

1086-35-1121 **Junping Shi*** (jxshix@wm.edu), Department of Mathematics, College of William and Mary, Williamsburg, VA 23187-8795, and **Jun Zhou**. *Advection-Reaction-Diffusion System from Ecological Models*.

Complex spatiotemporal patterns in landscape scale have been found in various ecosystems, such as spotted, striped and labyrinth vegetation patterns in semi-arid environment, and self-organized cluster patterns in mussel bed. Mathematical models of a nonlinear advection equation coupled with a nonlinear diffusion equation have been proposed for these pattern formation phenomena. We show that such systems are well posed with periodic boundary conditions, and Hopf bifurcations can generate time-periodic spatial patterns. (Received September 19, 2012)