1163-92-768   **Robert Stephen Cantrell**, **Chris Cosner*** (`gcc@math.miami.edu`) and **Salome Martinez**.
           Persistence for a two-stage reaction-diffusion system.

It is well known that in bounded domains logistic reaction-diffusion models predict that slower diffusion rates are advantageous relative to faster diffusion. More broadly, a wide class of models arising in population genetics, population dynamics, and related areas display some version of the reduction principle, which says that dispersal, which causes faster mixing, typically reduces the rate of population growth. However, the situation seems to be quite different in the case of stage structured populations. We study a reaction-diffusion model with stage structure to explore whether faster diffusion is harmful or advantageous for a stage structured population. We find the answer a depends on the details of the spatial distributions of habitats that are favorable for reproduction by adults and those that are favorable for survival by juveniles. The analysis is mainly based on estimates for the principle eigenvalue of the system linearized around zero. (Received September 12, 2020)