

1125-VC-2656      **Curtis Taylor Peterson\*** ([kostelich@asu.edu](mailto:kostelich@asu.edu)), Arizona State University box 871804, Tempe, AZ 85287, and **Wenbo Tang**. *Periodic Advection-Diffusion-Reaction Systems*.

Many physical systems, such as the Belousov-Zhabtinsky reaction or biogeochemical cycles, exhibit oscillatory behavior in the concentration fields. The dynamics is more complex when this chemical behavior is coupled with background fluid motions. To capture the scenarios where small-scale stimuli trigger large-scale chemical oscillations, such as phytoplankton blooms, and understand if there is favorable fluid regions that enhance or inhibit the reactions, we study these systems via numerical simulations of advection-diffusion-reaction systems that have the simplest chemical limit cycle behavior. By triggering the reaction in coherent vortices and high stretching regions, we find different time scales where homogenization takes place. (Received September 20, 2016)