[PaSc72] K. R. Parthasarathy and K. Schmidt, *Positive Definite Kernels, Continuous Tensor Products, and Central Limit Theorems of Probability Theory*, Lecture Notes in Mathematics, vol. 272, Springer-Verlag, Berlin-New York, 1972.

[Per07] O. Perron, *Zur Theorie der Matrizen*, Math. Ann. **64** (1907), 248–263.

[Pop89] G. Popescu, *Isometric dilations for infinite sequences of non-commuting operators*, Trans. Amer. Math. Soc. **316** (1989), 523–536.

[PoSt70] R.T. Powers and E. Størmer, *Free states of the canonical anti-commutation relations*, Comm. Math. Phys. **16** (1970), 1–33.

[Rad99] C. Radin, *Miles of tiles*, Student Mathematical Library, vol. 1, American Mathematical Society, Providence, 1999.

[Rev84] D. Revuz, *Markov Chains*, second ed., North-Holland Mathematical Library, vol. 11, North-Holland, Amsterdam, 1984.

[RiSh00] S.D. Riemenschneider and Z. Shen, *Interpolatory wavelet packets*, Appl. Comput. Harmon. Anal. **8** (2000), 320–324.

[Rie18] F. Riesz, *Über die Fourierkoeffizienten einer stetigen Funktion von beschränkter Schwankung*, Math. Z. **2** (1918), 312–315.

[Rit79] G. Ritter, *On Kakutani's dichotomy theorem for infinite products of not necessarily independent functions*, Math. Ann. **239** (1979), 35–53.

[RoWi00] L.C.G. Rogers and D. Williams, *Diffusions, Markov processes, and martingales, Vol. 1: Foundations*, Cambridge Mathematical Library, Cambridge University Press, Cambridge, 2000, reprint of the second ed., Wiley, Chichester, 1994.

[RoSh97] A. Ron and Z. Shen, *Affine systems in $L_2(\mathbf{R}^d)$: the analysis of the analysis operator*, J. Funct. Anal. **148** (1997), 408–447.

[RoSh98] A. Ron and Z. Shen, *Compactly supported tight affine spline frames in $L_2(\mathbf{R}^d)$*, Math. Comp. **67** (1998), 191–207.

[RoSh00] A. Ron and Z. Shen, *The Sobolev regularity of refinable functions*, J. Approx. Theory **106** (2000), 185–225.

[RoSh03] A. Ron and Z. Shen, *The wavelet dimension function is the trace function of a shift-invariant system*, Proc. Amer. Math. Soc. **131** (2003), 1385–1398.

[RST01] A. Ron, Z. Shen, and K.-C. Toh, *Computing the Sobolev regularity of refinable functions by the Arnoldi method*, SIAM J. Matrix Anal. Appl. **23** (2001), 57–76.

[Rud87] W. Rudin, *Real and Complex Analysis*, third ed., McGraw-Hill, New York, 1987.

[Rue69] D. Ruelle, *Statistical Mechanics: Rigorous Results*, W. A. Benjamin, Inc., New York-Amsterdam, 1969.

[Rue89] D. Ruelle, *The thermodynamic formalism for expanding maps*, Comm. Math. Phys. **125** (1989), no. 2, 239–262.

[Rue94] D. Ruelle, *Dynamical Zeta Functions for Piecewise Monotone Maps of the Interval*, CRM Monograph Series, vol. 4, American Mathematical Society, Providence, 1994.

[Rue02] D. Ruelle, *Dynamical zeta functions and transfer operators*, Notices Amer. Math. Soc. **49** (2002), 887–895.

[Sat99] K.-I. Sato, *Lévy Processes and Infinitely Divisible Distributions*, Cambridge Studies in Advanced Mathematics, vol. 68, Cambridge University Press, Cambridge, 1999, translated from the 1990 Japanese original, revised by the author.

[SchCC] Phil Schniter, *Two-branch quadvalue mirror filterbank* (*QMF*), see [WWW4].

[Sch1871] E. Schröder, *Über iterirte Functionen*, Math. Ann. **3** (1871), 296–322.

[SeCh67] A. Selberg and S. Chowla, *On Epstein's zeta-function*, J. Reine Angew. Math. **227** (1967), 86–110.

[ShKu04] S.C. Shah and A. Kusiak, *Data mining and genetic programming based gene/SNP selection*, Artificial Intelligence in Medicine **31** (2004), no. 3, 183–196.

[Sha49] C.E. Shannon, *Communication in the presence of noise*, Proc. Inst. Radio Engineers **37** (1949), 10–21.

[She98] Z. Shen, *Refinable function vectors*, SIAM J. Math. Anal. **29** (1998), 235–250.

[StHS+99] V. Strela, P.N. Heller, G. Strang, P. Topiwala, and C. Heil, *The application of multiwavelet filterbanks to image processing*, IEEE Transactions on Image Processing **8** (1999), 548–563.

[Shu04] F. Shultz, *Dimension groups for interval maps II: The transitive case*, preprint, math.DS/0405467.

[Shu05] F. Shultz, *Dimension groups for interval maps*, New York J. Math. **11** (2005), 477–517.

[Sim79] B. Simon, *Functional Integration and Quantum Physics*, Pure and Applied Mathematics, vol. 86, Academic Press, New York, 1979.

[Sko61] A.V. Skorokhod, *Issledovaniya po teorii sluchainykh protsessov (Stokhasticheskie differentsialnye uravneniya i predelnye teoremy dlya protsessov Markova)*, Izdat. Kiev. Univ., Kiev, 1961.

[Sko65] A.V. Skorokhod, *Studies in the Theory of Random Processes*, Addison-Wesley, Reading, Mass., 1965, Translated from the Russian by Scripta Technica.

[Song05] M.-S. Song, *Wavelet image compression*, Ph.D. thesis, The University of Iowa, 2005.

[Song05a] M.-S. Song, *Wavelet image decomposition*, http://www.biblethumper.org/˜msong/Images/waveletdec.html.

[Song05b] M.-S. Song, http://www.biblethumper.org/˜msong/Images/.

[Spi76] F. Spitzer, *Principles of Random Walk*, second ed., Graduate Texts in Mathematics, vol. 34, Springer-Verlag, New York, 1976, first softcover printing, 2001.

[StNg96] G. Strang and T. Nguyen, *Wavelets and Filter Banks*, Wellesley-Cambridge Press, Wellesley, Massachusetts, 1996.

[Str98] R.S. Strichartz, *Remarks on: "Dense analytic subspaces in fractal L^2-spaces" [J. Analyse Math.* **75** *(1998), 185–228] by P.E.T. Jorgensen and S. Pedersen*, J. Analyse Math. **75** (1998), 229–231.

[Str00] R.S. Strichartz, *Mock Fourier series and transforms associated with certain Cantor measures*, J. Anal. Math. **81** (2000), 209–238.

[Str05] R.S. Strichartz, *Convergence of Mock Fourier series*, preprint, Cornell University.

[Stro96] D.W. Stroock, *Gaussian measures in traditional and not so traditional settings*, Bull. Amer. Math. Soc. (N.S.) **33** (1996), 135–155.

[Stro00] D.W. Stroock, *An Introduction to the Analysis of Paths on a Riemannian Manifold*, Mathematical Surveys and Monographs, vol. 74, American Mathematical Society, Providence, RI, 2000.

[Stro05] D.W. Stroock, *An Introduction to Markov Processes*, Graduate Texts in Mathematics, vol. 230, Springer, Berlin, 2005.

[Tao96] T. Tao, *On the almost everywhere convergence of wavelet summation methods*, Appl. Comput. Harmon. Anal. **3** (1996), no. 4, 384–387.

[Vai93] P.P. Vaidyanathan, *Multirate Systems and Filter Banks*, Prentice-Hall Signal Processing Series, Prentice Hall, Englewood Cliffs, NJ, 1993.

[VaAk01] P.P. Vaidyanathan and S. Akkarakaran, *A review of the theory and applications of optimal subband and transform coders*, Appl. Comput. Harmon. Anal. **10** (2001), no. 3, 254–289.

[VeKo95] M. Vetterli and J. Kovačević, *Wavelets and Subband Coding*, Prentice-Hall Signal Processing Series, Prentice Hall PTR, Englewood Cliffs, NJ, 1995.

[ViMu95] B. Vidakovic and P. Mueller, *Wavelets for kids: A tutorial introduction*, preprint, 1995, Duke University, Institute of Statistics and Decision Sciences, and [WWW/wiki].

[VoDN92] D.V. Voiculescu, K.J. Dykema, and A. Nica, *Free Random Variables: A Noncommutative Probability Approach to Free Products with Applications to Random Mmatrices, Operator Algebras and Harmonic Analysis on Free Groups*, American Mathematical Society, Providence, 1992.

[Waln02] D.F. Walnut, *An Introduction to Wavelet Analysis*, Applied and Numerical Harmonic Analysis, Birkhäuser, Boston, 2002.

[Wal01] P. Walters, *Convergence of the Ruelle operator for a function satisfying Bowen's condition*, Trans. Amer. Math. Soc. **353** (2001), 327–347.

[Wic93] M.V. Wickerhauser, *Best-adapted wavelet packet bases*, Different Perspectives on Wavelets (San Antonio, TX, 1993) (I. Daubechies, ed.), Proc. Sympos. Appl. Math., vol. 47, American Mathematical Society, Providence, 1993, pp. 155–171.

[Wic94] M.V. Wickerhauser, *Adapted Wavelet Analysis from Theory to Software*, IEEE Press, New York, A.K. Peters, Wellesley, MA, 1994.

[Wil91] D. Williams, *Probability with Martingales*, Cambridge Mathematical Textbooks, Cambridge University Press, Cambridge, 1991.

[WWW1] *Lifting-scheme-based wavelet transform*, http://www.electronicsletters.com/papers/example/paper.html; [WWW2] and [WWW3] are Figures 5 and 6, respectively.

[WWW2] http://www.electronicsletters.com/papers/example/Psubsampletransform.gif; Figure 5 in [WWW1].

[WWW3] http://www.electronicsletters.com/papers/example/Pinversetransform.gif; Figure 6 in [WWW1].

[WWW4] Phil Schniter, *Two-branch quadvalue mirror filterbank* (*QMF*), http://cnx.rice.edu/content/m10426/latest/, *Connexions* module.

[WWW5] Ma Yi, *Basic image processing demos (for EECS20)*, http://robotics.eecs.berkeley.edu/˜mayi/imgproc/.

[WWW/wiki] http://en.wikipedia.org/wiki/Wavelet.

[YaHK97] M. Yamaguti, M. Hata, and J. Kigami, *Mathematics of Fractals*, Translations of Mathematical Monographs, vol. 167, American Mathematical Society, Providence, 1997, translated from the 1993 Japanese original by Kiki Hudson.

[YiCC] Ma Yi, *Basic image processing demos (for EECS20)*, see [WWW5].

[Zyg32] A. Zygmund, *On lacunary trigonometric series*, Trans. Amer. Math. Soc. **34** (1932), 435–446.

Symbols

Reminder: In the symbol list and in the chapters, function spaces are defined with respect to various integrability conditions. For a function f on a space X, absolute integrability refers to $|f|$, i.e., to the absolute value of f, and to a prescribed (standard) measure on X. This measure on X is often implicitly understood, as is its σ-algebra of measurable sets. Examples: If the space X is $\mathbb{R}^d$, the measure will be the standard d-dimensional Lebesgue measure; for the one-torus $\mathbb{T}$ (i.e., the circle group), it will be normalized Haar measure, and similarly for the d-torus $\mathbb{T}^d$; for $X = \mathbb{Z}$, the measure will simply be counting measure; and for X_3 (the middle-third Cantor set), the measure will be the corresponding Hausdorff measure h_s of fractal dimension $s = \log_3(2)$. In each case, we introduce Hilbert spaces of L^2-functions, and the measure will be understood to be the standard one. Same convention for the other L^p-spaces!

Index

Comments on the use of the index: Some terms in the index may appear in the text in a slight variant, or variation of the actual index-term itself. For example, we will have terms in the index referring to "theorem so and so." But when we use the Stone–Weierstraß *theorem*, I just say Stone–Weierstraß. The word "theorem" will be suppressed. It is implicitly understood.

Similarly, I often just say, "by domination" (or some variant thereof), when I mean, "by an application of the dominated convergence theorem," or more fully: "By Lebesgue's dominated convergence theorem." It will be the same theorem whether the name is abbreviated or not.

For Fubini, the word "theorem" may be implicitly understood. Guido Weiss has made a verb out of it: "Fubinate" means "to exchange the order of two integrals."

Similarly, the name Fatou often is used to mean "Fatou's lemma" (the one about lim inf). For some reason poor Fatou only got credit for a lemma. But I do not mind upgrading him to a theorem, although "Fatou's theorem" usually refers to the one about existence a.e. of boundary values of bounded harmonic functions. I usually call that one "the Fatou-Primalov theorem."