Special BETR Center Seminar

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Advanced Packaging, Heterogeneous Integration, and the Future of Semiconductor Systems

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Abstract: The semiconductor industry is headed towards heterogeneous integration in 2.5D or 3D form being driven by the high cost of monolithic integration, time to market and the need for extreme heterogeneity. This is great news for packaging. At Georgia Tech we have been developing a platform technology called System on Package (SOP) for many years. One embodiment of this technology, which represents a recent breakthrough, is a non-TSV (through silicon via) based 2.5D/3D integration using fanout panel level glass packaging that provides unprecedented opportunities for emerging applications such as wireless and high-performance computing. This presentation will discuss the rationale for such an approach, recent results, ongoing research, and its comparison with fanout wafer level packaging pursued by industry today.

Bio: Madhavan Swaminathan is the John Pippin Chair in Microsystems Packaging & Electromagnetics in the School of Electrical and Computer Engineering (ECE), Professor in ECE with a joint appointment in the School of Materials Science and Engineering (MSE), and Director of the 3D Systems Packaging Research Center (PRC), Georgia Tech (GT) (http://www.prc.gatech.edu). He also serves as the Site Director for the NSF Center for Advanced Electronics through Machine Learning (CAEML: https://publish.illinois.edu/advancedelectronics/) and Leads the Heterogeneous Integration area, at the SRC JUMP ASCENT Center (https://ascent.nd.edu/). Prior to joining GT, he was with IBM working on packaging for supercomputers. He is the author of 530+ refereed technical publications and holds 31 patents. He is the primary author and co-editor of 3 books and 5 book chapters, founder and co-founder of two start-up companies (JMD and E-System Design), and founder of the IEEE Conference on Electrical Design of Advanced Packaging and Systems (EDAPS), a premier conference sponsored by the IEEE Electronics Packaging Society (EPS). He is an IEEE Fellow and has served as the Distinguished Lecturer for the IEEE Electromagnetic Compatibility (EMC) society. He received his MS and PhD degrees in Electrical Engineering from Syracuse University in 1989 and 1991, respectively.