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*Electrical & Computer Engineering*

# **S E M I N A R**

Louisiana State University

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## **New Lyapunov Function Methods for Adaptive and Time-Delayed Systems**

*Michael Malisoff*

**LSU Department of Mathematics**

**Abstract**—Lyapunov functions are an important tool in nonlinear control systems theory. This talk presents new Lyapunov-based adaptive tracking control results for nonlinear systems in feedback form with multiple inputs and unknown high-frequency control gains. Our adaptive controllers yield uniform global asymptotic stability for the error dynamics, which implies parameter estimation and tracking for the original systems. We demonstrate our work using a tracking problem for a brushless DC motor turning a mechanical load. Then we present a new class of dilution rate feedback controllers for two-species chemostat models with Haldane uptake functions where the species concentrations are measured with an unknown time delay.

**When:** Tuesday, 4 May 2010, 15:00 - 16:00

**Where:** 117 Electrical Engineering Building

**Info:** <http://www.ece.lsu.edu/seminar>