

Improved regularity theory for degenerate diffusions

Edgard A. Pimentel ¹

¹ Department of Mathematics, PUC-Rio

In this talk we discuss recent developments concerning the regularity of the solutions certain classes of degenerate diffusions. First, we examine a fully nonlinear model, with a state-dependent degeneracy rate. In this context, we produce results on the Hölder-regularity of the solutions. In the sequel, we tackle a variational problem. In this case, we produce improved regularity for the p -Poisson equation, importing information from the Laplacian operator. Of particular interest here, is a sequential stability result. We finish the talk with a number of consequences of our findings and a few related directions of research yet to be pursued.