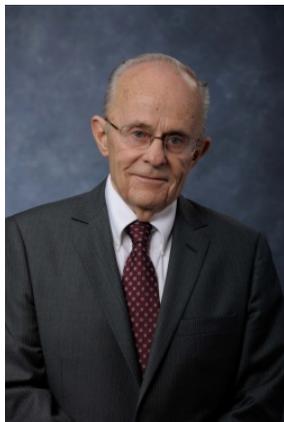


Co-sponsor: IEEE

11:30 a.m. – 12:30 p.m.

Tuesday – November 12, 2013

White Building, Room 411



Marlin Mickle
Professor Emeritus
University of Pittsburgh

Department Colloquium
**Electrical Engineering and
Computer Science**



Wireless Power Transmission - Physics and Technology

Abstract

Wireless transmission of power using radio frequency (RF) waves is a rapidly expanding area. The idea proposed by Tesla, dismissed by Rudenberg and made practical by Fessenden is currently receiving intense interest. Although the physics and basic technology have been well known for over a century, it is the current level of low power electronics that is providing the opportunities for implementation. In the early embodiments, power and one directional communication were provided in the form of broadcast radio, i.e., crystal sets. Almost ninety years ago, the ability to provide bidirectional communication was patented in the US, while being implemented just twenty years later. Today we see a limited form of application in terms of Radio Frequency Identification (RFID). This presentation will look at the mechanisms that allow the expansion of this concept well beyond that of RFID. Although source power transmission is limited by the FCC, consideration will be given to the reduction in size and power requirements of electronics that put the primary technology focus on the antenna and matching for useful energy (power) harvesting. Coverage will include both air and living tissue as media for transmission.

Bio

Marlin H. Mickle is a Professor Emeritus in the Department of Electrical and Computer Engineering at the University of Pittsburgh. He held two funded chairs in that department, was active in Computer and Biomedical Engineering, and was Executive Director of the RFID Center of Excellence at Pitt. He received the BSEE, MSEE, and PhD degrees from the University of Pittsburgh in 1961, 1963, and 1967. He held engineering positions with IBM and Westinghouse and served as Program Director of the Systems Theory and Applications Program of the National Science Foundation. He serves or has served on numerous boards and consultancies. He is co-author and co-editor of over 20 books and has over 200 refereed publications. His research, development, and educational activities have been supported by over 135 grants and/or contracts. He holds 35 patents, which resulted in seven spin-off companies. He has received numerous career awards and has been active in the IEEE throughout his career. He is still doing research in the areas of energy harvesting and high technology RF medical and sensor applications.



Electrical Engineering & Computer Science Dept. 216-368-2800
email: eecs-chair@case.edu

This is to certify that _____ attended this seminar. Certified by _____
Certificates of attendance and other evidence of CPD activity should be retained by the attendee for auditing purposes.