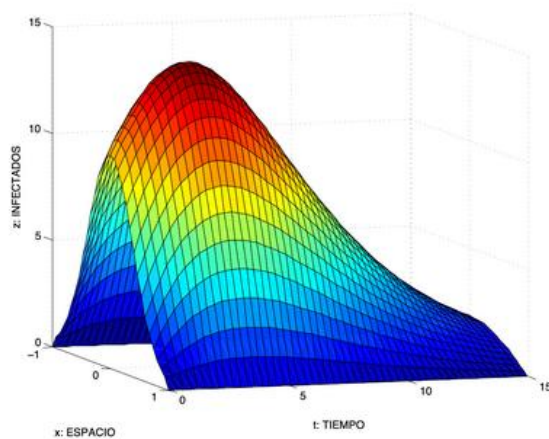


# Control of reaction-diffusion models arising in Social and Biological Sciences

We analyse the control of reaction-diffusion models arising in social and biological sciences. Frequently in applications, their control plays an important role when avoiding population extinction or propagation of infectious diseases, enhancing multicultural features, etc.



When addressing these issues one of the main challenges is that the solution, typically a proportion or a density function, needs to preserve given lower and upper bounds (taking values in  $[0; 1]$ ). Controlling the system to the desired final configuration then becomes complex, and sometimes even impossible.

In the present work, we analyse the controllability to constant steady-states under constraints and provide both positive results in long time horizons and exhibit also some barrier effects that may arise when the domains where the dynamics evolve is too large.

This lecture is inspired on joint works with C. Pouchol, D. Ruiz-Ballet and E. Trélat.