

ENGINEERING SEMINAR SERIES FALL 2009

Wednesday, September 30, NC2607/09, 11:000a.m.

*

Nondestructive Evaluation: An Overview

By Dr. Yiming Deng

Electrical Engineering Department
University of Colorado Denver

Abstract

Nondestructive evaluation (NDE) is the examination of an object in any manner, which will not impair the future usefulness of the object. The purpose of the examination may be to detect internal or external flaws, to measure thickness, to determine material structure or composition, or to measure or detect any of the object properties. The test method may be a simple visual one, or it may involve some form of energy, such as electromagnetics, acoustic, thermal, radiographic, etc. The NDE research group (NDEL) at Michigan State University, one of the largest and most active in the country, has been at the forefront in the development of innovative solutions to NDE related problems for both the defense, civilian and medicine sectors. This talk covers the basic background knowledge of NDE, the state-of-the-art research across a broad spectrum of electromagnetic and ultrasonic applications. The innovative development of forward and inverse solutions, new sensors and instrumentation and future directions are discussed in this talk.

Yiming (Jerry) Deng, Ph.D., who joined the EE faculty in September 2009, is exploring new research areas for both electromagnetic and biomedical imaging and image processing applications. He received his B.Sc. from Tsinghua University, China in 2003 and Ph.D. from Michigan State University in 2009, both in Electrical Engineering. Dr. Deng's research area is highly multidisciplinary and will involve not only Engineering, but also Physics, Mathematics, Medicine (i.e. Radiology, Radiation Oncology) and Statistics. His research lab and projects will be supported by external funding resources from government agencies, research institutes and companies/trade groups. His lab will also be used to train future engineers and scientists, and teach both undergraduate and graduate students that are interested in interdisciplinary imaging research. His research interests include: biomedical imaging and medical physics; applied electromagnetics; image and signal processing; inverse problems in imaging; and nondestructive evaluation. Dr. Deng is a full member of Sigma Xi and a member of IEEE. He serves as referees of several scientific journals and international conferences. (<http://carbon.ucdenver.edu/~ydeng/>)