

## **Spatial organization and survival of biological populations**

Celia Anteneodo

The spatial distribution of living organisms in heterogeneous environments is a central issue in the dynamics of biological populations. In particular, it is relevant to know how fragmented structures arise and, mainly, if in the long term the population will survive or become extinct. We address these problems for single species populations. The nonlocal FKPP equation provides a fundamental mathematical description of the spatial distribution at the mesoscopic level, governed by elementary processes (growth, competition for limited resources and random dispersion), and can be generalized in several realistic directions by including for instance: density-dependencies in growth and diffusion rates, selective mobility, fluctuations, all under appropriate boundary conditions. In this talk, we will discuss mainly the role of the boundary conditions on the survival of the population, as well as on the emergence of spatial structures.