

**THURSDAY
APRIL 24, 2008**

**Scaife Hall Auditorium
Room 125**

4:30 p.m.
Refreshments—4:00 p.m.



Richard M. Murray
PROFESSOR

CALIFORNIA INSTITUTE OF TECHNOLOGY

Richard M. Murray received the B.S. degree in Electrical Engineering from California Institute of Technology in 1985 and the M.S. and Ph.D. degrees in Electrical Engineering and Computer Sciences from the University of California, Berkeley, in 1988 and 1991, respectively. He is currently the Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and the Director for Information Science and Technology at the California Institute of Technology, Pasadena. Murray's research is in the application of feedback and control to mechanical, information, and biological systems. Current projects include integration of control, communications, and computer science in multi-agent systems, information dynamics in networked feedback systems, analysis of insect flight control systems, and biological circuit design.

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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.