The Institute of Electromagnetic Theory at TUHH is pleased to have as international academic guest on May 14, 2010:

Madhavan Swaminathan, Ph.D.

Joseph M. Pettit Professor in Electronics
School of Electrical and Computer Engineering, Georgia Tech
Director, Interconnect and Packaging Center, Georgia Tech, USA

Students, faculty, and professionals from academia and industry interested in the latest trends of microsystems packaging and miniaturization of electronic systems are cordially invited to attend Prof. Swaminathan’s talk on:

**Going Vertical:**
**From More than Moore to Even Mo(o)re**

Room H 0.16, Building H
Hamburg University of Technology (TUHH)
Schwarzenbergstraße 95, 21075 Hamburg

13:00 – 14:00, May 14, 2010

Prof. Swaminathan is the Director of the Interconnect and Packaging Center at Georgia Tech, an IEEE Fellow, founder/co-founder of two companies in the field of microsystems packaging, and author of more than 300 scientific publications (see complete biography on the next page).

Information on how to get to TUHH:

http://www.tu-harburg.de/tuhh/uni/lageplan.html
Abstract of Prof. Swaminathan’s Talk:

Over the last several years, the buzzword in the electronics industry has been “More than Moore”, referring to the embedding of components into the package substrate and stacking of ICs and packages using wirebond and package on package (POP) technologies. This has led to the development of technologies that can lead to the ultra-miniaturization of electronic systems with coining of terms such as SIP (System in Package) and SOP (System on Package). More recently, the semiconductor industry has started focusing more on 3D integration with near monolithic integration using Through Silicon Vias (TSV). This is being quoted as a revolution in the electronics industry by several leading technologists with a forecast that predicts that more than 7% of all wafers in the next three years will have 3D technology with more than 60% of them containing Through Silicon Vias (TSV). This trend is expected to grow significantly over the next several years. 3D technology, an alternative solution to the scaling problems being faced by the semiconductor industry provides a 3rd dimension for connecting transistors, ICs and packages together, with the possibility for miniaturization, as never before. The semiconductor industry is investing heavily on TSVs as it provides opportunities for improved performance, bandwidth, lower power, reduced delay, lower cost and overall system miniaturization.

In this talk, the ongoing research at Georgia Tech on the micro-miniaturization of electronic systems in computing and wireless communications will be discussed in the context of two centers at Georgia Tech namely, the Interconnect and Packaging Center (IPC) and the Packaging Research Center (PRC). Emerging challenges and potential solutions related to power delivery and thermal management for 3D integration will be addressed.

Biography of Prof. Swaminathan:

Madhavan Swaminathan is the Joseph M. Pettit Professor of Electronics in the School of Electrical and Computer Engineering and Director of the Interconnect and Packaging Center, Georgia Tech. He is the co-founder of Jacket Micro Devices, a company that specializes in integrated RF modules and substrates for wireless applications (acquired by AVX Corporation) and the founder of E-System Design, a company focusing on the development of CAD tools for achieving signal and power integrity in integrated 3D micro and nano-systems, where he serves as the CTO. He was formerly the Deputy Director of the Microsystems Packaging Research Center at Georgia Tech. Prior to joining Georgia Tech, he was with IBM working on packaging for supercomputers. He is the author of more than 300 journal and conference publications, holds 17 patents, is the author of 3 book chapters and is the primary author of the book entitled “Power Integrity Modeling and Design for Semiconductors and Systems”, Prentice Hall, November 2007 and co-editor of “Introduction to System on Package”, McGraw Hill, March 2008. He has been honored as an IEEE Fellow for his work on power delivery for digital and mixed signal systems and has been recognized for his work through several awards. He received his M.S and PhD in Electrical Engineering from Syracuse University in 1989 and 1991, respectively.

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