Free Boundary Problems in PDEs and Related Issues

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Título: Regularity In Diffusion Models With Gradient Activation.

Resumo: We establish sharp regularity estimates for solutions of highly degenerate fully nonlinear elliptic equations. These are free boundary models in which a nonlinear diffusion process drives the system only in the region where the gradient surpasses a given threshold. Our main result concerns the existence of a universal modulus of continuity for Du, up to the free boundary. We provide some applications of the methods with other treads of research. This is a joint work with D. Araújo (UFPB) e E. Teixeira (University of Central Florida).