

# Regularity and nonuniqueness results for some parabolic problems with critical gradient terms.

A. Dall'Aglio

We will present a few results obtained with Boumediene Abdellaoui and Ireneo Peral, concerning some parabolic equations whose model is

$$u_t - \Delta u = b(u)|Du|^2 + f(x, t),$$

with Cauchy-Dirichlet boundary conditions. We will show some regularity theorems for solutions to this problem (as well as the corresponding stationary one), and we will describe a strong connection between this problem and some parabolic equations involving measure data. This connection implies a striking nonuniqueness result.