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**Yan Wang** and **Junping Shi\*** (jxshix@wm.edu), Department of Mathematics, College of William and Mary, Williamsburg, VA 23187, and **Jinfeng Wang**. *Persistence and Extinction of Population in Reaction-Diffusion-Advection Model with Allee Effect Growth*.

A reaction-diffusion-advection equation with strong or weak Allee effect growth rate is proposed to model a single species stream population in a unidirectional flow. Here random undirected movement of individuals in the environment is described by passive diffusion, and an advective term is used to describe the directed movement in a river caused by the flow. Under biologically reasonable boundary conditions, the existence of multiple positive steady states are shown when both the diffusion coefficient and the advection rate are small, which lead to different asymptotic behavior for different initial conditions. On the other hand, under different conditions, the extinction of population occurs. This is a joint work with Yan Wang and Jinfeng Wang. (Received January 09, 2019)