

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Transition of Electromechanical Pendulum into Nonlinear Response CHULKI KIM, Physics, University of Wisconsin-Madison, HUA QIN, HYUN-SEOK KIM, ROBERT BLICK, Electrical & Computer Engineering, University of Wisconsin-Madison — We present measurements on a macroscopic electron shuttle in the regime of nonlinear response. The shuttle is formed by a classical mechanical pendulum situated between two capacitor plates. The main advantage of this macroscopic setup is that we can directly measure the onset of nonlinear response of this electromechanical pendulum exhibiting period doubling. The results will find use in application such as bifurcation amplifier in nanoscopic versions of the device. A model nanoelectromechanical device based on the macroscopic experiment has the potential to reveal nonlinear quantum mechanical effects.

Chulki Kim
Physics, University of Wisconsin-Madison

Date submitted: 03 Dec 2007

Electronic form version 1.4