1063-37-30 **Ami E. Radunskaya*** (aer04747@pomona.edu), Math Department, Pomona College, 610 N. College Ave., Claremont, CA 91711. *Stabilization Through Excitation.*

We consider the case of a first order, single-delay, differential equation with discontinuous, threshold control and periodic parametric excitation. The equation has the form:

$$\dot{x}(t) = (F(x(t-\tau)) + k\sin(2\pi f t))\, x(t)$$

where $k, f > 0$ and

$$F(x) = \begin{cases} a+b & x < \Theta \\ b & x >= \Theta \end{cases}$$

with $a > 0, b < 0, \Theta > 0$. It was discovered experimentally that solutions to this equation show that the "parametric excitation" modeled by the periodic term can have the effect of reducing the amplitude of the fluctuations caused by the "drift and act" control given by the function F. We explain this phenomenon and describe the parameter sets for which the amplitude damping occurs. (Received July 08, 2010)