UNIVERSITÀ DEGLI STUDI DI PERUGIA

Centro Studi Lamberto Cesari

Dipartimento di Matematica e Informatica

Giovedì **21 Novembre 2019**, alle **ore 16**, presso la ***Sala Riunioni*** di questo Dipartimento, la Chiarissima

Professoressa ***Mousomi Bhakta***

Professore al *Department of Mathematics* dell'*Indian Institute of Science Education and Research* (IISER) in Pashan, India, terrà una conferenza nell'ambito delle attività di ricerca del progetto triennale PRIN *Variational methods, with applications to problems in mathematical physics and geometry* 2015KB9WPT_009, coordinatore nazionale A. Malchiodi e coordinatoire locale P. Pucci, su

Hardy equations with critical and supercritical exponents

Sunto: In this talk we shall discuss existence/nonexistence, qualitative properties and asymptotic behavior of the positive solutions to the problem

$$\begin{cases} (-\Delta)^s u - \theta \dfrac{u}{|x|^{2s}} = u^p - u^q \quad \text{in} \quad \mathbb{R}^N, \\ \qquad\qquad u \gneqq 0 \quad \text{in} \quad \mathbb{R}^N, \\ \qquad\qquad u \in \dot{H}^s(\mathbb{R}^N) \cap L^{q+1}(\mathbb{R}^N), \end{cases}$$

where $0 < s \leq 1$, $q > p \geq (N+2s)/(N-2s)$, $N > 2s$, $\theta \in (0, \Lambda_{N,s})$ and $\Lambda_{N,s}$ is the sharp constant in the Hardy inequality. We classify the singularity of solutions at 0 in the supercritical case and we show that this behavior varies according to the range of q, p. The asymptotic behavior of solutions is obtained via a representation result that allows us to transform the original problem into a different problem set in a weighted Sobolev space.

Sarà gradita la presenza della S. V.

Patrizia Pucci