

From Maxwell's Equations to Modern Electromagnetics and Antenna Engineering Marvels

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The collective works of many scientists and engineers were captured in Maxwell, Hertz, Marconi and Shannon's pioneering contributions to modern communications technologies. This has resulted in a widespread awareness of the critical role wireless services play in today's communications-centered marketplace. Among many components critical in optimizing the efficient performance of modern communication devices, antennas play paramount role. In this presentation the following topics will be touched upon: (a) The age of personal and space communications, (b) Modern electromagnetic numerical and evolutionary optimization techniques in antenna system designs, (c) personal communications antennas including human interactions and reconfigurable designs, (d) medical applications including wearable, RFID, implantable and ingestible systems, and (e) recent developments in meta-materials in electromagnetics system applications. Representative examples will be shown and future trends will be highlighted. The material presented in this overview talk is the summarized version of many journal and conference papers and book chapters co-authored by the author and they may be found in www.antlab.ee.ucla.edu.



Yahya Rahmat-Samii is a Distinguished Professor, holder of the Northrop-Grumman Chair in electromagnetics, member of the US National Academy of Engineering (NAE), winner of the 2011 IEEE Electromagnetics Award and the former chairman of the Electrical Engineering Department at the University of California, Los Angeles (UCLA). Before joining UCLA, he was a Senior Research Scientist at Caltech/NASA's Jet Propulsion Laboratory. Dr. Rahmat-Samii was the 1995 President of the IEEE Antennas and Propagation Society and 2009-2011 President of the United States National Committee (USNC) of the International Union of Radio Science (URSI). He has also served as an IEEE Distinguished Lecturer presenting lectures internationally. Dr. Rahmat-Samii is a Fellow of the IEEE, AMTA and ACES. Dr. Rahmat-Samii has authored and co-authored nearly 1000 technical journal articles and conference papers and has written over 35 book chapters and five books. Dr. Rahmat-Samii has received numerous awards, including the 1992 and 1995 Wheeler Best Application Prize Paper Award for his papers published in the IEEE Antennas and Propagation Transactions, 1999 University of Illinois ECE Distinguished Alumni Award, the IEEE Third Millennium Medal, AMTA'2000 Distinguished Achievement Award, 2001 recipient of

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