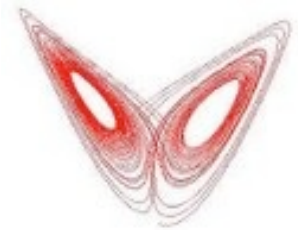

CADEDIF

Seminario del Departamento

Departamento de Matemática Aplicada
Universidad Complutense de Madrid

IV Jornada de Dinámica Infinito Dimensional, EDPs y Numérico

Jueves 6 de Noviembre de 2008

Lugar: Sala 209, Seminario del Departamento de Matemática Aplicada
Facultad de Ciencias Matemáticas, UCM

10:00-10:45. "A gradient like non-autonomous evolution equation"
Alexandre Carvalho, Universidad de Sao Paulo, Brasil

10:45-11:15. Café

11:15-12:00. "The emergence of traveling waves under a comoving change of coordinates", María López, Universidad Autónoma de Madrid

12:00-12:45. "Spectral stiff problems in domains surrounded by thin bands"
Delfina Gómez, Universidad de Cantabria

13:00-15:00 Comida

15:00-15:45. "Study of a stationary model arising from growth tumors"
Antonio Suárez, Universidad de Sevilla

15:45-16:30. "Propiedades genéricas de ecuaciones en derivadas parciales"
Marcone C. Pereira, Universidad de Sao Paulo, Brasil

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ABSTRACTS

"A gradient like non-autonomous evolution equation "

Alexandre Carvalho, Universidad de Sao Paulo, Brasil

In this lecture we present a new result on existence of pullback attractors and recall the concept of gradient like evolution process. Next we consider a wave equation with non-autonomous damping for which the corresponding evolution process has a pullback attractor and is gradient like.

"The emergence of traveling waves under a comoving change of coordinates"

María López, Universidad Autónoma de Madrid

A suitable change of coordinates is considered for the numerical approximation of traveling waves emerging from scalar parabolic equations of bistable type. It is proved that the asymptotic traveling wave profile becomes an equilibrium state for the resulting reaction-diffusion equation. In the new equation, the profile of the asymptotic traveling front and its propagation speed emerge at the same time. Several numerical illustrations are provided.

"Spectral stiff problems in domains surrounded by thin bands",

Delfina Gómez, Universidad de Cantabria

We consider an asymptotic spectral problem for the Laplace operator in a two-dimensional fixed domain surrounded by a curvilinear strip of variable width $O(\varepsilon)$. The density and stiffness constants are of order $O(\varepsilon^{-m-t})$ and $O(\varepsilon^{-t})$ respectively in this strip, while they are of order O(1) outside; t and t + m are positive parameters. We study the asymptotic behaviour, as $\varepsilon\to 0$, of the eigenvalues and their corresponding eigenfunctions.

"Study of a stationary model arising from growth tumors"

Antonio Suárez, Universidad de Sevilla

In this talk, we present a theoretical study of a stationary system arising from growth tumors. Specifically, our problem models a crucial step of the growth process tumor: the angiogenesis. In order to prove the existence of positive solutions of our problem, we mainly use the bifurcation method.

"Propiedades genéricas de ecuaciones en derivadas parciales"

Marcone C. Pereira, Universidad de Sao Paulo, Brasil

En este seminario, nos proponemos hablar de algunas propiedades de sistemas dinámicos que son genéricas, o sea, que son verificadas en un subconjunto residual de un espacio de parámetro topológico de Baire. Para eso, usaremos el Lema de Baire y argumentos de transversalidad fundamentados en la versión del Teorema da Transversalidad de D. Henry [Perturbation of the boundary for boundary value problems, Cambridge University Press, 2005].