



DEPARTAMENTO
DE ANÁLISIS
MATEMÁTICO Y
MATEMÁTICA
APLICADA



Facultad de Ciencias
MATEMÁTICAS



Instituto de
Matemática
Interdisciplinar

SEMINARIO DE ANÁLISIS MATEMÁTICO Y MATEMÁTICA APLICADA

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Nonlinear Diffusion Equations. The effect of anisotropy

The theory of nonlinear evolution equations of diffusive type contain emblematic examples that we have been studying for decades, and they are still studied at this moment. Two main examples are the porous medium equation and the p -laplacian equation. In recent times, anisotropic flows have attracted attention because of the strong influence anisotropy may have on the regularity theory and the dynamic behaviour. We show how to deal with anisotropy in the above mentioned equations: we obtain the existence of an anisotropic nonlinear semigroup with good properties. We also construct of the related anisotropic selfsimilar solutions (in the sense of Barenblatt), and we complete a delicate proof of asymptotic convergence. Many open problems can be discussed. This is work with F. Feo and B. Volzone from Naples.

**Organizado por el Departamento de Análisis Matemático y Matemática Aplicada y el
Instituto de Matemática Interdisciplinar (IMI)**

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Lugar: Aula Alberto Dou (209)
Facultad de CC Matemáticas, UCM**