



DEPARTAMENTO DE
ANÁLISIS MATEMÁTICO Y
MATEMÁTICA APLICADA



SEMINARIO DE MATEMÁTICA APLICADA

J. M. Arrieta

Universidad Complutense de Madrid

Reaction-diffusion equations under perturbations of the domain

We analyze the behavior of the asymptotic dynamics of dissipative reaction-diffusion equations with Neumann boundary conditions when the domain where the equation is posed undergoes certain perturbation. We will focus on the behavior of the stationary solutions, their local unstable manifolds and the attractors. We may consider “regular” perturbations of the domain for which the spectra of the Laplace operator behaves continuously. In this case, it turns out that if all the equilibria of the unperturbed system are nondegenerate (hyperbolic), both the equilibria and the local unstable manifolds of the equilibria behave continuously under the perturbation of the domain. Hence, exploiting the gradient properties of the flow we will show that the “attractors” behave continuously under these perturbations. We may also consider more “drastic” perturbations like “thin domains” or “dumbbell domains” for which similar results can be obtained. If time allows, we will go over some recent results on the estimates on the distance of the attractors for the case of thin domains.

Organizado por el Instituto de Matemática Interdisciplinar (IMI), el grupo UCM MOMAT, y el Departamento de Análisis Matemático y Matemática Aplicada

Fecha: Jueves 5 de abril de 2018

Hora: 12:00 horas

Lugar: Aula 209 (Seminario Alberto Dou)

Facultad de CC Matemáticas, UCM