

**ECE 793A/794 ECE GRADUATE SEMINAR
(Required for Electrophysics Area Graduate Students)**

Everyone is invited to attend.

**Dr. Zoltan Cendes
Founder and Chairman of Ansoft Corporation,
Pittsburgh, PA**

***Title: Maxwell's Equations and Entrepreneurship –
How I Went to Wall Street to Make a Business out of Field Theory***

Date: Friday, October 13, 2006

Time: 4:00 p.m.

Place: Marston 132

Abstract:

Maxwell's equations provide a fundamental pillar of electrical engineering. These equations were derived by James Clerk Maxwell in 1865 and describe macroscopic electromagnetic phenomenon with perfect precision. Yet Maxwell's equations are also very difficult to solve – analytical methods are appropriate only with the simplest geometries and numerical methods require highly complex procedures and algorithms. The net result is that solving Maxwell's equations has become a business in which computer codes are developed, marketed and sold to design engineers to provide them with “virtual prototypes”. These virtual prototypes allow engineers to design products in the computer that correctly simulate the fundamental physics and hence ensure that the prototype, when built, will meet design specifications. This talk describes how this concept of creating virtual prototypes using Maxwell's equations was taken to Wall Street to raise money to form a public company (Ansoft Corporation) and how the products developed by that company are changing the way that engineers work. Examples of the benefits of using electromagnetically correct virtual prototypes will include the Xilinx 10 Gb/s Backplane Design Kit, on-chip components based on the UMC foundry technology, Ultra-Wideband radio design and air bag deployment system design.

Bio:

Dr. Zoltan Cendes is Founder and Chairman of Ansoft Corporation, Pittsburgh, PA. He has been a Professor of Electrical and Computer Engineering at Carnegie Mellon University, an Associate Professor of Electrical Engineering at McGill University, Montreal, Canada, and an Engineer with the Corporate Research and Development Center of the General Electric Company in Schenectady, NY. Dr. Cendes received his MS and PhD degrees in Electrical Engineering from McGill University and his BSE degree from the University of Michigan. He is a Fellow of the IEEE, serves on the Editorial Board of IEEE Spectrum and was an IEEE AP-S Distinguished Lecturer from 2000-2004.