

DEPARTMENT OF MECHANICAL ENGINEERING

COLLOQUIUM SEMINAR SERIES



What Is Hysteresis and What Causes Hysteretic Damping and Friction?

Prof. Dennis S. Bernstein
Aerospace Engineering Department
University of Michigan

Hysteresis is everywhere ... but what exactly is hysteresis and where does it come from? The standard view is that friction and structural damping are hysteretic since energy loss tends to be independent of speed. But this observation provides no explanation for the *origins* of hysteresis.

In this talk, Prof. Bernstein will begin with a precise definition of hysteresis and then trace its origins to the phenomenon of multistability. This concept will provide the basis for plausible mechanisms for hysteretic damping and friction, thus providing deeper insight into the nature of these physical properties.

Dennis Bernstein is a faculty member in the Aerospace Engineering Department at the University of Michigan. His is a Fellow of IEEE, and he was editor of IEEE Control Systems Magazine from 2003 to 2011. His interests include adaptive control and system identification.

DATE: Friday, March 22, 2013

TIME: 2:00 - 3:00pm

LOCATION: Macdonald Engineering Building, RM 267



McGill