

Fall 2017 Colloquium Series



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Isoflux Antenna Design for Cubesats

Tuesday, September 12, 2017
Brown Hall W210, 3:30— 4:30 PM

Abstract —The optimization and design process for an isoflux phased array for Cubesats in low earth orbit (LEO) is presented. A genetic algorithm is used to create a multi-ring concentric circular phased array that creates a near-isoflux power pattern on the Earth surface. At high operating frequencies, the array is small enough to fit on the 1U face of a Cubesat. Simple microstrip patch antennas are used for the array design for proof of concept, with full wave simulation demonstrating the array performance.

Bio — *Atef Z. Elsherbeni* received his Ph.D. degree in Electrical Engineering from Manitoba University, Winnipeg, Manitoba, Canada, in 1987. Dr. Elsherbeni was with the University of Mississippi from 1987 to 2013. He was a Finland Distinguished professor from 2009 to 2011. He joined the Electrical Engineering and Computer Science Department at Colorado School of Mines in August 2013 as the Dobelman Distinguished Chair Professor. Currently he is the Head of the Electrical Engineering Department. His research interest includes the scattering and diffraction of EM waves, finite-difference time-domain analysis of antennas and microwave devices, field visualization and software development for EM education, interactions of electromagnetic waves with the human body, RFID and sensor integrated FRID systems, reflector and printed antennas and antenna arrays, and measurement of antenna characteristics and material properties. His academic achievements includes: Funded Research Grants with a total amount of \$11,413,903, 13 books, 29 book chapters, 171 journal publications, 15 developed software packages, 56 (35 MS and 21 PhD) graduate students advised, 40 invited presentations, 221 proceedings publications, 174 conference abstracts, 74 technical reports, 35 short courses offered, 43 invited talks. Dr. Elsherbeni is a Fellow member of IEEE and ACES. He is the Editor-in-Chief for ACES Journal. He was the general Chair for the 2014 APS-URSI Symposium and was the president of ACES Society from 2013 to 2015.