1077-60-330 **G. Yin** and **Yu Sun*** (ysun@wayne.edu), Department of Mathematics, 1150 Faculty/Administration Building, 656 W. Kirby, Detroit, MI 48202, and **Le Yi Wang**.

Asymptotic Properties of Consensus-Type Algorithms for Networked Systems with Regime-Switching Topologies.

In this talk, we consider asymptotic properties of consensus-type algorithms for networked systems whose topologies switch randomly. The regime-switching process is modeled as a Markov chain. The consensus control is achieved by using algorithms of stochastic approximation type. In the setup, the regime-switching process (the Markov chain) contains a rate parameter ϵ in the transition probability matrix that characterizes how frequently the topology switches. Meanwhile, the consensus control algorithm utilizes a stepsize μ that defines how fast the network states are updated. Depending on their relative values, three distinct scenarios emerge. Under suitable conditions, we treat each of the cases. Simulation results are also presented. This is a joint work with G. Yin and Le Yi Wang (WSU). (Received August 22, 2011)