1125-37-2875   **Lauren Lazarus*** (`llazarus@hmc.edu`), **Matthew Davidow** and **Richard Rand**. *Periodic forcing of a first-order delay limit cycle oscillator.*

The first-order delay limit cycle oscillator $x'(t) = -x(t-T) - x^3(t)$ has been shown to exhibit many similarities to oscillator models given by second-order ordinary differential equations. In this talk, we discuss its response to periodic external forcing.

The forced system exhibits quasiperiodic motion outside of a resonance region, where it has periodic motion at the frequency of the forcer. By perturbation methods and bifurcation theory, we show that the resonance region is asymmetric in the frequency detuning, and that there are regions where stable periodic and quasiperiodic motions coexist. Some bifurcation behaviors of the system are directly comparable to the forced van der Pol oscillator. (Received September 20, 2016)