1135-35-2527 **Salomé M Martínez***, samartin@dim.uchile.cl. *On a competitive system with ideal free dispersal.*

In this article we study long term behavior of the following competitive system

$$\begin{cases} \dfrac{\partial u}{\partial t} = \nabla \cdot \left[\alpha(x)\nabla \dfrac{u}{m}\right] + u(m(x) - u - bv) \ \text{ in } \Omega,\ t > 0, \\ \\ \dfrac{\partial u}{\partial t} = \nabla \cdot [\beta(x)\nabla v] + v(m(x) - cu - v) \ \text{ in } \Omega,\ t > 0, \\ \\ \nabla \dfrac{u}{m} \cdot \hat{n} = \nabla v \cdot \hat{n} = 0 \ \text{ on } \partial\Omega,\ t > 0, \end{cases}$$

which supports for the first species an *ideal free distribution*, that is a positive steady state which matches the per-capita growth rate and therefore there is no movement. Previous results have stated that when $b = c = 1$ the ideal free distribution is an evolutionary stable strategy, that is v always becomes extinct. Thus, of particular interest will be to study the interplay between the inter-specific competitions b, c and the diffusion coefficients $\alpha(x)$ and $\beta(x)$ in the existence of positive steady states, and obtaining critical values for which bifurcation from semi-trivial steady states arises as well as establish the existence of multiple positive steady states.

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