



## 3D Integration: Progress and Prospects

2nd E-Workshop, FCRP Cross-Cut on 3D Integration

March 9, 2012 (Friday), 12 PM - 5 PM Eastern

Organizer: Sung Kyu Lim (limsk@ece.gatech.edu)

### 1. Introduction

12:00 – 12:15 Paul Kohl (GT), Sung Kyu Lim (GT), “FCRP 3D Research and Industry Status”

### 2. Cooling and Power Delivery (chair: Kevin Martin)

12:15 – 12:40 Yogendra Joshi (GT), Ali Shakouri (Purdue), “Thermal management of 3D ICs with static and dynamic hot spots”

12:40 – 1:00 Muhannad Bakir (GT), “Electrical and Thermal Interconnect Solutions for 3D ICs”

1:00 – 1:05 break

### 3. Architecture (chair: Yogendra Joshi)

1:05 – 1:25 Andrei Fedorov (GT), “Passive & Dynamically-Adaptive Phase-Change Thermal Management of Fast-Switching Cores in 3D”

1:25 – 1:45 Keren Bergman (Columbia), Noam Ophir (Columbia), “3D-deposited Silicon Photonic Interconnects”

1:45 – 2:05 Saibal Mukhopadhyay (GT), Sudhakar Yalamanchili (GT), “Matching Technology Capacity with Workload Demand: Shaping 3D Systems”

2:05 – 2:10 break

### 4. Design (chair: Muhannad Bakir)

2:10 – 2:35 Clair Webb (Intel), “3D Design Challenges”

2:35 – 2:55 Paul Franzon (NCSU), “Design of 3D Specific Systems”

2:55 – 3:15 David Blaauw (Michigan), “Centip3De: A 3930 DMIPS/W Configurable Near-Threshold 3D Stacked System with 64 ARM Cortex-M3 Cores”

3:15 – 3:35 Sung Kyu Lim (GT), “Design Tradeoff Studies for the 3D Integration in Extreme Scale”

3:35 – 3:40 break

### 5. Manufacturing (chair: Sung Kyu Lim)

3:40 – 4:00 Roey Shaviv (Novellus), “Key 3D Challenges and Solutions: Integrated Suite of Tools for TSV and WLP Manufacturing”

4:00 – 4:20 Paul Kohl (GT), Rohit Sharma (GT), “Full Air-clad Low-loss Pathway for 3D Interposer”

4:20 – 4:40 Robert Geer (Albany), “TSV Structures for High-Bandwidth Core-Core Interconnects”

4:40 – 5:00 Jason Cong (UCLA), Yi Zou (UCLA), “3D Architecture for Domain-specific Acceleration”