

REFERENCES

- [1] A. Klein, "Multi-user detection of CDMA signals - algorithms and their application to cellular radio," tech. rep., Fortschr.-Ber. VDI Reihe 10, Nr. 423. Dusseldorf: VDI-Verlag 1996, 1996.
- [2] S. Verdu, "Minimum probability of error for asynchronous gaussian multiple access channels," *IEEE Trans. on Info. Theory*, vol. IT-32, pp. 85–96, Jan. 1986.
- [3] M. Honig, U. Madhow, and S. Verdu, "Blind adaptive multiuser detection," *IEEE Trans. on Info. Theory*, vol. 41, pp. 944–960, July 1995.
- [4] C. Johnson, P. Schniter, T. Endres, J. D. Behm, D. Brown, and R. Casas, "Blind equalization using the constant modulus algorithm," *Proc. of the IEEE*, Oct. 1998.
- [5] M. Jamil, L. P. Linde, J. E. Cilliers, and D. J. van Wyk, "Comparison of complex spreading sequences based on filtering methods and mean square correlation properties," *Trans. of the SAIEE*, vol. 89, pp. 90–97, Sept. 1998.
- [6] L. Staphorst, M. Jamil, and L. P. Linde, "Performance of a synchronous balanced QPSK CDMA system using complex spreading sequences in AWGN," in *Proc. of Africon '99*, pp. 215–220, Cape Technicon, Sept. 1999.
- [7] G. Woodward and B. S. Vucetic, "Adaptive detection for DS-CDMA," *Proc. of the IEEE*, vol. 86, pp. 1413–1434, July 1998.
- [8] J. Laster and J. Reed, "Interference rejection in digital wireless communications," *IEEE Signal Processing Magazine*, pp. 37–60, May 1997.
- [9] A. Deul-Hallen, J. Holtzman, and Z. Zvonar, "Multiuser detection for CDMA systems," *IEEE Personal Communications*, pp. 46–58, April 1995.
- [10] Z. Xie, C. K. Rushforth, and R. T. Short, "Multiuser signal detection using sequential decoding," *IEEE Trans. Commun.*, vol. 38, pp. 578–583, May 1990.
- [11] P. Alexander, L. Rasmussen, and C. Schlegel, "A linear receiver for coded multiuser CDMA," *IEEE Trans. Commun.*, vol. 45, pp. 605–610, May 1997.



- [12] L. Wei, L. Rasmussen, and R. Wyrwas, "Near optimum tree search detection schemes for bit-synchronous multiuser CDMA systems over gaussian and two-path rayleigh fading channels," *IEEE Trans. Commun.*, vol. 45, pp. 691–700, June 1997.
- [13] X. Li and H. Fan, "Direct blind multiuser detection for CDMA in multipath without channel estimation," *IEEE Transactions on Signal Processing*, vol. 49, pp. 63–73, Jan. 2001.
- [14] S. E. Bensley and B. Aazhang, "Subspace-based channel estimation for code division multiple access communication systems," *IEEE Trans. Commun.*, vol. 44, pp. 1009–1020, Aug. 1996.
- [15] M. Torlak and G. Xu, "Blind multiuser channel estimation an asynchronous CDMA systems," *IEEE Transactions on Signal Processing*, vol. 45, pp. 137–147, Jan. 1997.
- [16] X. Wang and H. V. Poor, "Blind equalization and multiuser detection in dispersive CDMA channels," *IEEE Trans. Commun.*, vol. 46, pp. 91–103, Jan. 1998.
- [17] M. K. Tsatsanis, "Inverse filtering criteria for CDMA systems," *IEEE Transactions on Signal Processing*, vol. 45, pp. 102–112, Jan. 1997.
- [18] M. K. Tsatsanis and Z. Xu, "Performance analysis of minimum variance CDMA receivers," *IEEE Transactions on Signal Processing*, vol. 46, pp. 3014–3022, Nov. 1998.
- [19] J. K. Tugnait, "Blind spatio-temporal equalization and impulse response estimation for MIMO channels using a Goddard cost function," *IEEE Transactions on Signal Processing*, vol. 45, pp. 268–271, Jan. 1997.
- [20] J. Miguez and L. Castedo, "A linearly constrained constant modulus approach to blind adaptive multiuser interference suppression," *IEEE Commun. Lett.*, vol. 2, pp. 217–219, Aug. 1998.
- [21] C. Xu and G. Feng, "Comments on a linearly constrained constant modulus approach to blind adaptive multiuser interference suppression," *IEEE Commun. Lett.*, vol. 4, pp. 280–282, Sept. 2000.
- [22] Z. Tang, Z. Yang, and Y. Yao, "Closed-form analysis of linearly constrained CMA based blind multiuser detector," *IEEE Commun. Lett.*, vol. 4, pp. 273–276, Sept. 2000.
- [23] C. Xu and K. Kwak, "Comments on closed-form analysis of linearly constrained CMA-based blind multiuser detector," *IEEE Commun. Lett.*, July 2001.
- [24] X. Li, "Linear prediction approach for joint blind equalization and multiuser detection in CDMA systems," *IEEE Transactions on Signal Processing*, vol. 48, pp. 3134–3145, Nov. 2000.



- [25] I. Ghauri and D. T. M. Slock, "Blind and semi-blind single user receiver techniques for asynchronous CDMA in multipath channels," *Proc. Globecom, Sydney, Australia*, vol. 1998, Nov. 1998.
- [26] X. Li and H. Fan, "Direct estimation of blind zero-forcing equalizers based on second order statistics," *IEEE Transactions on Signal Processing*, vol. 48, pp. 2211–2218, Aug. 2000.
- [27] J. G. Proakis, *Digital Communications*. McGraw-Hill, 3rd ed., 1995.
- [28] J. K. Tungait, L. Tong, and Z. Ding, "Recent research in training based and blind approaches," *IEEE Signal Processing Magazine*, pp. 17–28, May 2000.
- [29] J. P. de Villiers and L. P. Linde, "On the convexity of the LCCM cost function for DS-CDMA blind multiuser detection," *Submitted, not yet approved - IEEE Trans. Commun.*, June 2002.
- [30] J. P. de Villiers and L. P. Linde, "Analysis of the LCDCM criterion for DS-CDMA blind multiuser detection," *Proceedings of the IEEE Africon*, October 2002.
- [31] S. Verdu, *Multiuser Detection*. Cambridge University Press, 1998.
- [32] T. S. Rappaport, *Wireless Communications*. New Jersey: Prentice Hall, 1996.
- [33] R. H. Clarke, "A statistical theory of mobile-radio reception," *Bell Systems Technical Journal*, vol. 47, pp. 957–1000, 1968.
- [34] H. V. Trees, *Detection, Estimation and Modulation Theory*. New York: Wiley, 1968.
- [35] L. J. Bain and M. Engelhardt, *Introduction to Probability and Mathematical Statistics*. Belmont, California: Duxbury Press, 2nd ed., 1992.
- [36] C. E. Shannon, "Communication in the presence of noise," *Proc. IRE*, vol. 37, pp. 10–12, 1949.
- [37] J. Wozencroft and I. Jacobs, *Principles of Communications Engineering*. New York: Wiley, 1965.
- [38] M. Pursley, "Performance evaluation for phase-coded spread spectrum multiple-access communication - part i: System analysis," *IEEE Trans. Commun.*, vol. COM-25, pp. 795–799, Aug. 1977.
- [39] K. Yao, "Error probability of asynchronous spread spectrum multiple access communication systems," *IEEE Trans. Commun.*, vol. COM-25, pp. 803–809, Aug. 1977.
- [40] S. Verdu and S. Shamai, "Multiuser detection with random spreading and error correction codes: Fundamental limits.," in *Proc. 35th Allerton Conf. Communications, Control and Computing*, Sept. - Oct. 1997.

- [41] B. Saltzberg, "Intersymbol interference error bounds with application to ideal bandlimited signalling," *IEEE Trans. Information Theory*, vol. 14, pp. 563–568, July 1968.
- [42] J. S. Lehnert and M. B. Pursley, "Error probabilities for binary direct-sequence spread-spectrum communications with random signature sequences," *IEEE Trans. Commun.*, vol. COM-35, pp. 87–98, Jan. 1987.
- [43] J. M. Holtzman, "A simple, accurate method to calculate spread-spectrum multiple-access error probabilities," *IEEE Trans. Commun.*, vol. 40, pp. 461–464, March 1992.
- [44] P. van Rooyen and F. Solms, "Maximum entropy investigation of inter user interference distribution in a DS/SSMA system," in *Proc. 1995 IEEE Personal, Indoor, Mobile Radio Communications Conf.*, pp. 1308–1312, Sept. 1995.
- [45] S. Verdú, "Optimum multiuser asymptotic efficiency," *IEEE Trans. Commun.*, vol. COM-34, pp. 890–897, Sept. 1986.
- [46] R. Lupas and S. Verdú, "Linear multiuser detectors for synchronous code-division multiple-access channels," *IEEE Trans. Information Theory*, vol. 35, pp. 123–136, Jan. 1989.
- [47] N. R. Mangalvedhe, *Development and Analysis of Adaptive Interference Rejection Techniques for Direct sequence Code Division Multiple Access Systems*. PhD thesis, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, July 1999.
- [48] K. S. Schneider, "Optimum detection of code division multiplexed signals," *IEEE Trans. Aerosp. Electron. Syst.*, vol. AES-15, pp. 181–185, Jan. 1979.
- [49] T. Meyers and M. E. Magana, "An adaptive implementation of the 'one shot' decorrelating detector for CDMA communications," *IEEE Trans. Circuits Syst. II*, vol. 44, pp. 762–765, Sept. 1997.
- [50] D. Chen and S. Roy, "An adaptive multiuser receiver for CDMA systems," *IEEE Journal on Selected Areas in Commun.*, vol. 12, pp. 808–816, June 1994.
- [51] U. Madhow and M. L. Honig, "MMSE interference suppression for direct-sequence spread-spectrum CDMA," *IEEE Trans. Commun.*, vol. 42, pp. 3178–3188, Dec. 1994.
- [52] P. B. Rapajic and B. S. Vucetic, "Adaptive receiver structures for asynchronous CDMA systems," *IEEE Journal on Selected Areas in Commun.*, vol. 12, pp. 685–697, May 1994.
- [53] S. L. Miller, "Training analysis of adaptive interference suppression for direct-sequence code-division multiple access systems," *IEEE Trans. Commun.*, vol. 44, pp. 488–495, April 1996.

- [54] P. Monogioudis, R. Tafazolli, and B. Evans, "Performance of adaptive nonlinear NEFAR CDMA receiver architecture," *Electronics Letters*, vol. 30, Feb. 1994.
- [55] L. B. Milstein, "Interference rejection techniques in spread spectrum communications," *Proc. IEEE*, vol. 76, pp. 657–671, June 1988.
- [56] N. J. Bershad, "Error probabilities for DS spread-spectrum systems using an ALE for narrow-band interference rejection," *IEEE Trans. Commun.*, vol. 36, pp. 588–595, May 1988.
- [57] S. Haykin, *Adaptive Filter Theory*. New Jersey: Prentice Hall, 1991.
- [58] B. Widrow and S. D. Stearns, *Adaptive Signal Processing*. New Jersey: Prentice-Hall, 1985.
- [59] H. V. Poor and S. Verdú, "Probability of error in MMSE multiuser detection," *IEEE Trans. on Info. Theory*, vol. 43, pp. 858–871, May 1997.
- [60] T. Miyajima, "Blind adaptive detection using differential CMA for CDMA systems," *IEICE Trans. A*, vol. J83-A, pp. 1318–1329, Nov. 2000.
- [61] O. Frost, "An algorithm for linearly constrained adaptive array processing," *Proc. IEEE*, vol. 60, pp. 926–935, Aug. 1972.
- [62] D. Goddard, "Self recovering equalization and carrier tracking in two-dimensional data communication systems," *IEEE Trans. Commun.*, vol. COM-28, pp. 1867–1875, Nov. 1980.
- [63] J. R. Treichler and B. G. Agee, "A new approach to multipath correction of constant modulus signals," *IEEE Trans. Acoust., Speech, Signal Processing*, vol. ASSP-31, pp. 459–472, April 1983.
- [64] W. Lee, B. Vojcic, and R. Pickholz, "Constant modulus algorithm for blind multiuser detection," in *Proc. ISSSTA*, (Mainz, Germany), pp. 1262–1266, Sept. 1996.
- [65] F. A. Valentine, *Convex sets*. McGraw Hill, 1964.
- [66] M. S. Bazaraa and C. M. Shetty, *Nonlinear Programming: Theory and Algorithms*. John Wiley and Sons, 1979.
- [67] L. Castedo and A. R. Figueiras-Vidal, "An adaptive beamforming technique based on cyclostationary signal properties," *IEEE Trans. Signal Processing*, vol. 43, pp. 1637–1650, July 1995.
- [68] X. Wang and H. Poor, "Blind multiuser detection: a subspace approach," *IEEE Trans. Inf. Theory*, vol. 44, pp. 677–690, March 1998.



- [69] L. P. Linde, F. Marx, and W. Malan, "Power and spectral efficiency of a family of constant envelope root-of-unity filtered complex spreading sequences in WCDMA non-linear power amplification," in *IEEE Africon*, October 2002.
- [70] L. Schwartz, *Cours d'Analyse*, vol. 2. Paris: Hermann, 1967. pp. 271-278.
- [71] K. S. Miller, *Complex Stochastic Processes: An Introduction to Theory and Application*. Addison-Wesley, 1974.