

Abstract Submitted  
for the TSS12 Meeting of  
The American Physical Society

**Explorations in Chaos Physics** ARMANDO MALDONADO, DAVID BIXLER, Angelo State University — Chaos Theory is an interesting and important branch of physics. Many physical systems, such as weather or fluid flow, exhibit chaotic behavior. Experiments in simple mechanical or electrical systems, as well as simple simulations can be used as methods of studying chaos. Using a mechanical method, we connected a speaker and to a frequency modulator to bounce a table tennis ball. We recorded the ball's motion at different frequencies using a video camera. Using Tracker software we observed it's position versus it's velocity in order to analyze its chaotic behavior. For a simple simulation, we used the visual-based programming in LabView to examine chaotic behavior produced by some non-linear differential equations. Results from both the mechanical system and the simulations will be discussed. For future work, we plan to continue to explore some chaotic simulations and perform a sequence of experiments with an electrical system. Exploring these nonlinear chaotic systems can help us to better understand and model many phenomena found in nature.

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Date submitted: 01 Mar 2012

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