Speaker 1: Margaret Martonosi (Princeton)

Title: Research Issues at the Hardware Software Interface

Abstract: As power-efficiency challenges crept into computer designs, they were initially addressed primarily at the devices and circuits levels. Over the last 15 years, however, the architecture and systems levels have played increasingly significant roles in mitigating power problems. With most of the "easy" or high-leverage solutions now employed in commercial designs, new techniques are needed that redefine power management at the hardware-software interface, perhaps even fundamentally redefining the hardware/software interface abstractions themselves. This talk will discuss a range of topics and proposals highlighted by the group members as important or promising.

Bio: Margaret Martonosi is Professor of Computer Science at Princeton University, where she has been on the faculty since 1994. Martonosi's research interests are in computer architecture and the hardware-software interface, with particular focus on power-efficient systems and mobile computing. Her current research focuses on power-performance tradeoffs in parallel systems ranging from chip multiprocessors to large-scale data centers. Martonosi is a Fellow of both IEEE and ACM. In 2010, she received Princeton University's Graduate Mentoring Award. In addition to many archival publications, Martonosi is an inventor on six granted US patents, and has co-authored a technical reference book on power-aware computer architecture.