1090-60-244 **Xin Liu*** (liuxin@ima.umn.edu), **Arka Ghosh** and **Amarjit Budhiraja**. *Dynamic Scheduling for Markov Modulated Single-server Multiclass Queueing Systems in Heavy Traffic.*

Queueing networks arise as models in various areas including computer systems, telecommunications, manufacturing, and service industry. One of the key objectives in the queueing network settings is to obtain the "good" (or nearly optimal) control policies for scheduling, sequencing, and routing of jobs in the system. In this talk, I'll present a recent study on scheduling control problem for a single-server multiclass queueing network in heavy traffic, operating in a changing environment. The changing environment is modeled as a finite state Markov process that modulates the arrival and service rates in the system. Various cases are considered: fast changing environment, fixed environment and slow changing environment. In each of the cases, using weak convergence analysis, in particular functional limit theorems for renewal processes and ergodic Markov processes, it is shown that an appropriate "averaged" version of the classical $c\mu$-policy (the priority policy that favors classes with higher values of the product of holding cost c and service rate μ) is asymptotically optimal for an infinite horizon discounted cost criterion. (Received March 02, 2013)