UNIVERSITE ABOUBEKR BELKAID

TLEMCEN

Journée EDP et Applications, Mardi 31/01/2017

Laboratoire d'Analyse Non Linéaire
et Mathématiques Appliquées

Programme:

13:30- 14:30 Prof. F. Mahmoudi, CMM de Chili:

Titre: Concentration on submanifolds for an Ambrosetti-Prodi type problem

Résumé: Given a smooth bounded domain Ω of $\R^n$ and consider the problem
\begin{eqnarray}\label{e:p}\left\{\begin{array} {lccccc} - \Delta u = |u|^p - t\,\psi & \hbox{ in} \ \Omega \\
u = 0 & \hbox{on}\ \partial \Omega \end{array}\right. \end{eqnarray} where t is a large positive parameter, $p>1$ and $\psi $ is an eigenfunction of $- \Delta$ with Dirichlet boundary condition corresponding to the first eigenvalue λ_1. Assuming that Ω contains a k-dimensional compact submanifold K which is stationary and non-degenerate for the weighted functional
$$\int_K \psi^{(1 - \frac{1}{p})(\frac{p+1}{p-1}-\frac{n-k}{2})}dvol$$
such that ${\rm dist}(K,\partial\Omega)>\delta_0>0$ then for $1 < p < \frac{n+2-k}{n-2-k}$ we prove the existence of a sequence $t=t_j\to \infty$ and solutions u_t that concentrate along K. %This result extend to all dimension and co-dimension a previous one obtained in \cite{bha} where the case $n=2$ and $k=1$ has been considered.
This result proves in particular the validity of a conjecture by Hollman-Mckenna in full generality.
joint work with Z. Khemiri and A. Messaoudi

14:30--15:30 Prof. A. Benaissa, université de sidi bel abbes

Titre : The Euler–Bernoulli beam equation with boundary dissipation of fractional derivative type"

Resumé: We consider a Euler–Bernoulli beam equation with a boundary control condition of fractional derivative type. We study stability of the system using the semigroup theory of linear operators and a result obtained by Borichev and Tomilov.

15:30--16:30 Dr. A. Chekroun, université de Tlemcen:

Title: Contribution to the mathematical analysis of age and space structured partial differential equations describing a cell population dynamics model II

Résumé : My talk focuses on the study of population dynamics. It is devoted to the mathematical analysis and modeling of hematopoiesis, which is the process leading to the production and regulation of blood cells. The cell's population is seen as a continuous medium structured in age and space. We analyzed models of differential-difference system with discrete- and distributed -delay. These models can exhibit speci c behaviors such as the existence of periodic solutions. Then we consider a space structuration and the di ffusion of cells in such models, knowing that the space structure has not been widely studied in the case of hematopoiesis. A new model is obtained from the mathematical point of view. We studied the existence of traveling waves when the domain is unbounded. When the domain is bounded, the stability of stationary solutions and the existence of a Hopf bifurcation are obtained.