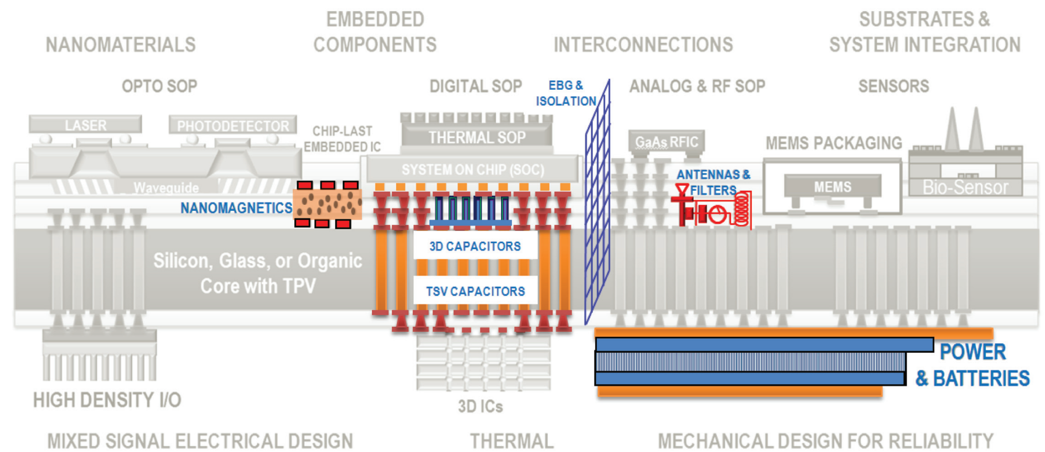
ETPC

Georgia Tech Announces a Global Industry R&D Consortium on Embedded Thin Film Passive Components (ETPC)

The 3D Systems Packaging Research Center (PRC) at Georgia Tech invites companies to join its Global Industry Consortium for Embedded Thin Flim Passive Components focused on Integrating digital, RF, and power supply components into SOP as thin films for enhancing functionality, speed, miniaturization, power efficiency and reliability.

Today's discrete and thin film components cannot meet the size and performance targets for the emerging needs because of the inherent limitations in the existing materials or their processability for integration as thin film or planar components.



The Research Focus of this Global Consortium Include:

- Integrating passive components for digital, RF, power supply and storage as thin films in organic, silicon and glass substrates or packages improving system performance and functionality.
- Improving volumetric efficiency to miniaturize the components by10-100x compared to state-of the-art discrete and embedded components.
- Enhancing material and process tolerance with permittivity and permeability for high precision and high performance applications.
- Designing and modeling with embedded components for manufacturability.

Function	Technologies	Research Targets
POWER SUPPLY	High Density Inductors High Density Capacitors and Planar Supercapacitors Thin Film Batteries	• 1000 nH/mm²/layer • Q > 50 @ 0.1-1 GHz • 100-1000 µF/cm² • 1 mAhr/cm². µm
DIGITAL	TSV Capacitors High Density Thin Film and Trench Capacitors	• 10-50X increase from oxide TSV • 1-10 µF/cm2 at above 100 MHz
RF COMPONENTS	Dielectrics Magnetodielectrics Tunable components EMI isolation	• 10-20X enhancement in permitivity with low loss and TCC • High permeabilty and permittivity • Low Loss • Low voltage tuning; Tunability with low loss and TCC • 1-10 GHz; 50-100 dB isolation

Launch
October 15, 2010

Website:
www.prc.gatech.edu

Prof. Rao Tummala
Director, 3D Systems Packaging Research Center
rao.tummala@ece.gatech.edu

Prof. Madhavan Swaminathan
Director, Interconnect and Packaging Center
swami@ece.gatech.edu

Dr. Venky Sundaram
venky@ece.gatech.edu

Mr. Dean Sutter
dsutter@ece.gatech.edu

Mr. Abhilash Goyal
abhilash.goyal@ece.gatech.edu

Program Manager:

Dr. Raj Pulugurtha
raj@ece.gatech.edu
(404) 894-2652