1040-93-240 **Richard Murray*** (murray@cds.caltech.edu), California Institute of Technology, Control and Dynamical Systems, Mail code 107-81, Pasadena, California CA 91125. *Information Dynamics for Networked Feedback Systems.*

Increases in fast and inexpensive computing and communications have enabled a new generation of information-rich command and control systems that rely on multi-threaded networked execution, distributed optimization and contingency management in increasingly sophisticated ways. An important element of analyzing and designing these systems is to carefully track the dynamics of information in the system, including the role of the topology of the information flow with the overall dynamics of the system. This talk will describe a framework for building such systems and lay out some of the challenges in computer science, networking and control theory that must be addressed to enable systematic design and analysis. Applications include multi-vehicle systems performing cooperative tasks and autonomous systems with high-performance, distributed processing. (Received March 06, 2008)