

Lunedì 4 novembre, dalle ore 9,30 presso l'Aula B3 di questo Dipartimento, si svolgerà un Workshop su

NONLINEAR ELLIPTIC PROBLEMS

Nell'ambito del Workshop saranno tenute le seguenti conferenze scientifiche:

– dalle 9.30 alle 10.15 il chiarissimo

Professor Braulio B. V. MAIA,

della *Universidade Federal Rural da Amazônia, Campus Capitaó Poço, Capitaó Poço-PA*, Brasile, terrà una conferenza su:

Bifurcation results for a class of elliptic equations with a nonlocal reaction term and interior interface boundary conditions

ABSTRACT. In this talk, we discuss a class of elliptic problems with a interior interface condition, which arise in population dynamics. In these problems, each population lives in a subdomain and they interact in a common border, which acts as a geographical barrier. The main novelty in our work is the presence of a nonlocal reaction terms. To obtain our results we employ mainly bifurcation methods.

– dalle 10.30 alle 11.15 il chiarissimo

Professor Eudes M. BARBOZA,

del *Departamento de Matemática, Universidade Federal Rural de Pernambuco, Recife-PE*, Brasile, terrà una conferenza su:

On Finite Morse Index solutions for a Hardy-Hénon nonlinear elliptic system

ABSTRACT. In this talk, we discuss the classification of stable solutions, or more generally, solutions that remain stable outside a compact set of \mathbb{R}^N , of the following k -coupled Hardy-Hénon elliptic system:

$$-\Delta u_i = \sum_{j=1}^k \beta_{ij} |x|^\alpha |u_j|^{q+1} |u_i|^{q-1} u_i \quad \text{in } \mathbb{R}^N, \quad i = 1, \dots, k,$$

where $q \geq 1$, $N > 2$, $\alpha > -2$, k is a fixed positive integer, and $B = [\beta_{ij}]_{i,j=1}^k$ is a real symmetric copositive matrix. We consider the critical Joseph - Lundgren exponent $p_c = p_c(N, \alpha)$ defined as follows

$$p_c = \begin{cases} \infty & \text{if } 2 < N \leq 10 + 4\alpha, \\ \frac{(N-2)^2 - 2(\alpha+2)(\alpha+N) + 2\sqrt{(\alpha+2)^3(\alpha+2N-2)}}{(N-2)(N-4\alpha-10)} & \text{if } N > 10 + 4\alpha. \end{cases}$$

Denote for simplicity $p = 2q + 1$. We deal with all possible cases; more precisely, the subcritical case $3 \leq p < p_c$ when $N > 2$, the critical case $p = p_c$ and the supercritical case $p > p_c$ when $N > 10 + 4\alpha$. In this context, we prove certain Liouville-type results for stable solutions and solutions with finite Morse index when $3 \leq p < p_c$. Moreover, when $p \geq p_c$, we show that the system admits nontrivial stable solutions.

Sarà particolarmente gradita la presenza della S. V.

Enzo Vitillaro