

1044-34-180

Yingfei Yi* (yi@math.gatech.edu), School of Mathematics, Georgia Institute of Technology,
Atlanta, GA 30332. *Oscillations and Multiscale Dynamics in a Closed Chemical Reaction System.*

We will discuss the oscillatory chemical dynamics in a closed isothermal reaction system: the reversible Lotka-Volterra model. This is a 3D, dissipative, singular perturbation to the conservative Lotka-Volterra model, with free energy serving as a global Lyapunov function. We will show that, while orbits ultimately reach an equilibrium, quasi-stationary oscillations occur as interesting intermediate dynamics. Moreover, there is a natural distinction between oscillatory and non-oscillatory regions in the phase space. (Received September 01, 2008)