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Charles Doering*, University of Michigan, Complex System, Math and Physics, Ann Arbor, MI 48109-1109. *Fluctuations versus Spatial Variation in the Competition between Fast and Slow Dispersers.*

Dispersal is an important strategy employed by populations to locate and exploit favorable habitats. Given competition in a spatially heterogeneous landscape, what is the optimal rate of dispersal? Continuous population models predict that, all other features the same, a species with a lower dispersal rate always drives a competing species to extinction in the presence of spatial variation of resources. But the introduction of intrinsic demographic fluctuations can reverse this conclusion. We present a simple model in which competition between the exploitation of resources and population birth-death fluctuations leads to victory by either the faster or slower of two species depending on the environmental parameters. A simplified limiting case of the model, analyzed by closing the moment and correlation hierarchy, quantitatively predicts which species will win in the complete model under given parameters of spatial variation and average carrying capacity. This is joint work with Jack N. Waddell and Leonard M. Sander of the University of Michigan. (Received April 22, 2009)