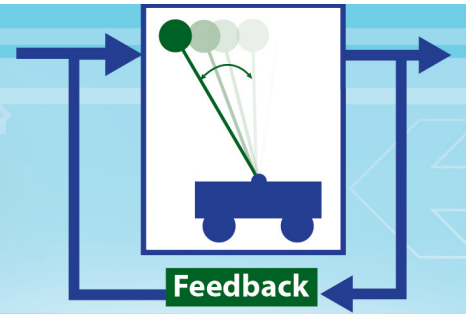


COLLEGE OF ENGINEERING

Control Seminar



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Geometric Mechanics and Global Nonlinear Control for Multi-body Systems



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Department of Aerospace Engineering

Friday, September 18, 2015

3:30 – 4:30 pm • 1500 EECS

ABSTRACT: A summary is given of recent results on geometric formulations of Lagrangian and Hamiltonian dynamics that evolve on a manifold. Selected results are given for several categories of multi-body systems. It is argued that such geometric descriptions have value for the study of global nonlinear control of multi-body systems. Computational issues are briefly discussed.

BIO: Professor Mcclamroch has taught courses and carried out research in a diverse set of topics related to dynamics and control. His research has been in the fields of aircraft flight dynamics and control and spacecraft dynamics and control, but he also has worked on problems in robotics, manufacturing, wheeled vehicles, and civil structures. His teaching and research has been based on nonlinear dynamics, nonlinear control, geometric mechanics, as well as optimization, estimation and mathematical systems theory. Recent research has treated dynamics and control problems for both rigid bodies and for multi-bodies acting under the influence of gravity and control forces and moments for which the coupling between translational motion and rotational motion is central. He is author or co-author of more than 250 refereed journal and conference publications. He is the author of two books, including *Steady Aircraft Flight and Performance* published in 2011. He was the principal adviser for twenty-several Ph.D. students. His full career has been at the University of Michigan, beginning in 1967; he retired in 2010.