

COMPLETE LIST OF PUBLICATIONS

Graduate Research Assistant and, or M.S. thesis student

• Peer-Reviewed Journal Papers

- 1) **D. Chatterjee**, "Calculation of Flush-Mounted Slot Antenna Input Impedance Using Uniform Theory of Diffraction (UTD) Formulation," manuscript in preparation for submission to *IEEE Antennas and Wireless Propagation Letters*.
- 2) **D. Chatterjee**, "Paraxial and Source Region Behavior of a Class of Asymptotic and Exact Formulations in the High-Frequency Planar Limit," *IEEE Antennas and Wireless Propagation Letters* (AWPL), vol. 4, pp. 71-74, 2005.
- 3) **V. Natarajan** and **D. Chatterjee**, "Comparative Evaluation of Some Empirical Design Techniques for CAD Optimiaztion of Wideband U-Slot Microstrip Antennas," *Applied Computational Electromagnetics Society (ACES) Journal*, vol. 20, no. 1, pp. 50-69, March 2005.
- 4) **V. Natarajan** and **D. Chatterjee**, "An Empirical Approach for Design of Wideband, Probe-Fed, U-Slot Microstrip Patch Antennas on Single-Layer, Infinite, Grounded Substrates," *Applied Computational Electromagnetics Society (ACES) Journal*, vol. 18, no. 3, pp. 191-201, November 2003.
- 5) **D. Chatterjee** and **R. G. Plumb**, "Some Convergence Considerations in Space-Domain Moment Method Analysis of a Class of Wideband Microstrip Antennas," *IEEE Transactions on Antennas and Propagation*, vol. 48, no. 2, pp. 147-160, February 2000.
- 6) **D. Chatterjee** and **R. G. Plumb**, "Stokes Phenomenon in the Development of Microstrip Green's Function and its Ramifications," *IEEE Transactions on Microwave Theory and Techniques*, vol. 44, no. 12, pp. 2288-2290, December 1996.
- 7) **D. Chatterjee** and **R. G. Plumb**, "A Hybrid Formulation for the Probe-to-Patch Attachment Mode Current for Rectangular Microstrip Antennas," *IEEE Transactions on Antennas and Propagation*, vol. 44, no. 5, pp. 677-686, May 1996.

• Peer-Reviewed International Conferences and Symposium Papers

- 1) **D. Chatterjee**, "Paraxial Region Comparison of Creeping Wave Formulations for Axial and Circumferential Magnetic Current Elements on a PEC Circular Cylinder," accepted for publication in the *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, Washington, DC, July 3-8, 2005.
- 2) **D. Chatterjee** and **E. Chettiar**, "Analytical Calculation of Input Impedance of Rectangular Microstrip patch Antennas on Finite Ground Planes," *Proceedings of the IEEE/ACES International Conference on Wireless Communications and Applied Computational Electromagnetics*, Honolulu, Hawaii, USA, April 3 to 7, 2005. (4 printed pages).
- 3) **D. Chatterjee**, "Calculation of Mutual Coupling between Axial Magnetic Dipoles on Circular Cylinders with Applications to Tactical Missile Systems," *Proceedings of the 2004 Antenna Applications Symposium*, pp. 376-406, Allerton, Monticello, IL, September 15-17, 2004.
- 4) **V. Natarajan**, **E. Chettiar** and **D. Chatterjee**, "Effect of Ground Plane Size on the Performance of a Class of Microstrip Antennas on Microwave Substrates," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, vol. 4, pp. 4491-4494, Monterey, CA, USA, June 20-26, 2004.
- 5) **V. Natarajan**, **E. Chettiar** and **D. Chatterjee**, "An Ultra-Wideband, Dual-Stacked U-Slot Microstrip Antenna," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, vol. 3, pp. 2939-2942, Monterey, CA, USA, June 20-26, 2004.
- 6) **E. Chettiar**, **V. Natarajan** and **D. Chatterjee**, "Effect of Slot-Width Variation of Performance of Wideband Probe-Fed, U-Slot Patch Antennas Using Commercial CAD Tools" *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, vol. 2, pp. 1792-1795, Monterey, CA, USA, June

20-26, 2004.

- 7) **E. Chettiar, V. Natarajan and D. Chatterjee**, "Comparison of Resonant Frequency Calculations for Wideband U-Slot Antennas on Microwave Substrates," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, vol. 4, pp. 3713-3716, Monterey, CA, USA, June 20-26, 2004.
- 8) **V. Natarajan, E. Chettiar and D. Chatterjee**, "Performance of Two Empirical Techniques for Design of Optimized Wideband, U-Slot Antennas," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, vol. 3, pp. 2424-2427, Monterey, CA, USA, June 20-26, 2004.
- 9) **D. Chatterjee**, "Analysis of a Class of Asymptotic and Exact Solutions in the High-Frequency Planar Limit," *Proceedings of the URSI (Commission B) Symposium on Electromagnetic Theory*, Pisa, Italy, May 23-27, 2004, pp. 528-530.
- 10) **V. Natarajan and D. Chatterjee**, "Optimization Studies for Single-Layer, Wideband, U-Slot on Microwave Substrates using the IE3D Code," *Proceedings of the 20th Annual Review of Progress in Applied Computational Electromagnetics*, Syracuse University, NY, USA, April 19-23, 2004. (8 pages).
- 11) **V. Natarajan and D. Chatterjee**, "Effect of Substrate Permittivity and Thickness on Single-Layer, Wideband, U-Slot Microstrip Antennas on Microwave Substrates," *Proceedings of the 20th Annual Review of Progress in Applied Computational Electromagnetics*, Syracuse University, NY, USA, April 19-23, 2004. (6 pages).
- 12) **D. Chatterjee**, "On a Class of Ultrawideband Probe-Fed Microstrip Patch Antennas for Applications to Mobile and Wireless Communication Systems," (invited paper) *Proceedings of International Conference on Communications, Devices, and Intelligent Systems (CODIS)*, pp. 66-69, Kolkata (Calcutta), India, January 8-10, 2004.
- 13) **D. Chatterjee**, "Numerical Modeling of Scan Behavior of Finite Planar Arrays of Wideband U-Slot and Rectangular Microstrip Patch Elements," *Proceedings of the IEEE International Symposium on Phased Array Systems and Technology*, pp. 323-328, Boston, MA, USA, October 14-17, 2003.
- 14) **V. Natarajan and D. Chatterjee**, "Effects of Mutual Coupling in a High-Fidelity, Circularly Polarized Probe-Fed, Two-Element Pentagonal Patch Array," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, Columbus, OH, USA, June 22-27, 2003, vol. 1, pp. 593-596.
- 15) **V. Natarajan and D. Chatterjee**, "Effects of Ground Plane Shape on Performance of Probe-Fed, Circularly Polarized, Pentagonal Patch Antenna" *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, Columbus, OH, USA, June 22-27, 2003, vol. 2, pp. 720-723.
- 16) **V. Natarajan, D. Chatterjee, K.-F. Lee and R. D. Swanson**, "Effects of Ground Plane Shape on Microstrip Antenna Performance for Cell-Phone Applications," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, Boston, MA, USA, July 8-13, 2001, vol. 3, pp. 46-49.
- 17) **D. Chatterjee, V. Natarajan, K.-F. Lee and X. Wang**, "Techniques for Bandwidth Enhancement of Probe-Fed, Microstrip Antennas on Small, Finite Ground Planes," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, Boston, MA, USA, July 8-13, 2001, vol. 3, pp. 282-285.
- 18) **A. Shackelford, K.-F. Lee, D. Chatterjee, Y.-X. Guo, K.-M. Luk and R. Chair**, "Small-Size, Wide-Bandwidth, Microstrip Patch Antennas," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, Boston, MA, USA, July 8-13, 2001, vol. 1, pp. 86-89.
- 19) **A. Shackelford, K.-F. Lee and D. Chatterjee**, "On Reducing the Patch Size of U-Slot and L-Probe Wideband Patch Antennas," *Proceedings of IEEE Antennas and Propagation Society Conference on Antennas for Wireless Communications*, pp. 35-38, Waltham, MA, USA, November 6-8, 2000.
- 20) **D. Chatterjee, S. Chakrabarti, K. Shanmugan and G. E. Prescott**, "Performance Simulation Studies for a Class of "Smart", Conformal Array Antenna Architectures," *Proceedings of the IEEE*

International Symposium on Phased Array Systems and Technology, pp. 251-254, Dana Point, CA, USA, May 20-26, 2000.

- 21) **D. Chatterjee** and **R. G. Plumb**, "Convergence Considerations in Moment-Method Analysis of a Class of Microstrip Antennas," *IEEE Antennas and Propagation and USNC/ URSI Symposium Digest*, Montréal, Québec, Canada, July 13-18, 1997, vol. 2, pp. 602-605.
- 22) **D. Chatterjee** and **R. G. Plumb**, "Modeling Far Field Patterns of Cylindrical Arrays for Rapidly Deployable Radio Networks (RDRN) Using the NEC-Basic Scattering Code," *IEEE Antennas and Propagation and USNC/ URSI Symposium Digest*, Baltimore, MD, USA, July 21-26, 1996, vol. 1, pp. 714-717.
- 23) **D. Chatterjee** and **R. G. Plumb**, "Alternate Cutoff Radius Criterion for Probe-Fed, Circular Microstrip Patches," *IEEE Antennas and Propagation and USNC/URSI Symposium Digest*, Newport Beach, CA, USA, June 18-23, 1995, vol. 1, pp. 346-349.
- 24) **D. Chatterjee**, **R. Paknys** and **S. J. Kubina**, "Nonuniformity in a Class of UTD Curved Surface Fields Near Smooth Convex Surfaces," *Proceedings of the Conference on Antenna Technology and Applied Electromagnetics (ANTEM)*, pp. 337-344, Winnipeg, Manitoba, Canada, August 5-7, 1992.
- 25) **D. Chatterjee**, **S. J. Kubina** and **R. J. Paknys**, "Coupling Gain Comparisons Between Antennas on Circular Cylinders at SHF/EHF Frequencies," *Proceedings of the Canadian Electrical Engineering Society Conference*, pp. 46.4.1 to 46.4.3, (3 pages), Ottawa, Ontario, Canada, September 4 to 6, 1990.
- 26) **A. K. Bhattacharyya** and **D. Chatterjee**, "UTD Expression for Scattering Cross-Section of a Finite Cylinder with Circular Cross-Section," *IEEE Antennas and Propagation and URSI Symposium Digest*, Boston, MA, USA, June 1984, pp. 246-248.

• **Refereed International Symposium Digest Abstracts (One Page)**

- 1) **D. Chatterjee**, "Computational Bio-Electromagnetics and its Applications to Bio-Engineering," *First Annual Kansas City Life Sciences Research Day*, (abstract volume, p. 38.), UMKC Life Sciences Initiative, KC, MO, November 27, 2001.
- 2) **D. Chatterjee**, "Numerical Comparison of Eigenfunction and Asymptotic (High-Frequency) Radiated Fields from a Class of Open, Convex Structures," *IEEE Antennas and Propagation and USNC/ URSI Symposium*, (URSI Digest, p. 50), Salt Lake City, Utah, July 16-21, 2000.
- 3) **R. K. Moore**, **B. Murtha** and **D. Chatterjee**, "Measuring Rainfall Rates Using a Spaceborne Synthetic Aperture Radar," *XXVI General Assembly of the International Union of Radio Science (Abstract Digest, p. 343)*, Commission F, Toronto, Canada, August 1999.
- 4) **R. K. Moore**, **D. Chatterjee** and **S. Taherion**, "Algorithm for Correcting Spaceborne Wind-Vector Scatterometers for Rain Attenuation," *XXVI General Assembly of the International Union of Radio Science (Abstract Digest, p. 343)*, Commission F, Toronto, Canada, August 1999.
- 5) **D. Chatterjee** and **R. G. Plumb**, "Probe-Excited Guided Waves in Planar Microstrip Radiators," *XXVI General Assembly of the International Union of Radio Science (Abstract Digest, p. 43)*, Commission B, Toronto, Canada, August 1999.
- 6) **D. Chatterjee**, **S. Taherion** and **R. K. Moore**, "Electromagnetic Scattering from Closed, Convex, Lossy Dielectric Scatterers with Applications to Spaceborne Scatterometry," *IEEE Antennas and Propagation and USNC/ URSI Symposium*, (URSI Abstract Digest, p. 48), July 11-16, 1999, Orlando, Florida, USA.
- 7) **D. Chatterjee**, **S. Chakrabarti**, **K. S. Shanmugan** and **G. E. Prescott**, "Application of Some Optimization Techniques to Adaptive, Conformal Array Antennas for Mobile Communications," *IEEE Antennas and Propagation and USNC/ URSI Symposium*, (URSI Abstract Digest, p. 40), July 11-

16, 1999, Orlando, Florida, USA.

- 8) **D. Chatterjee, R. G. Plumb** and **G. E. Prescott**, "Creeping Wave Considerations in Cylindrical Microstrip Patch Arrays," *IEEE Antennas and Propagation and USNC/ URSI Symposium*, (URSI Abstract Digest, p. 12), Atlanta, Georgia, USA, June 21-26, 1998.
- 9) **D. Chatterjee** and **R. G. Plumb**, "Efficient Moment Method Analysis of a Class of Wideband Microstrip Patch Antennas," *IEEE Antennas and Prop. and USNC/ URSI Symp.*, (URSI Abstract Digest, p. 11), Atlanta, Georgia, USA, June 21-26, 1998.
- 10) **D. Chatterjee** and **R. G. Plumb**, "Performance Analysis of a Class of Cylindrical Conformal Array Antennas," *IEEE Antennas and Propagation and USNC/ URSI Symposium*, (URSI Abstract Digest, p. 50), Montréal, Québec, Canada, July 13-18, 1997.
- 11) **D. Chatterjee** and **R. G. Plumb**, "Comparison of Antenna Architectures for Rapidly Deployable Radio Networks (RDRN) based on Far-Field Pattern Performance," *IEEE Antennas and Propagation and USNC/ URSI Symp.*, (URSI Abstract Digest, p. 325), Baltimore, MD, USA, July 21-26, 1996.
- 12) **D. Chatterjee** and **R. G. Plumb**, "Comparison of Numerical and Experimental Coupling Results between Antennas Mounted on a Circular Cylinder," *IEEE Antennas and Prop. Soc. and URSI Symp.*, (URSI Abstract Digest, p. 337) Ann Arbor, Michigan, USA, June 1993.
- 13) **D. Chatterjee** and **R. G. Plumb**, "Numerical Comparison of Asymptotic and Exact Formulations for Fields Near Convex Surfaces," *IEEE Antennas and Prop. Soc. and URSI Symp.*, (URSI Abstract Digest, p. 329), Ann Arbor, Michigan, USA, June 1993.

• Dissertations & Theses (Published)

- 1) **D. Chatterjee**, *Advances in Modeling Techniques for a Class of Microstrip Antennas*, dissertation accepted in Spring 1998 by the Department of Electrical Engineering and Computer Science, University of Kansas, USA, in partial fulfillment of the requirements for the Doctor of Philosophy (Ph.D.) degree.
- 2) **D. Chatterjee**, *Evaluation of a Class of Creeping Wave Formulations with Applications to Practical Modeling of Aircraft Antenna EMI Coupling Problems*, thesis accepted in April 1992 by the Department of Electrical and Computer Engineering, Concordia University, Montréal, Canada, in partial fulfillment of the requirements for the Master of Applied Science (M.A.Sc) degree.
- 3) **D. Chatterjee**, *Electromagnetic Scattering from a Simplified Aircraft Model*, thesis accepted in June 1983 by the Department of Electronics and Electrical Communication Engineering, IIT Kharagpur, West Bengal, India, in partial fulfillment of the requirements for the Master of Technology (M.Tech.) degree.

• Research Technical Reports Prepared For Corporate and Government Contracts

- 1) **E. Chettiar** and **D. Chatterjee**, "Wideband U-Slot Antenna Design on Finite Ground Planes and Feasibility Study of Dynamically Tuned Adaptive Matching Networks," tech. rep. # ECE-UMKC04-TR01, report prepared under contract for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO, 64141-3095, September 15, 2004.
- 2) **V. Natarajan** and **D. Chatterjee**, "An Empirical Design Technique for U-Slot Microstrip Patch Antennas on Microwave Substrates, Part I: Infinite Ground Plane Analysis," tech. rep. # ECE-UMKC02-TR01, report prepared under contract for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO, 64141-3095, September 15, 2002.
- 3) **V. Natarajan** and **D. Chatterjee**, "Performance Simulation of a RHCP, Probe-Fed, Microstrip Antenna," tech. rep. # ECE-UMKC02-TR02, report prepared under contract for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO, 64141-3095, September 15, 2002.
- 4) **D. Chatterjee** and **V. Natarajan**, "Feasibility Studies on Antenna-to-Antenna Coupling in Complex,

Embedded Environments,” tech. rep. # ECE-UMKC01-HNYWL-TR03, report prepared under contract for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO, 64141-3095, September 25, 2001.

- 5) **V. Natarajan** and **D. Chatterjee**, “Analysis and Modeling of Finite Ground Plane Effects for a Class of Microstrip Antennas, Employing Commercially Available CAD Softwares,” tech. rep. # ECE-UMKC01-HNYWL-TR02, report prepared under contract for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO, 64141-3095, June 30, 2001.
- 6) **V. Natarajan** and **D. Chatterjee**, “Comparisons of Results from IE3D and ENSEMBLE for Select Geometries,” tech. rep. # ECE-UMKC01-HNYWL-TR01, report prepared under contract for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO, 64141-3095, June 30, 2001.
- 7) **V. Natarajan** and **D. Chatterjee**, “Simulation, Design and Development of Miniature, Broadband, Low Profile Antennas for Cellular and PCS Communications Employing the IE3D CAD Software,” technical report # CEP-ECE-UMKC-FY00-TR02, report prepared under contract for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO, 64141-3095, September 30, 2000.
- 8) **D. Chatterjee** and **K.-F. Lee**, “Simulation, Design and Development of Miniature, Broadband, Low Profile Antennas for Cellular and PCS Communications,” technical report # CEP-ECE-UMKC-FY00-TR01 prepared for Honeywell International, Inc., Federal Manufacturing and Technologies, KC, MO 64141-3095, July 31, 2000.
- 9) **D. Chatterjee**, **R. K. Moore** and **S. Taherion**, “A Lookup Table Based SEAWINDS Algorithm Using Radiometer Attenuation for Correcting Scatterometer Data,” TR-11960-2, Radar Systems and Remote Sensing Laboratory (RSL), August 1999, University of Kansas, Lawrence, Kansas, USA.
- 10) **D. Chatterjee** and **R. G. Plumb**, “Numerical Modeling of Antenna Arrays for Rapidly Deployable Radio Networks,” Technical Report TISL-10920-14, Information Telecommunication Technology Center (ITTC), The University of Kansas Center for Research, Inc., March 1996. (Prepared for Defense Advanced Research Project Agency (DARPA) under contract number J-FBI-94-223.)
- 11) **D. Chatterjee** and **R. G. Plumb**, “Preliminary Evaluation of Circular Patch, Planar Phased-Array Antenna Parameters for Feasibility Analysis,” RSL Technical Report 9346-2, Radar Systems and Remote Sensing Laboratory, University of Kansas, December 1993. (Preliminary Report for General Aviation and Avionics Division, Allied-Signal Aerospace Company, Kansas, under Targeted-University Research Program.)
- 12) **D. Chatterjee** and **R. G. Plumb**, “Some Proposed Advances in Modeling of Circular Patch, Planar Phased-Array Antenna Characteristics,” RSL Technical Report 9346-1, Radar Systems and Remote Sensing Laboratory, University of Kansas, May 1993. (Prepared for General Aviation and Avionics Division, Allied-Signal Aerospace Company, Kansas, under Targeted-University Research Program.)
- 13) **D. Chatterjee**, **R. J. Paknys** and **S. J. Kubina**, “Numerical Comparison of a Class of Creeping Wave Formulations with Applications to EMI Coupling Prediction,” TN-EMC-91-12, Electromagnetic Compatibility Laboratory, Dept. Electrical and Computer Engineering, Concordia University, Montréal, Québec, Canada, December 1991. (Prepared for Defense Research Establishment Ottawa (DERO) under contract W7714-1-9538/01-SS, Canada.)
- 14) **D. Chatterjee**, **S. J. Kubina** and **R. J. Paknys**, “An Appraisal of the Creeping Wave Formulations in the NEC-Basic Scattering (NECBSC2) code for AAPG code Compatibility,” TN-EMC-91-08, Electromagnetic Compatibility Laboratory, Dept. Electrical and Computer Engineering, Concordia

University, Montréal, Québec, Canada, June 1990. (Prepared for Defense Research Establishment Ottawa (DERO) under contract W7714-1-9538/01-SS, Canada.)

- 15) **D. Chatterjee, M. K. Pradhan and A. K. Mukherjee**, “Design, Evaluation and Feasibility Analysis of a Four-Horn Monopulse Feed with Applications to Tracking Radar,” TN/86/AG/RADAR/AvDB/HAL, Antenna Group, Radar Division, Avionics & Design Bureau (AvDB), January 1986, Hindustan Aeronautics Limited, Hyderabad, India. (An internal lab. report for restricted use.)

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