UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

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COLLOQUIUM di DIPARTIMENTO

Prof. Bernhard Ruf Università di Milano

Martedì 26 novembre, ore 14:30

Sala Riunioni, Plesso di Matematica

A heat equation with exponential nonlinearity and with singular data in R^2

Tutti sono invitati a partecipare.

Organizzatori: Proff. Adriano Tomassini, Alessandra Lunardi

Abstract:

We consider a semilinear heat equation with exponential nonlinearities and singular data in $\mathbb{R}^2$.

In $\mathbb{R}^n$, $n \geq 3$, critical growth related to singular initial data is polynomial and has been studied by several authors. Indeed, existence and non-existence results for singular initial data in suitable L^p-spaces were obtained by Weissler and Brezis - Cazenave; furthermore, non-uniqueness results for certain singular initial data were given by Ni - Sacks and Terraneo.

In dimension $n = 2$ critical growth is given by nonlinearities of exponential type (cf. Trudinger - Moser). We prove that similar phenomena, namely existence, non-existence and non-uniqueness, occur for suitable exponential nonlinearities and singular initial data in certain Orlicz spaces.