ECE Speaker Series

Department of Electrical and Computer Engineering

Dr. Jiming Song

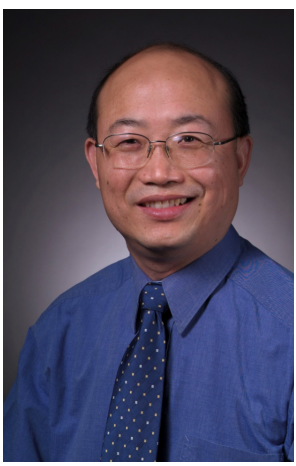
Professor
Department of Electrical and Computer Engineering
Iowa State University

Efficient Modeling of Electromagnetic and Ultrasonic Wave Propagation and Applications in Nondestructive Evaluation

I will give an introduction about Center for Non-destructive (CNDE) at Iowa State University first. Then I will focus on eddy current nondestructive evaluation (NDE), which involves the detection of electromagnetic field irregularities due to non-conducting inhomogeneities in an electrically conducting material such as cracks, fasteners, sharp corners/edges, multi-layered structures, etc. The eddy-current problem is formulated by the boundary integral equations (BIE) and discretized into matrix equations by the method of moments (MoM) or the boundary element method (BEM). Computational tests are presented to demonstrate the accuracy and capability of the BIE method with a complex wave number for three-dimensional objects described by a number of triangular patches. Finally, I will present our most recent research results on developing efficient algorithms on acoustic and elastic wave propagation and scattering for NDE applications.discussed.

October 18, 2016 at 4:00pm in SEC 101

Jiming Song received Ph.D. degree in Electrical Engineering from Michigan State University in 1993. From 1993 to 2000, he worked as a Postdoctoral Research Associate, a Research Scientist and Visiting Assistant Professor at the University of Illinois at Urbana-Champaign. From 1996 to 2000, he worked part-time as a Research Scientist at SAIC-DEMACO. Dr. Song was the principal author of the Fast Illinois Solver Code (FISC). He was a Principal Staff Engineer/Scientist at Semiconductor Products Sector of Motorola in Tempe, Arizona before he joined Department of Electrical and Computer Engineering at Iowa State University as an Assistant Professor in 2002. Dr. Song currently is a Professor at Iowa State University's Department of Electrical and Computer Engineering. His research has dealt with modeling and simulations of interconnects on lossy silicon and RF components, electromagnetic wave scattering using fast algorithms, the wave propagation in metamaterials, acoustic and elastic wave propagation and non-destructive evaluation, and transient electromagnetic field. He received the NSF Career Award in 2006 and is an IEEE Fellow.



Please contact Dr. Ji Chen (jchen18@uh.edu) if you would like to meet with the speaker.

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