Books

1. Seyed A Zekavat and Carl R Nassar, Contribution in the Chapter: *Channel Modelling/Characteristics of the book: Adaptive Antennas Array Techniques*, Springer Verlag**,** 2004**.**
2. Carl R. Nassar, Seyed A. Zekavat, and et. al., *Multicarrier Technologies for Wireless Communications*, Kluwer Academic Press, 2001

Journal Articles

[1] H. Tong and S. A. Zekavat, "Stochastic MIMO Channels: Correlation Structure and Physical Environments," submitted to *IEEE Transactions on Wireless Communications.*

[2] W. Wang and S. A. Zekavat, "Performance Evaluation of a Semi-distributed Multi-node TOA-DOA Fusion Localization Technique," in Review process (2nd round of review) *EURASIP Journal on Advances in Signal Processing*.

[3] H. Tong, J. Pourrostam, and S. A. Zekavat, "Optimum Beamforming for a Novel Wireless Local Positioning System: A Stationarity Analysis and Solution," *EURASIP Journal on* Advances in Signal Processing, vol. 2007, Article ID 98243, 12 pages, 2007.

[4] H. Tong and S. A. Zekavat, "A Novel Wireless Local Positioning System via Asynchronous DS-CDMA and Beam-forming: Implementation and Perturbation Analysis," *IEEE Trans. on Vehicular Technology,* vol. 56, no. 3, pp. 1307 – 1320, May 2007.

[5] S. A. Zekavat, and P. K. Teh, "A Merger of Beam Pattern Scanning (BPS) Antenna Arrays and OFDM Systems: Achieving Directionality and Transmit Diversity" *IEEE Transactions on Wireless Communications,* vol. 5, no. 9, pp. 2334 – 2337, Sept. 2006.

[6] S. A. Zekavat, and X. Li, "Ultimate Dynamic Spectrum Allocation via User Central Wireless Systems," *Journal of Communications*, vol. 01, no. 01, pp. 60 – 67, April 2006.

[7] H. Tong and S. A. Zekavat, "Spatially Correlated MIMO Channel: Generation via Virtual Channel Representation, " *IEEE Communication Letters,* vol. 10, no. 5, pp. 332 – 334, May 2006.

[8] S. A. Zekavat and C. R. Nassar, "High Performance Wireless via the Merger of CI Chip Shaped DS-CDMA and Oscillating-Beam Smart Antenna Arrays", *EURASIP Journal on Applied Signal Processing*, vol. 2004, No. 9, pp. 1376-1383, August 2004.

[9] S. A. Zekavat and C. R. Nassar, "Transmit diversity via oscillating beam pattern adaptive antennas: An evaluation using geometric-based stochastic circular-scenario channel modeling," *IEEE Transactions on Wireless Communication,* vol. 4, no. 3, pp. 1134-1141, July 2004.

[10] S. A. Zekavat, C. R. Nassar and S. Shattil, "Merging multi-carrier CDMA and oscillating-beam smart antenna arrays: Exploiting directionality, transmit diversity and frequency diversity, " *IEEE Transactions on communications,* vol. 52, no. 1, pp. 110 – 119, Jan. 2004.

[11] S. A. Zekavat, C. R. Nassar, "Power-azimuth-spectrum modeling for antenna array systems: A geometric-based approach, " *IEEE Transactions on Antennas and Propagation,* vol. 51, no. 12, Dec. 2003.

[12] S. A. Zekavat and C. R. Nassar, " Achieving high capacity wireless by merging multi-carrier CDMA systems and oscillating-beam smart antenna arrays," *IEEE Transactions on Vehicular Technology,* vol. 52, no. 2, pp. 772-778, July 2003.

[13] S. A. Zekavat and C. R. Nassar, "Smart antenna arrays with oscillating beam patterns: Characterization of transmit diversity using semi-elliptic-coverage geometric-based stochastic channel modeling," *IEEE Transactions on Communications,* vol. 50, no. 10, pp. 1549-1556, Oct. 2002.

[14] S. A. Zekavat, C. R. Nassar and S. Shattil, "Oscillating beam adaptive antennas and multi-carrier systems: Achieving transmit diversity, frequency diversity and directionality, " *IEEE Transactions on Vehicular Technology,* vol. 51, no. 5, pp. 1030 -1039, Sept. 2002.

[15] S. A. Zekavat, C. R. Nassar and S. Shattil, "Smart antenna spatial sweeping for combined directionality and transmit diversity," *Journal of Communications and Networks (JCN), Special Issue on Adaptive Antennas for Wireless Communications,* vol. 2, no. 4, pp. 325-330, Dec. 2000.

Conference Proceedings

[1] X. Li, and S. A. Zekavat, "Automatic Construction of Cognitive Radio Networks," to appear in *IEEE WCNC Conference, 2008,* March 31 – April 03, Las Vegas, 2008.

[2] H. Tong, and S. A. Zekavat, "On the Suitable Environments of the Kronecker Product Form in MIMO Channel Modeling," to appear in *IEEE WCNC Conference, 2008,* March 31 – April 03, Las Vegas.

[3] H. Tong, and S. A. Zekavat, "Asymptotic Outage Analysis of Large Size Correlated MIMO Systems," to appear in *IEEE WCNC Conference, 2008,* March 31 – April 03, Las Vegas, 2008.

[4] X. Li, and S. A. Zekavat, "Traffic Pattern Prediction and Performance Investigation for Cognitive Radio Systems," to appear in *IEEE WCNC Conference, 2008,* March 31 – April 03, Las Vegas, 2008.

[5] Z. Wang, and S. A. Zekavat "A Novel Semi-distributed Cooperative Localization Technique for MANET: Achieving High Performance," to appear in *IEEE WCNC Conference, 2008,* March 31 – April 03, Las Vegas, 2008.

[6] S. A. Zekavat, A. Kolbus, X. Yang, Z. Wang, J. Pourrostam, and, M. Pourkhaatoon, "A Novel Implementation of DOA Estimation for Node Localization on Software Defined Radios: Achieving High Performance with Low Complexity," proceedings *IEEE ICSPC 2007,* Dubai, UAE, 26 – 27 Nov. 2007.

[7] T. Abdelhakim, and, S. A. Zekavat, "On the Error Floor of MC-CDMA Systems over Rayleigh Fading Channels: Uplink vs. Downlink," proceedings *IEEE ICSPC 2007,* Dubai, UAE, 26 – 27 Nov. 2007.

[8] W. Xu, S. A. Zekavat, and H. Tong, "Novel Approach for Spatially Correlated Multi-User MIMO Channel Modeling: Impact of Surface Roughness and Directional Scattering," proceedings *Forty-Fourth Annual Allerton Conference on Communication, Control, and Computing,* 2007.

[9] S. A. Zekavat, K. Hungwe, and W. Bulleit, "A Novel Integrated Class/Web-based Curriculum for the Course Introduction to Electrical Engineering for non-majors: Progresses made – lessons learned," proceedings *IEEE Frontiers in Education, FIE 2007*, Milwaukee, Oct. 10 – 13, 2007.

[10] H. Tong, and S. A. Zekavat, "Capacity and Error Performance of Correlated MIMO Systems Via Virtual Channel Representation," proceedings *IEEE PIMRC 2007*, Athens, Greece, 3 – 6 Sept. 2007.

[11] X. Li and S. A. Zekavat, "Inter-Vendor Dynamic Spectrum Sharing: Feasibility Study and Performance Evaluation," proceedings *IEEE DySPAN 2007*, April, 17 – 20, 2007.

[12] H. Mehta and S. A. Zekavat, "Dynamic Resource Allocation via Clustered MC-CDMA in Multi-Service Ad-hoc Networks: Achieving Low Interference Temperature and Low Code Reuse Distance," proceedings *IEEE DySPAN 2007*, April, 17 – 20, 2007.

[13] M. Pourkhaatoun and S. A. Zekavat, and J. Pourrostam, "A High Resolution ICA Based TOA Estimation Technique," proceedings *IEEE Radar'07*, 17 – 20 April, 2007, Boston.

[14] J. Pourrostam, S. A. Zekavat, and H. Tong "Novel Direction-of-Arrival Estimation Techniques for Periodic Sense Local Positioning Systems in Wireless Environment," proceedings *IEEE Radar'07*, 17 – 20 April, 2007, Boston.

[15] J. Pourrostam, S.A. Zekavat, and, M. Pourkhatoon, "Super-Resolution Direction-of-Arrival Estimation via Blind Signal Separation Methods," proceedings *IEEE Radar'07*, 17 – 20 April, 2007, Boston.

[16] Z. Wang, and S. A. Zekavat, "MANET Localization via Multi-node TOA-DOA Optimal Fusion," proceedings *IEEE Milcom'06*, Washington DC, Oct. 22 – 26, 2006.

[17] S. A. Zekavat, "A Wireless Local Positioning System for Road Safety," Proceedings *Research Opportunities in Radio Frequency Identification (RFID) Transportation Applications Conference* 2006, Washington DC, Oct. 17 – 18, 2006.

[18] R. Kulkarni, and S. A. Zekavat, "Smart inter-vendor spectrum allocation in multi-vendor environments," proceedings *IEEE IWCMC 2006*, Vancouver Canada, July 3 – 6, 2006.

[19] K. Hungwe, S. A. Zekavat, and G. Archer, "Gender perspectives on the optimization of the interdisciplinary course curriculum introduction to electrical engineering for non-major," proceedings *American Society of Engineering Education Annual Conference, ASEE'06*, Chicago, IL, June, 18-21 2006.

[20] H. Tong and S. A. Zekavat, "A simple beamforming-SIMO merger in spatially correlated channel via virtual channel representation," proceedings *IEEE Globecom 2005*, St. Louis, 28 Nov. – 02 Dec., 2005.

[21] S. A. Zekavat and X. Li, "User-Central Wireless System: Ultimate Dynamic Channel Allocation," proceedings *IEEE DySPAN'05*, Baltimore, Nov. 8 – 11, 2005 (***won NSF graduate student travel award***)

[22] H. Tong and S. A. Zekavat, "Wireless local positioning system implementation via LCMV beamforming," Proceedings *SPIE'05 Conference on Defense and Security*, Orlando, FL, April 2005.

[23] S. A. Zekavat, K. Hungwe, and S. Sorby, “An optimized approach for teaching the interdisciplinary course electrical engineering for non majors, ” Proceedings *2005 American Society of Engineering Education Annual Conference, ASEE'05,* Portland, Oregon, June 12-15, 2005.

[24] H. Tong and S. A. Zekavat, “Wireless local positioning system via DS-CDMA and beamforming: An imperfect prior knowledge perturbation analysis” Proceedings *IEEE WCNC’05,* New Orleans, LS, March 2005.

[25] R. Kulkarni and S. A. Zekavat, “Smart versus blind inter-vendor spectrum sharing for MC-CDMA systems, ” Proceedings *The University of Texas at Austin, WNCG’04 Symposium,* Austin, TX, Oct. 2004.

[26] P. K. Teh and S. A. Zekavat, "Space-time trellis codes (STTC) versus Beam Pattern Scanning (BPS) scheme," Proceedings *IEEE VTC Fall 2004,* Los Angeles, CA, USA, Sept. 26-29, 2004.

[27] S. A. Zekavat, C. Sandu, G. Archer, and K. Hungwe, "An evaluation of the teaching approach for the interdisciplinary course electrical engineering for non-majors," Proceedings *2004 American Society of Engineering Education Annual Conference, ASEE'04,* Salt Lake city, Utah, June 20-24, 2004.

[28] S. A. Zekavat, H. Tong, and J. Tan, "A novel wireless local positioning system for airport (indoor) security, " Proceedings *SPIE Conference on Defense and Security 2004,* Orlando, FL, pp. 522-533, April 2004.

[29] P. T. Keong and S. A. Zekavat, “Space-time block codes (STBC) versus beam pattern scanning (BPS): Capacity, performance, complexity and spectrum efficiency evaluation,” Proceedings *IEEE wireless and Networking conference*, WCNC’04, Atlanta, GA, March 21-25, 2004.

[30] S. A. Zekavat, “A novel application for wireless communications in vehicle early warning, ” proceedings *IEEE Consumer Communications and Networking 2004,* Las Vegas, NV, Jan. 5-8 2004.

[31] Z. Tian, L. Wu, and S. A. Zekavat, “Blind v.s. training–based UWB timing acquisition with effective multipath capture,” Proceedings *IEEE 37th Asilomar conference on Signals, Systems and Computers*, Nov. 9-12, 2003.

[32] P. T. Keong and S. A. Zekavat, “A merger of OFDM and antenna array beam pattern scanning (BPS): Achieving directionality and transmit diversity,” Proceedings *IEEE 37th Asilomar conference on Signals, Systems and Computers*, Nov. 9-12, 2003.

[33] A. Pezeshk and S. A. Zekavat, “Inter-vendor spectrum sharing in DS-CDMA and MC-CDMA systems,” Proceedings *IEEE 37th Asilomar conference on Signals, Systems and Computers*, Nov. 9-12, 2003.

[34] S. A. Zekavat, F. Emdad and M. Kirby, “A merger of maximum noise fraction beam forming and MC-CDMA systems: Perturbation analysis in dispersive channels,” Proceedings *IEEE 37th Asilomar conference on Signals, Systems and Computers,* Nov. 9-12, 2003.

[35] P. T. Keong and S. A. Zekavat, “Merging multi-carrier OFDM and beam pattern scanning smart antennas: Achieving low PAPR, high performance and high directionality,” Proceedings *The University of Texas at Austin* 2003 *WNCG Symposium,* Oct. 22-24, Austin, TX, 2003.

[36] S. A. Zekavat and P. T. Keong, "Beam-pattern-scanning dynamic-time block coding," Proceedings *The University of Texas at Austin* 2003 *WNCG Symposium*, Oct. 22-24, Austin, TX, 2003.

[37] A. Pezeshk and S. A. Zekavat, "Intervendor spectrum sharing in MC-CDMA systems using subcarrier clustering," Proceedings *The University of Texas at Austin* 2003 *WNCG Symp.*, Oct. 22-24, 2003.

[38] S. A. Zekavat, "Mobile Base Station (MBS) wireless with applications in vehicle early warning systems," Proceedings *The University of Texas at Austin* 2003 *WNCG Symposium*, Oct. 22-24, 2003, Austin, TX.

[39] F. Emdad, S. A. Zekavat and M. Kirby, "Adaptive antenna beam forming via maximum noise fraction for multi carrier CDMA systems," Proceedings *International Conference on Wireless Communications, ICWN'03*, pp.431-437, Las Vegas, June 23-26, 2003.

[40] S. A. Zekavat and C. R. Nassar, "Spectral sharing in multi-system environments via multi-carrier CDMA," Proceedings *IEEE International Conf. on Communications, ICC'03*, Alaska, May 11-15, 2003.

[41] S. A. Zekavat and C. R. Nassar, " High capacity wireless via MC-CDMA/Oscillating-beam smart antenna array systems," Proceedings *IEEE International Symposium on Wireless Personal Multimedia Communications, WPMC'02*, Hawaii, USA, Oct. 2002.

[42] S. A. Zekavat, C. R. Nassar and S. Shattil, "Merging oscillating-beam smart antenna arrays and wideband multi-carrier CDMA: Exploiting transmit diversity, frequency diversity and directionality," Proceedings *IEEE 3Gwireless'02*, San Francisco, CA, USA, May 2002.

[43] S. A. Zekavat, C. R. Nassar and S. Shattil, "Transmit diversity, frequency diversity and directionality via oscillating beam adaptive antennas and multi-carrier systems," Proceedings *IEEE Spring VTC'02*, Vol. 3, pp. 1353-1358, Birmingham, AL, USA, May, 2002.

[44] S. A. Zekavat, C. R. Nassar and S. Shattil, "Merging carrier interferometry DS-CDMA and oscillating-beam smart antenna arrays: Exploiting transmit diversity, frequency diversity and directionality," Proceedings *IEEE ICC'02*, Vol. 2, pp. 724-747, New York, NY, USA, April-May, 2002.

[45] S. A. Zekavat and C. R. Nassar, "Semi-elliptic-coverage geometric-based stochastic channel modeling for smart antenna arrays with oscillating beam patterns," Proceedings *IEEE Globcom'01*, Vol. 5, pp. 3237-3241, San Antonio, TX, USA, Nov. 25-29, 2001.

[46] S. A. Zekavat, C. R. Nassar, "Adaptive antennas power-azimuth spectrum using a geometric-based stochastic channel model with a semi-elliptic scenario," Proceedings *Antenna Measurement and Technologies Associated, AMTA'01*, pp. 346-348, Denver, CO, USA, Oct. 2001.

[47] S. A. Zekavat, C. R. Nassar, "Fading channel characterization for oscillating-beam-pattern smart antennas using geometric-based stochastic channel modeling, with circular coverage scenario," Proceedings *IEEE Vehicular Tech. Conf., VTC fall 2001*, pp. 1452-1456, Atlantic City, NJ, USA, Oct. 7-11, 2001.

[48] S. A. Zekavat, C. R. Nassar, "Geometric-based stochastic channel modeling for adaptive antennas with oscillating beam patterns," Proceedings *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC'01*, pp. 130-134, San Diego, CA, USA, Sep., 2001.

[49] S. A. Zekavat, C. R. Nassar and S. Shattil, "The merger of a single oscillating-beam smart antenna and MC-CDMA: Transmit diversity, frequency diversity and directionality," Proceedings *IEEE Emerging Technologies Symposium on Broad Band Communications For Internet Era*, pp. 107-112, Dallas, TX, USA, Sep. 2001.

[50] S. A. Zekavat, C. R. Nassar, "Diversity gains in wireless systems with oscillating beam smart antennas: An evaluation via geometric-based stochastic channel models, with point scatterers," Proceedings *SPIE's International Symposium on the Convergence of Information Technologies and Communication, ITCOM'01*, pp.118-124 Denver, CO, USA, Aug. 20-24, 2001.

[51] S. A. Zekavat, C. R. Nassar and S. Shattil, "Achieving directionality and transmit diversity via smart antenna pattern oscillation with a geometric-based stochastic channel model for coherence time evaluation, " Proceedings *IEEE Radio And Wireless Conference, RAWcon'01*, pp. 223-226, Boston, MA, USA, Aug. 2001.

[52] S. A. Zekavat, C. R. Nassar and S. Shattil, "Combined directionality and transmit diversity via smart antenna spatial sweeping," Proceedings *38th Annual Allerton Conference on Communication, Control, and Computing, University of Illinois in Urbana-Champaign*, pp. 203-211, Urbana-Champaign, IL, USA, Oct. 2000.

[53] M. Azimi and S. A. Zekavat, "Cloud classification using support vector machines," Proceedings *IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2000*, Vol.2, pp. 669-671, Hawaii, USA, July 2000.

[54] S. A. Zekavat and A. Abdi, "Statistical land clutter modeling for airborne Radar," Proceedings of *International Conference on Information, Communications, & Signal Processing, ICICS'97*, Singapore, 1997.

[55] S. A. Zekavat and M. H. Baastaani, "Large scale shadowing effect for airborne Radar land clutter model," Proceedings *International Conf. on Telecommunication, ICT'97*, Melbourne, Australia, 1997.

[56] S. A. Zekavat and M. H. Baastaani, "Topographical maps based airborne Radar land clutter modeling," Proceedings *International Conf. on Telecommunication, ICT'96*, Istanbul, Turkey, 1996.

[57] S. A. Zekavat and M. H. Baastaani, "A statistical model for the terrain Radar back scatter and multiple scatter," Proceedings *Iranian Conference on Electrical Engineering*, in Persian Language, *ICEE'96*, University of Tehran, Tehran, Iran, 1996.

[58] S. A. Zekavat and M. H. Baastaani, "A statistical approach to Radar clutter modeling," Proceedings *Iranian Conference on Electrical Engineering, ICEE'95*, in Persian Language, Iran University of Technology, Tehran, Iran, 1995.

[59] S. A. Zekavat and M. H. Baastaani, "Effect of shadowing on terrain Radar clutter," Proceedings *Iranian Conference on Electrical Engineering, ICEE'94*, in Persian Language, University of Tarbiat Modarres, Tehran, Iran, 1994.

[60] S. A. Zekavat and M. H. Baastaani, "Radar clutter modeling," Proceedings *Iranian Conference on Electrical Engineering, ICEE'93*, in Persian Language, Amirkabir University of Technology, Tehran, Iran, 1993.

[61] S. A. Zekavat and M. H. Rahnavard, “The Trend of the Development of Radar Systems,” Proceedings *the First Radar Conference, Radar’99,* in Persian Language, Tehran, Iran, 1989 (***won paper award***).