REFERENCES

# Radar-Communication Integration Based on OFDM Signal

[1] Fan Changxin, Cao Lina. “Communication theory”. Peking: National Defence Industry Press. 2006

[2] Zou Guangchao, Liu Yi’an. “Design of radar-communications integrated system”. computer simulation, vol.28,pp.6-10,Aug.2011.

[3] Li Xiaobai, Yang Ruijuan, Chengwei. “The sharing signal for integrated radar and communication based on FRFT ” signalprocessing, vol.28,pp.487-494, Apr.2012

[4] DONNET B J, LONGSTAFF I D. “Combining MIMO radar with OFDM communications,” Proc. 3rd European Radar Conference. 2006,pp.37-40.

[5] Dmitriy Garmatyuk1, Jonathan Schuerger, Y. T. Morton.“Feasibility study of a multi-carrier dual-use imaging radar and communication system,” Proceedings of the 37th European Microwave Conference, 2007,pp.1473-1476.

[6] Li Xiaobai, Yang Ruijuan, Chengwei. “Integrated radar and communication based on multicarrier frequency modulation chirp signal,” Journal of electronics and information, vol.35,pp.406-412, Feb. 2013.

[7] Deng Bin. “Research on the signal designing and processing ofmulti-carrier phase coded radar,” D. National University of Defence Technology,2011,pp19-22.

[8] Zhang Wei, Tang Xiyuan, Gu Hong, Su WeiMin. “Ambiguity function analysis of OFDM radar signals,” Journal of Nanjing University of Science and Technology, vol.35,pp. 513-518,Aug.2011.

[9] Zhang Youguang, Pan Peng, Sun Yuquan. “Mutti-carrer communication,” Peking: National Defence Industry Press.2010,pp.97-100.

# A JOINT DESIGN APPROACH FOR SPECTRUM SHARING BETWEEN RADAR AND COMMUNICATION SYSTEMS

[1] “Radar spectrum regulatory overview,” [online] 2013, http://www.darpa.mil/WorkArea/DownloadAsset.aspx?id=2147486331,(Accessed: July 2014).

[2] F. H. Sanders, R. L. Sole, J. E. Carroll, G. S. Secrest, and T. L. Allmon, “Analysis and resolution of RF interference to radars operating in the band 2700–2900 MHz from broadband communication transmitters,” US Dept. of Commerce, Tech. Rep. NTIA Technical Report TR-13-490, 2012.

[3] A. Lackpour, M. Luddy, and J. Winters, “Overview of interference mitigation techniques between wimax networks andground based radar,” in 20th Annual Wireless and Optical Communications Conference, April 2011, pp. 1–5.

[4] S. Sodagari, A. Khawar, T. C. Clancy, and R. McGwier, “A projection based approach for radar and telecommunication systems coexistence,” in IEEE Global Telecommunication Conference, Dec 2012, pp. 5010–5014.

[5] A. Babaei, W. H. Tranter, and T. Bose, “A practical precoding approach for radar/communications spectrum sharing,” in 8th International Conference on Cognitive Radio Oriented Wireless Networks, July 2013, pp. 13–18.

[6] S. Amuru, R. M. Buehrer, R. Tandon, and S. Sodagari, “MIMO radar waveform design to support spectrum sharing,” in IEEE Military Communication Conference, Nov 2013, pp. 1535– 1540.

[7] A. Khawar, A. Abdel-Hadi, and T. C. Clancy, “Spectrum sharing between s-band radar and lte cellular system: A spatial approach,” in IEEE International Symposium on Dynamic Spectrum Access Networks,, April 2014, pp. 7–14.

[8] H. Deng and B. Himed, “Interference mitigation processing for spectrum-sharing between radar and wireless communications systems,” IEEE Transactions on Aerospace and Electronic Systems, vol. 49, no. 3, pp. 1911–1919, July 2013.

[9] A. Aubry, A. De Maio, M. Piezzo, and A. Farina, “Radar waveform design in a spectrally crowded environment via nonconvex quadratic optimization,” IEEE Transactions on Aerospace and Electronic Systems, vol. 50, no. 2, pp. 1138–1152, 2014.

[10] A. Aubry, A. De Maio, Y. Huang, M. Piezzo, and A. Farina, “A new radar waveform design algorithm with improved feasibility for spectral coexistence,” IEEE Transactions on Aerospace and Electronic Systems, vol. 51, no. 2, pp. 1029–1038, April 2015.

[11] B. Li and A. P. Petropulu, “Spectrum sharing between matrix completion based MIMO radars and a MIMO communication system,” in IEEE International Conference on Acoustics, Speech and Signal Processing, April 2015, pp. 2444–2448.

[12] B. Li, A. P. Petropulu, and W. Trappe, “Optimum design for coexistence between matrix completion based MIMO radars and a MIMO communication system,” arXiv preprint arXiv: 1507.01982, 2015.

[13] B. Li and A. P. Petropulu, “Radar precoding for spectrum sharing between matrix completion based MIMO radars and a MIMO communication system,” in IEEE Global Conference on Signal and Information Processing, December 2015.

[14] R. Zhang and Y. Liang, “Exploiting multi-antennas for opportunistic spectrum sharing in cognitive radio networks,” IEEE Journal of Selected Topics in Signal Processing, vol. 2, no. 1, pp. 88–102, Feb 2008.

[15] M. Filo, A. Hossain, A. R. Biswas, and R. Piesiewicz, “Cognitive pilot channel: Enabler for radio systems coexistence,” in 2nd International Workshop on Cognitive Radio and Advanced Spectrum Management, May 2009, pp. 17–23.

[16] F. M. Gardner, Phaselock techniques, John Wiley & Sons, 2005.

[17] R. Poore, “Phase noise and jitter,” Agilent EEs of EDA, 2001.

[18] R. Mudumbai, G. Barriac, and U. Madhow, “On the feasibility

of distributed beamforming in wireless networks,” IEEE Transactions on Wireless Communications, vol. 6, no. 5, pp. 1754–1763, 2007.

[19] T. Jiang, “How many entries of a typical orthogonal matrix can be approximated by independent normals?,” The Annals of Probability, vol. 34, no. 4, pp. 1497–1529, 2006.

[20] A. Goldsmith, S. A. Jafar, N. Jindal, and S. Vishwanath, “Capacity limits of MIMO channels,” IEEE Journal on Selected Areas in Communications, vol. 21, no. 5, pp. 684–702, 2003.

[21] D. Tse and P. Viswanath, Fundamentals of wireless communication, Cambridge university press, 2005.

[22] S. N. Diggavi and T. M. Cover, “The worst additive noise under a covariance constraint,” IEEE Transactions on Information

Theory, vol. 47, no. 7, pp. 3072–3081, Nov 2001.

[23] B. Friedlander, “Waveform design for MIMO radars,” IEEE Transactions on Aerospace and Electronic Systems, vol. 43, no. 3, pp. 1227–1238, 2007.

[24] C. Chen and P. P. Vaidyanathan, “MIMO radar waveform optimization with prior information of the extended target and clutter,” IEEE Transactions on Signal Processing, vol. 57, no. 9, pp. 3533–3544, 2009.

[25] E. Grossi, M. Lops, and L. Venturino, “Robust waveform design for MIMO radars,” IEEE Transactions on Signal Processing, vol. 59, no. 7, pp. 3262–3271, July 2011.

[26] G. Cui, H. Li, and M. Rangaswamy, “MIMO radar waveform design with constant modulus and similarity constraints,” IEEE Transactions on Signal Processing, vol. 62, no. 2, pp. 343–353, 2014.

[27] A. Leshem, O. Naparstek, and Arye Nehorai, “Information theoretic adaptive radar waveform design for multiple extended targets,” IEEE Journal of Selected Topics in Signal Processing, vol. 1, no. 1, pp. 42–55, June 2007.

[28] P. Stoica, J. Li, and Y. Xie, “On probing signal design for MIMO radar,” IEEE Transactions on Signal Processing, vol. 55, no. 8, pp. 4151–4161, 2007.

[29] S. Boyd and L. Vandenberghe, Convex optimization, Cambridge university press, 2004.

[30] B. Li, H. Kumar, and A. P. Petropulu, “A joint design approach for spectrum sharing between radar and communication systems,” [online] 2015, supplemented proof in http://eceweb1.rutgers.edu/˜bl352/pdf/ICASSP16-proofprop.pdf.

# STUDY ON INTEGRATED RADAR-COMMUNICATION SIGNAL OF OFDM-LFM BASED ON FRFT

[1] Li Tingjun, Ren Jiancun, Zhao Yuanli, Zhang Jinhua,“Research of Radar-Communication Integration”, Modern Radar, 2001.

[2] Roberton, M., Brown, E.R., “Integrated Radar and Communication based on Chirp Spread-Spectrum Techniques”, IEEE MTT-S Int. Microwave Symposium, Philadelphia, USA, 2003, pp. 611–614.

[3] Li Xiaobo, Yang Ruijuan, Chen Xinyong, Cheng Wei,“The Sharing Signal for Integrated Radar and Communication Based on FRFT”, SIGNAL PROCESSING, 2012, 28, (4), pp.487-494.

[4] Donnet, B.J., Longstaff, I.D., “Combining MIMO radar with OFDM communication”, 3rd European Radar Conference, 2006, pp. 37-40.

[5] Sturm, C., Zwick, T., Wiesbeck, W., “An OFDM system concept for joint radar and communications operations”, IEEE 69th Vehicular Technology Conference, Barcelona, 2009, pp. 1-5.

[6] Cheng Fang, He Zishu, Liu Hongming, Li Jun, “The Parameter Setting Problem of Signal OFDM-LFM for MIMO Radar”, International Conference on Communications Circuits and System (ICCCAS), 2008, pp. 876-880.

[7] Tao Ran, Qi Lin, Wang Yue, “Theory and Applications of the Fractional Fourier Transform”. Beijing: Tsinghua Univ. Press, 2004.

[8] Ozaktas, H.M., Arikan, O., et al. “Digital Computation of the Fractional Fourier Transform”,IEEE Trans. Signal Processing, 1996, 44, (9), pp.2141-2150.

[9] Bassem, R., Mahafza, “Radar Signal Analysis and processing using MATLAB”, New York:Chapman&Hall, 2009, pp. 109-114.