



Seminar Series of the



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## **A Design Procedure for Semiglobal Output Regulation of Nonminimum Phase Nonlinear Systems**

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2:30 PM – 3:30 PM Friday, December 6, 2002  
260 Dreese Laboratory

In this talk, we consider the design of an internal model-based, semi-global output feedback controller for non-minimum phase systems. Under the assumption of linear internal model, we present a sufficient condition for the existence of an output feedback controller able to semi-globally asymptotically stabilize the extended system given by the controlled plant and the internal model unit. Taking advantage of design tools recently proposed in the literature, we show how to construct a *dynamic uniformly completely observable* controller starting from a stabilizing controller of a suitably defined auxiliary system. When specialized for linear systems, it is shown that the existence of a stabilizing controller for the auxiliary system becomes a necessary condition for the solution of the output regulation problem, as it corresponds to the classical non-resonance condition between the modes of the exosystem and the zeros of the controlled plant.