



2008 - 2009



**MATHEMATICS COLLOQUIUM SERIES
UNIVERSITY OF CENTRAL FLORIDA**

**Professor K.M. Ramachandran
Department of Mathematics and Statistics,
University of South Florida**

will speak on

**A Multiresolution Analysis-Assisted Reinforcement
Learning Technique for the Control of Sensor Data**

ABSTRACT: Run-by-Run (RbR) process control using exponentially weighted moving average (EWMA) controller is widely used in the industry. In this talk, we will present a reinforcement learning (RL) based approach to develop RbR process control strategies. For the first time, the approach also incorporates data filtering using wavelets. The RbR control problem is modeled as a Markov decision process, and an average reward based learning strategy is used. The results show that this approach EWMA based controllers for strongly autocorrelated processes. Convergence and stability analysis for RL controllers will also be discussed. This method is applied to a process control of a Chemical Mechanical Polanarization of wafer fabrication in semiconductor manufacturing.

DATE: Thursday, November 6, 2008

TIME: 11:30am – 12:30pm

PLACE: MAP 318

Refreshments will be served.