

## BIBLIOGRAPHY

- [1] S. Haykin, *Digital Communications*. Wiley, 1988.
- [2] W. D. Gregg, *Analog and Digital Communication*. John Wiley and Sons, New York, 1977.
- [3] J. G. Puente and A. M. Werth, "Demand-assigned service for INTELSAT global network," *IEEE Spectrum*, pp. 59–69, January 1971.
- [4] D. Chakraborty, "INTELSAT IV satellite system (voice) channel capacity versus earth-station performance," *IEEE Transactions on Communication Technology*, vol. COM-19, pp. 355–362, June 1971.
- [5] H. Hasemi, "The indoor radio propagation channel," *Proceedings of the IEEE*, vol. 81, pp. 941–968, July 1993.
- [6] C. L. Lui and K. Feher, " $\pi/4$ -QPSK modems for satellite sound/data broadcast systems," *IEEE Transactions on Broadcasting*, vol. 37, pp. 1–8, March 1991.
- [7] S. Chennakeshu and G. J. Saulnier, "Differential detection of  $\pi/4$ -Shifted-DQPSK for digital cellular radio," *IEEE Transactions on Vehicular Technology*, vol. 42, pp. 46–57, February 1993.
- [8] K. Murota and K. Hirade, "GMSK modulation for digital mobile radio telephony," *IEEE Transactions on Communications*, vol. COM-29, pp. 1044–1050, July 1981.
- [9] Y. Guo and K. Feher, "A new FQPSK modem/radio architecture for PCS and mobile satellite communications," *IEEE Journal on Selected Areas in Communications*, vol. 13, February 1995.
- [10] D. N. Chorafas, *Telephony: Today and Tomorrow*. Prentice-Hall, 1984.
- [11] D. Saha and T. G. Birdsall, "Quadrature-Quadrature Phase-Shift Keying," *IEEE Transactions on Communications*, vol. 37, pp. 437–448, May 1989.
- [12] D. Saha, *Quadrature-Quadrature Phase Shift Keying*. PhD thesis, University of Michigan, 1986.
- [13] C. E. Shannon, "Communications in the presence of noise," *IRE Proceedings*, vol. 37, pp. 10–21, January 1949.
- [14] J. G. Proakis, *Digital Communications*. McGraw-Hill, third ed., 1989.
- [15] D. Slepian, "Bounds on communications," *Bell Systems Technology Journal*, vol. 42, pp. 681–707, 1963.
- [16] S. G. Wilson and H. A. Sleeper, "Four-dimensional modulation and coding — An alternative to frequency-reuse," Tech. Rep. UVA/528200/EE83/107, Communications Systems Laboratory, University of Virginia, Charlottesville, Va., September 1983.

- 
- [17] G. R. Welter and S. L. Lee, "Digital transmission with coherent four-dimensional modulation," *IEEE Transactions on Information Theory*, vol. IT-20, pp. 397–402, July 1974.
- [18] L. Zetterberg and H. Brändström, "Codes for combined phase and amplitude modulated signals in four-dimensional signal space," *IEEE Transactions on Communications*, vol. COM-25, pp. 943–950, September 1977.
- [19] S. G. Wilson, H. A. Sleeper II, P. J. Schottler, and M. T. Lyons, "Rate 3/4 Convolutional Coding of 16-PSK: Code design and Performance Study," *IEEE Transactions on Communications*, vol. COM-32, pp. 1308–1315, December 1984.
- [20] E. Biglieri and M. Elia, "Multidimensional modulation and coding for bandlimited digital channels," *IEEE Transactions on Information Theory*, vol. IT-34, pp. 803–809, July 1988.
- [21] A. Gersho and V. B. Lawrence, "Multidimensional signal constellations for voiceband data transmission," *IEEE Selected Areas in Communications*, vol. SAC-2, pp. 687–702, September 1984.
- [22] J. M. Wozencraft and I. M. Jacobs, *Principle of Communication Engineering*. New York: Wiley, 1965.
- [23] V. Acha and R. A. Carrasco, "A new digital implementation of quadrature-quadrature phase shift keying," in *Third IEE Conference on telecommunications*, (Edinburg, Scotland), pp. 29–34, March 1991.
- [24] G. C. Clark and J. Bibb Cain, *Error-Correction Coding for Digital Communications*. Plenum Press, 1988.
- [25] S. Lin and D. J. Costello, Jr, *Error control coding - Fundamentals and Applications*. Prentice-Hall, 1983.
- [26] J. L. Massey, "Coding and modulation in digital communications," *Proceedings 1974 International Zurich Seminar on Digital Communications*, pp. E2(1)–E2(4), 1974.
- [27] G. Ungerboeck, "Channel coding with Multilevel/Phase signals," *IEEE Transactions on Information Theory*, vol. IT-28, pp. 55–67, January 1982.
- [28] G. Ungerboeck, "Trellis-Coded Modulation with redundant signal sets - Part 1:Introduction," *IEEE Communications*, vol. 25, pp. 5–11, February 1987.
- [29] G. Ungerboeck, "Trellis-Coded Modulation with redundant signal sets - Part II:State of the art," *IEEE Communications Magazine*, vol. 25, pp. 12–21, February 1987.
- [30] E. Biglieri, D. Divsalar, P. J. McLane, and M. K. Simon, *Introduction to Trellis-Coded Modulation with Applications*. Macmillan, 1991.
- [31] R. Calderbank and J. E. Mazo, "A new description of trellis codes," *IEEE Transactions on Information Theory*, vol. IT-30, pp. 784–791, November 1984.
- [32] R. Fang and W. Lee, "Four-Dimensional coded PSK systems for combating effects of severe ISI and CCI," in *Globecom '93*, pp. 1–7, 1983.
- [33] E. Biglieri, "High-level modulation and coding for nonlinear satellite channels," *IEEE Transactions on Communications*, vol. COM-32, pp. 616–626, May 1984.

- [34] L. F. Wei, "Rotationally invariant convolutional channel coding with expanded signal space - Part I and Part II," *IEEE Journal on Selected Areas in Communications*, vol. SAC-2, pp. 659–686, September 1984.
- [35] L. F. Wei, "Trellis coded modulation with multidimensional constellations," *IEEE Transactions on Information Theory*, vol. IT-33, pp. 483–501, July 1987.
- [36] D. Divsalar and M. K. Simon, "Trellis Coding with Asymmetric modulations," *IEEE Transactions on Communications*, vol. COM-35, February 1987.
- [37] A. R. Calderbank and J. A. Sloane, "New Trellis Codes based on Lattices and Cosets," *IEEE Transactions on Information Theory*, vol. IT-33, pp. 177–195, March 1987.
- [38] S. Benedetto, M. A. Marsan, G. Albertengo, and E. Giachin, "Combined coding and modulation: Theory and Applications," *IEEE Transactions on Information Theory*, vol. 34, pp. 223–236, March 1988.
- [39] D. Divsalar and M. K. Simon, "The design of Trellis Coded MPSK for fading channels: Performance Criteria," *IEEE Transactions on Communications*, vol. 36, pp. 1004–1012, September 1988.
- [40] D. Divsalar and M. K. Simon, "The design of Trellis Coded MPSK for fading channels: Set Partitioning for optimum code design," *IEEE Transactions on Communications*, vol. 36, pp. 1013–1021, September 1988.
- [41] D. Divsalar and M. K. Simon, "Multiple Trellis Coded Modulation (MTCM)," *IEEE Transactions on Communications*, vol. 36, pp. 410–419, April 1988.
- [42] D. Divsalar and M. K. Simon, "The use of interleaving for reducing noisy reference loss in Trellis-Coded Modulation systems," *IEEE Transactions on Communications*, vol. 38, pp. 1190–1198, August 1990.
- [43] P. G. Farrell and L. H. Lee, "Coded modulation for fading channels," in *Second Bangor Symposium on Communications*, (Bangor, Wales), 23-24 May 1990.
- [44] E. Zehavi, "8-PSK Trellis Codes for a Rayleigh channel," *IEEE Transactions on Communications*, vol. 40, pp. 873–884, May 1992.
- [45] S. S. Peryalwar and M. Fleisher, "Trellis-Coded frequency and phase modulation," *IEEE Transactions on Communications*, vol. 40, pp. 1038–1046, June 1992.
- [46] D. Saha, "Trellis Coded Quadrature-Quadrature Phase Shift Keying," *Proceedings IEEE MIL-COM*, pp. 44.4.1–44.4.5, October 1987.
- [47] D. Saha, "Channel coding with Quadrature-Quadrature Phase Shift-Keying ( $Q^2$ PSK) signals," *IEEE Transactions on Communications*, vol. 38, pp. 409–417, April 1990.
- [48] V. Acha and R. A. Carrasco, "Trellis coded  $Q^2$ PSK signals - Part 1: AWGN and nonlinear satellite channels," *IEE Proceedings in Communications*, pp. 151–158, June 1994.
- [49] V. Acha and R. A. Carrasco, "Trellis coded  $Q^2$ PSK signals - Part 2: Land mobile satellite fading channels," *IEE Proceedings in Communications*, pp. 159–167, June 1994.
- [50] G. J. Foschini, R. D. Gitlin, and S. B. Weinstein, "Optimization of Two-dimensional signal constellation in the presence of Gaussian noise," *IEEE Transactions on Communications*, January 1974.

- [51] J. H. Conway and N. J. A. Sloane, "Voronoi Regions of Lattices," *IEEE Transactions of Information Theory*, March 1982.
- [52] B. E. Rimoldi, "A decomposition approach to CPM," *IEEE Transactions of Information Theory*, vol. 34, pp. 260–270, March 1988.
- [53] D. K. Asano, H. Leib, and S. Pasupathy, "Phase smoothing functions for continuous phase modulation," *IEEE Transactions on Communications*, vol. 42, pp. 1040–1049, February/March/April 1994.
- [54] J. Huber and W. Liu, "An alternative approach to reduced-complexity CPM-receivers," *IEEE Journal on Selected Areas in Communications*, vol. 7, pp. 1437–1449, December 1989.
- [55] R. De Gaudenzi and M. Luise, "Carrier and clock reference recovery for quadrature-quadrature PSK signals," in *Globecom '90*, pp. 599–603, December 1990.
- [56] W. C. Lindsey and M. K. Simon, *Telecommunication System Engineering*. Prentice-Hall, 1973.
- [57] F. G. Stremler, *Introduction to Communication Systems*. Addison-Wesley, third ed., 1990.
- [58] B. Sklar, *Digital Communications — Fundamentals and Applications*. Prentice-Hall, Englewood Cliffs, New Jersey, 1988.
- [59] D. Verhulst, M. Mouly, and J. Szpirglas, "Slow frequency hopping multiple access for digital cellular radiotelephone," *IEEE Transactions on Vehicular Technology*, vol. VT-33, pp. 179–190, August 1984.
- [60] D. J. van Wyk and L. P. Linde, "Multidimensional frame synchronisation for 4D-Q<sup>2</sup>PSK," *Electronics Letters*, pp. 2077–2078, November 1995.
- [61] D. Divsalar and M. K. Simon, "Trellis-coded modulation systems for 4800 and 9600 bps transmission over a fading satellite channel," *IEEE Journal on Selected Areas in Communications*, vol. SAC-5, pp. 162–175, February 1987.
- [62] A. P. R. Opperman, "VHF/UHF channel simulator for mobile digital communication," Master's thesis, University of Pretoria, South Africa, October 1995.
- [63] W. C. Jakes, *Microwave Mobile Communications*. Wiley-Interscience Publication, 1974.
- [64] P. J. van Gerwen, "Microprocessor implementation of high-speed data modems," *IEEE Transactions on Communications*, vol. COM-25, pp. 238–250, February 1977.
- [65] A. J. Viterbi, *Principles of Coherent Communication*. New York: McGraw-Hill, 1966.
- [66] R. de Buda, "Coherent demodulation of frequency-shift keying with low deviation ratio," *IEEE Transactions on Communications*, pp. 429–435, June 1972.
- [67] R. L. Frank and S. A. Zadoff, "Phase shift pulse codes with good periodic correlation properties," *IRE Transactions on Information Theory*, vol. IT-7, pp. 381–382, October 1962.
- [68] W. O. Alltop, "Complex sequences with low periodic correlations," *IEEE Transactions on Information Theory*, vol. IT-26, pp. 350–354, May 1980.
- [69] B. Kim, "Digital carrier recovery with adaptive dual loop DPLL for mobile communication applications," *IEEE Transactions on Communications*, pp. 29 – 32, 1989.

- [70] A. Aghamohammad, H. Meyr, and G. Ascheid, "Adaptive synchronization and channel parameter estimation using an Extended Kalman filter," *IEEE Transactions on Communications*, pp. 1212–1218, 1989.
- [71] S. M. Bozic, *Digital and Kalman Filtering*. Edward Arnold, 1979.
- [72] S. Aguirre and S. Hinedi, "Two novel automatic frequency tracking loops," *IEEE Transactions on Aerospace and Electronic Systems*, vol. 25, pp. 749–760, September 1989.
- [73] L. P. Linde, "Derivation of scalar Kalman estimator." Lecture notes - 1995.
- [74] D. J. van Wyk and L. P. Linde, "Phase and frequency tracking techniques for 4D-Q<sup>2</sup>PSK modem." Submitted for publication in *The Transactions of the SAIEE*, 1996.
- [75] A. J. Viterbi and J. K. Omura, *Principles of Digital Communication and Coding*. McGraw-Hill, 1979.
- [76] W. C. Y. Lee, *Mobile Communications Engineering*. McGraw-Hill, 1982.
- [77] M. Y. Rhee, *Error-Correcting Coding Theory*. McGraw-Hill, 1989.
- [78] D. J. van Wyk and L. P. Linde, "Half rate convolutional coding for 4D-QPSK," in *COMSIG '95: South African Symposium on Communications and Signal Processing*, (Pretoria, South Africa), pp. 27–34, November 1995.
- [79] K. Y. Chan and G. H. Norton, "A new algebraic algorithm for generating the transfer function of a trellis encoder," *IEEE Transactions on Communications*, vol. 43, pp. 1866–1867, May 1995.
- [80] M. M. Mulligan and S. G. Wilson, "An improved algorithm for evaluating trellis phase codes," *IEEE Transactions on Information Theory*, vol. IT-30, pp. 846–851, November 1984.
- [81] D. Divsalar and M. K. Simon, "The design of trellis codes for fading channels," Tech. Rep. MSAT-X Report 147, JPL Publication, Pasadena, Calif., November 1987.
- [82] L. P. Linde, "SNR calibration." Lecture notes - 1995.
- [83] D. J. van Wyk and L. P. Linde, "Development of a MD-QPSK modem for application in mobile communication - Item 400: Literature Study," Tech. Rep. 94/026, Laboratory for Advanced Engineering, August 1994.
- [84] D. J. van Wyk and L. P. Linde, "Development of a MD-QPSK modem for mobile communication - Item 600: Theoretical Design," Tech. Rep. 94/027, Laboratory for Advanced Engineering, November 1994.
- [85] D. J. van Wyk and L. P. Linde, "Development of a MD-QPSK modem for application in mobile communication - Item 800: Evaluation," Tech. Rep. 95/001, Laboratory for Advanced Engineering, February 1995.
- [86] D. J. van Wyk and L. P. Linde, "Development of a error-correction strategies for MD-QPSK modem for application in mobile communication - Item 5: Literature Study," Tech. Rep. 95/034, Laboratory for Advanced Engineering, August 1995.
- [87] D. J. van Wyk and L. P. Linde, "Development of a error-correction strategies for MD-QPSK modem for application in mobile communication - Item 6: Design and preliminary Evaluation," Tech. Rep. 95/043, Laboratory for Advanced Engineering, November 1995.

- 
- [88] D. J. van Wyk and L. P. Linde, "Development of a error-correction strategies for MD-QPSK modem for application in mobile communication - Item 7: Evaluation under typical channel conditions," Tech. Rep. 96/009, Laboratory for Advanced Engineering, March 1996.
- [89] Texas Instruments, *TMS320C30 C Compiler*, 1990.
- [90] Texas Instruments, *TMS320C30 Assembly Language Tools*, 1988.
- [91] R. Chassaing, *Digital Signal Processing with C and the TMS320C30*. John-Wiley and Sons, 1992.
- [92] A. J. Viterbi and A. M. Viterbi, "Nonlinear estimation of PSK modulated carrier phase with application to burst digital transmission," *IEEE Transactions on Information Theory*, vol. IT-32, pp. 543-551, July 1983.
- [93] C. Schlegel and M. A. Herro, "A Burst-Error-Correcting Viterbi Algorithm," *IEEE Transactions on Communications*, vol. 38, pp. 285-291, March 1990.
- [94] M.-C. Lin and S.-C. Ma, "A coded modulation scheme with interblock memory," *IEEE Transactions on Communications*, vol. 42, pp. 911-916, February/March/April 1994.
- [95] C.-H. Chuang and L.-S. Lee, "A coded modulation design with equal utilization of signal dimensions using a simple convolutional code," in *International Symposium on Information Theory and its Applications*, (Sydney, Australia), pp. 469-473, November 1994.
- [96] A. J. Viterbi, "Error bounds for convolutional codes and an asymptotically optimum decoding algorithm," *IEEE Transactions on Information Theory*, vol. IT-13, pp. 260-269, April 1967.
- [97] S. Wolfram, *Mathematica — A system for doing mathematics by computer*. Addison-Wesley Publishing Company, Inc., 1991.