

GEOMETRIC, NONLINEAR REGULARITY THEORY

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In this talk I shall address the geometric aspects of nonlinear regularity theory for 2nd order diffusion equations. I will discuss connections between the classical theory of singular and degenerate elliptic equations and the modern study of geometric free boundary problems.

References

- [1] D. ARAÚJO, G. RICARTE AND E. TEIXEIRA, Optimal gradient continuity for degenerate elliptic equations. Preprint available at <http://arxiv.org/abs/1206.4089>
- [2] D. ARAÚJO, AND E. TEIXEIRA, Geometric approach to nonvariational singular elliptic equations. Preprint available at <http://arxiv.org/abs/1201.4055>
- [3] G. RICARTE AND E. TEIXEIRA, Fully nonlinear singularly perturbed equations and asymptotic free boundaries., *J. Funct. Anal* **261**, Issue 6, (2011), 1624–1673.
- [4] J. ROSSI, J.M. URBANO AND E. TEIXEIRA, Optimal regularity at the free boundary for the infinity obstacle problem. Preprint available at <http://arxiv.org/abs/1206.5652>
- [5] E. TEIXEIRA, Sharp regularity for general Poisson equations with borderline sources. To appear in *J. Math. Pures Appl.*
- [6] E. TEIXEIRA, Universal moduli of continuity for solutions to fully nonlinear elliptic equations. Preprint available at <http://arxiv.org/abs/1111.2728>
- [7] E. TEIXEIRA, Regularity for quasilinear equations on degenerate singular sets. Preprint available at <http://arxiv.org/abs/1204.6607>

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