

1086-55-2085 **Ryan Wayne Gryder*** (rwgryder@email.wm.edu), 3808 East Steeplechase Way, Apartment K,
Williamsburg, VA 23185. *Global Dynamics of Pulse-Coupled Oscillators*. Preliminary report.

This research extended work done by a previous student, Allison Corish, on the dynamics of pulse-coupled oscillators on networks. Allison's project laid the groundwork through construction of a numerical technique which rigorously proved the existence of fixed points and connecting orbits for a collection of three oscillators coupled via a directed 3-cycle. This algorithm was automated to allow for arbitrary parameters such as heterogeneous coupling strengths and different network topologies. Currently the focus is to create a database of rigorously constructed dynamical behavior over a suitable parameter space. (Received September 24, 2012)