

# Spring 2015 Seminar Series

Presented by the ECE Division

## TOWARDS A COMPETITIVE DENSE PHASE CHANGE MEMORY

FRIDAY JANUARY 16, 2015

11:00 AM – HEC 438

Conventional volatile memories such as SRAM and DRAM have been around for decades. However, their advancements have been hindered severely by difficulties in continuous technology scaling. Issues such as leakage, reliability and process variations have greatly decreased the yield of memory chips and increased their cost, which threatens their already thin profit margin. These challenges have encouraged vendors to look for alternatives in future memory generations. The emerging persistent memories have shown promises in scalability, low leakage and high reliability. These improvements are found attractive to computing platforms ranging from low-end embedded and mobile systems to high-end data centers and cloud computing. Nevertheless, there are intrinsic limitations to these memories that have slowed their adoption in real systems. In this talk, Dr. Yang will focus on one type of persistent memory, the Phase Change Memory (PCM), and discuss its major drawbacks in write performance and dynamic power. Both are limiting factors to the competitiveness of PCM in future memory technologies. Dr. Yang will then present our recent findings in mitigating them through architecture approaches.

**DR. JUN YANG**  
University of Pittsburgh



Jun Yang is an associate professor in the Electrical and Computer Engineering Department of University of Pittsburgh. She received her Ph.D. in Computer Science from the University of Arizona in 2002. Her research interest is in computer architecture with emphasizes on memory systems, networks-on-chip, 3D integration, power and thermal management for CMPs. Her best known work include differential write for Phase Change Memories (ISCA'09), frequent value locality (ASPLOS'00, MICRO'00) and fast secure processors (MICRO'03). Dr. Yang has received best paper awards from ICCD'07 and ISLPED'13 and best paper nomination from HPCA'09. She serves on the editorial board of IEEE Computer Architecture Letters. Dr. Yang is a recipient of NSF CAREER award in 2008.

*Hosted by: Dr. Jiann-Shiun Yuan, MIST Center Director*

