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**Yan Wang\*** (ywang36@email.wm.edu), 1449A N Mount Vernon Avenue, Apt A, Williamsburg, VA 23185, and **Junping Shi**. *Persistence and Extinction of Population in Reaction-Diffusion-Advection Model with Strong Allee Effect Growth.*

A reaction-diffusion-advection equation with strong 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, when the advection rate is large, the population becomes extinct regardless of initial condition under most boundary conditions. It is shown that the population persistence or extinction depends on Allee threshold, advection rate, diffusion coefficient and initial conditions, and there is also rich transient dynamical behavior before the eventual population persistence or extinction. (Received September 19, 2018)