**Seminar**

“Pulse Propagation in Granular Chains”

Kazuo Inamori School of Engineering

Tuesday, May 5, 2009

Time: 11:20 AM – 12:10 PM

Location: BMH 106

Prof. Katja Lindenberg

Distinguished Professor of Chemistry

University of California, San Diego

ABSTRACT

Pulse propagation in granular chains has served as a testbed for theoretical, numerical, and experimental work on energy propagation and dissipation in granular media. Granular chains are highly nonlinear one-dimensional media that support excitations ranging from the very localized (such as might be desirable in the propagation of information) to the very dispersive that spread out energy over space and time (as might be desirable for shock absorbing applications). Recent theory has focused on the deliberate design of granule mass and size distributions in granular chains so as to control these characteristics. Essentially all of this work has been numerical, at times accompanied by experiments for mutual confirmation. Our interest lies in developing quantitatively accurate and potentially predictive analytic approaches to these problems. We will present a number of new results on pulse propagation in a variety of granular chains, including some rather unexpected consequences of frictional dissipation.