

# Quantitative regularity results for singular and degenerate problems

Jose Miguel Urbano

Univ. de Coimbra

## **Resumo/Abstract:**

We will report on three recent developments concerning sharp regularity for singular and degenerate problems: the finding of the precise Hlder exponent for the solutions of the inhomogeneous  $p$ -Laplace equation in terms of  $p$ , the integrability of the source and the space dimension  $n$  (joint work with E. Teixeira); the derivation of a quantitative modulus of continuity, which we conjecture to be optimal, for solutions of the  $p$ -degenerate two-phase Stefan problem (joint work with P. Baroni and T. Kuusi); and the proof of the planar counterpart of the longstanding conjecture that solutions of the degenerate  $p$ -Poisson equation with a bounded source are locally of class  $C^{1,1/p-1}$  (joint work with D. Arajo and E. Teixeira).