1003-93-578 **Magnus Egerstedt*** (`magnus@ece.gatech.edu`), Georgia Institute of Technology, Electrical and Computer Engineering, Atlanta, GA 30332. *Switched Linear Systems: Observers and Observability.*

In a number of applications where the state of the system must be determined in the presence of intermittent sensor and actuator failures or lossy communication channels, a general theory of observability for switched systems is needed. In this talk we will address this issue by characterizing observability of switched linear systems from both an algebraic as well as a computational complexity point-of-view. In particular, it will be shown that so-called pathwise observability is a decidable property. This fact will moreover enable us to design convergent asymptotic Newton observers for systems with arbitrarily switching measurement equations as well as extend the Kalman-Bertram sample criterion to switched systems. (Received September 23, 2004)