1163-35-607   **Robert Stephen Cantrell*** (`rsc@math.miami.edu`), Department of Mathematics, The University of Miami, 1365 Memorial Drive, Room 515C, Coral Gables, FL 33146, and **King-Yeung Lam**. *On the evolution of slow dispersal in multi-species communities.*

For any $N \geq 2$, we show that there are choices of diffusion rates $d_i, 1 \leq i \leq N$, such that for a model for N competing species in a closed habitat patch, which are ecologically identical and have distinct diffusion rates, the slowest disperser is able to competitively exclude the remainder of the species. In fact, the choices of such diffusion rates are open in the Hausdorff topology. Our result provides evidence in the affirmative direction regarding the well-known 1998 conjecture of Dockery, Hutson, Mischaikow and Pernarowksi. The main tools include the Morse decomposition of the semi-flow associated with the model and the theory of a normalized principal bundle for linear parabolic equations. (Received September 10, 2020)

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