1124-92-166 **Yan Wang*** (ywang36@email.wm.edu), 1421 N Mount Vernon Avenue, Apt A, Williamsburg, VA 23185, and **Junping Shi** and **Jinfeng Wang**. *Persistence and Extinction of Population in Reaction-Diffusion Models with Advection and Strong Allee Effect Growth.*

we consider a reaction-diffusion-advection equation with strong Allee effect ($f(x,u)$) on a one-dimensional bounded heterogeneous habitat $(0,L)$, where individuals are exposed to unidirectional flow. It is well known that the nonlinear $f(x,u)$ with a strong Allee effect is also called the bistable type as $u=0$ and $u=r(x)$ are both stable solutions to the ordinary differential equation (ODE). We show that for certain boundary conditions, system only possesses zero steady state when the positive steady state is more stable ($\int_0^{u(x)} f(x,s)ds > 0$). When the zero steady state is more stable ($\int_0^{u(x)} f(x,s)ds < 0$), we discuss the existence of the positive steady state under different parameter set. For both diffusion rate d and advection rate q are small, we get the existence of two distinct positive steady state via mountain pass theory. Performing the multiplicity of positive steady states for sufficiently small advection rate q and getting the global extinction for large advection rate q. For a species with Allee effect type growth, multiple stable states are possible and different initial conditions can lead to different asymptotic behavior. And in a bistable spatial system, various spatial stationary patterns can coexist. (Received September 06, 2016)