1113-35-76   **Julia Anderson-Lee***, 396 Carver Hall, Ames, IA 50014, and **Scott Hansen**
(`shansen@iastate.edu`). *Model of Rocking Structures: A Mathematical Approach.*

The study of seismic engineering is extremely interesting not only from an engineering perspective but also within other disciplines which have applications in engineering and modeling of dynamical systems. In particular, rocking systems– made popular as a research area by G.W. Housner with his paper regarding modeling the displacement of block-shaped structures —involve interesting mathematics in the area of coupled partial differential equations. In this talk, a coupled system of partial differential equations incorporating the strain energy of the block, and internal longitudinal vibrations is presented. Then, using only the internal vibrations and the angle of rocking, a coefficient of restitution is formulated. These results are used to construct the expected motion of the block and compared to the motion of the block predicted by Housner. (Received August 11, 2015)