

## Electrical and Computer Engineering Colloquium

**Title:** Turbo-Inspired Methods for Reliable Energy-Efficient Systems-on-Chip

**Speaker:** Professor Paul Ampadu, University of Rochester

**When:** Wednesday, November 21, 2007, 12:30 - 1:30 PM

**Where:** Ball Building, Room 301E

**Abstract:** We exploit turbo principles to implement powerful low-energy and hardware-efficient codes, suitable for systems-on-chip (SoCs) interconnection networks. Future SoCs will face considerable reliability challenges because of shrinking device and interconnect features and reduced supply voltages. As we approach the gigascale multi-core era where billions of devices are integrated on a single-chip, it becomes necessary to apply signal-processing techniques (e.g. error-control coding) to address the growing reliability problem; unfortunately, error control can result in large energy and latency costs. In this talk, we present some of our explorations in turbo-inspired networks-on-chip coding and adaptive error protection to achieve a balance among reliability, performance, and hardware complexity.

**Biography:** Professor Paul Ampadu received the PhD in electrical and computer engineering from Cornell in 2004 and joined the ECE department at the University of Rochester, where he is currently an assistant professor and director of the Edison research lab. His research interests are in VLSI signal processing and applications, particularly in the low-voltage realm where noise immunity is of critical concern. Prior to receiving the PhD, he worked at IBM and Microsoft and was a recipient of an IBM PhD fellowship and an SRC master's scholarship. Dr. Ampadu serves on the Circuits and Systems Society technical committees of VLSI, Giga-Nano, and Circuits and Systems for Communications and has been session chair or co-chair of ISCAS and ICECS.

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Coffee and cookies will be served, starting from noon. So, come early and treat yourself to some refreshment while it lasts!

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