



Illinois Center for Wireless Systems Jointly with ECE 590B: Electromagnetics, Optics and Remote Sensing Seminar Series

Antenna Technology for Next Generation Systems at Rockwell Collins

Mr. James B. West and Mr. Brian Herting
Rockwell Collins

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B02 CSL

Abstract: Since its founding as Collins Radio in 1933, Rockwell Collins and its products have been recognized for distinctive quality and state-of-the-art technology. From its early days as a radio equipment provider for critical missions such as Rear Admiral Richard Byrd's South Pole expedition and the Apollo, Gemini, and Mercury space programs to its pioneering work on the military Global Positioning System (GPS), Rockwell Collins has demonstrated innovation in the wireless world. Today, Rockwell Collins-brand aircraft electronics are installed in the cockpits of nearly every commercial airline in the world, and its military communication and navigation systems aid both U.S. and allied forces in the fight against terror.

Every wireless communication and navigation system requires a transducer, i.e. an antenna, to facilitate the transmission and reception of electromagnetic (EM) waves. Modern systems place stringent requirements on the performance of the antenna, often pushing the limits of Maxwell's EM equations. Rockwell Collins recognizes the need for better performing antennas within its systems, and has invested heavily in the research and development of advanced antenna concepts for next generation platforms. An overview of this antenna research will be provided in this presentation.

Biography: **Mr. James B. West** is with the Advanced Technology Center where he is a Principal Engineering Manager in the Advanced Radio Systems Department. He has over 27 years of experience in antennas and microwave engineering. His current research interests include low-cost and broadband phased arrays, multi-band SatCom and electrically small GPS munitions antenna technologies. His project experience includes weather radar; radar altimeter; mobile satellite communications; INMARSAT-C SATCOM; hand held, airborne, munitions, and land mobile GPS; Traffic Collision Avoidance System (TCAS); cellular radio systems; Direct Broadcast System (DBS); Global Broadcast System (GBS); Direct PC; aircraft Gatelink; In-flight entertainment; Wireless Integrated Network Sensors (WINS); SCAMP Milstar wide-band and FAB-T data links; and Future Combat Systems (FCS) High Band and DARPA MetaMaterials phased array development. Mr. West is a senior member and technical reviewer for the IEEE Antennas and Propagation and Microwave Theory and Techniques Societies. He is a member of the Antenna Measurement Techniques Association (AMTA), and the Applied Computational Electromagnetics Society (ACES). He has (co)-authored fifteen technical publications, including two editions of the Antenna Technology and Phased Array Antenna Chapters for the CRC Press's RF and Microwave Handbook. He has been awarded twenty-two patents and has seven patents pending in the areas of antennas, electronically scanned antennas, and miniature RF filter technologies. Mr. West has a B.S.E.E., from Michigan Technological University, an M.S.E.E. from Iowa State University and has taken numerous post-MSEE courses in electromagnetic theory, computational electromagnetics, and mathematics.

Mr. Brian J. Herting is with the Advanced Technology Center of Rockwell Collins Inc. where he is a Senior Electrical Engineer in the Advanced Radio Systems Department. His current research interests include low-cost phased arrays and digital beamforming arrays. His project experience includes weather radar and Traffic Collision Avoidance System (TCAS) for aviation. He is an active member of the IEEE Antennas and Propagation and Microwave Theory and Techniques Societies. He has (co)-authored eight technical papers and has been awarded one patent with nine additional patent disclosures in various stages. Mr. Herting has a B.S.E.E from Marquette University, an M.S.E.E. from the University of Illinois Urbana-Champaign, and is currently pursuing a Ph.D. at the University of Illinois Urbana-Champaign.

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