1133-92-153 **Robert Stephen Cantrell*** (rsc@math.miami.edu), Department of Mathematics, The University of Miami, Coral Gables, FL 33124, and **Brian Coomes** and **Yifan Sha**. *Analysis of a model inspired by a nano-ecology experiment.*

In this talk we employ a discrete-diffusion modeling framework to examine a system inspired by the nano-ecology experiments on the bacterium Escherichia coli reported upon in Keymer et al. (2006). In these experiments, the bacteria inhabit a linear array of 85 microhabitat patches "(MHP's)", linked by comparatively thinner corridors through which bacteria may pass between adjacent MHP's. Each MHP is connected to its own source of nutrient substrate, which flows into the MHP at a rate that can be controlled in the experiment. Logistic dynamics are assumed within each MHP, and nutrient substrate flow determines the prediction of the within MHP dynamics in the absence of bacteria dispersal between patches. Patches where the substrate flow rate is sufficiently high sustain the bacteria in the absence of between patch movement and may be regarded as sources, while those with insufficient substrate flow lead to the extinction of the bacteria in the within patch environment and may be regarded as sinks. We examine the role of dispersal in determining the predictions of the model under source-sink dynamics. (Received July 23, 2017)