

UNIVERSIDADE FEDERAL DE SÃO CARLOS
DEPARTAMENTO DE MATEMÁTICA

COLÓQUIOS DO DM-UFSCAR

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Falará sobre

Mixed diffusion or mixed dispersion

Two models extensively studied by the community in elliptic PDE in the past 25 years are the Allen–Cahn equation ($\alpha = 1$) and the stationary Schrödinger equation ($\alpha = -1$)

$$-\Delta u = \alpha(u - u^3).$$

The aim of my talk will be to address the fourth order extensions of these models, namely the mixed diffusion/dispersion equations

$$\gamma\Delta^2 u - \Delta u = \alpha(u - u^3).$$

The parameter γ is positive, $\alpha = 1$ corresponds to the extended Fisher–Kolmogorov equation (EFK) and $\alpha = -1$ to the stationary fourth order nonlinear Schrödinger equation (4NLS) with Kerr nonlinearity. I will first explain the phenomenological interests of these models and then I will review a (certainly non exhaustive) list of classical results for the second order models and their counterparts for the mixed diffusion/dispersion models, emphasizing the recent progresses, new difficulties and some central open questions.

Data: 28 de novembro de 2018

Horário: 15h

Local: Auditório do DM