Research

Analysis Seminar

Large solution for an equation involving the p–Laplacian with p diverging

Tommaso Leonori
"Sapienza" Università di Roma

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Abstract. We analyze the behavior of the solutions of the equation of the equation

$$u - \Delta_p u + \beta |\nabla u|^q = 0 \qquad \text{in } \Omega$$

with Ω a bounded subset of $\mathbb{R}^N$, $\beta > 0$ and $p - 1 < q \leq p$, and equipped with explosive boundary conditions. We are interested in studying the limit as p diverges and we prove that u converges to the solution of a differential equation that depends on some properties of the domain Ω.

References

[1] S. Buccheri, T.Leonori, *Large solutions to quasilinear problems involving the p–laplacian as p diverges* , Preprint.

[2] J. García-Melián, J. Rossi, J. Sabina de Lis; *Large solutions to the p-Laplacian for large p*, Calc. Var. Partial Differential Equations **31** (2008), 187–204.

[3] T. Leonori A. Porretta *Large solutions and gradient bounds for quasilinear elliptic equations*, Comm. Part. Diff. Eq. **41** (2016) 952–998.

[4] T. Leonori, A. Porretta, G.Riey *Comparison principles for p-Laplace equations with lower order terms*, Annali di Matematica Pura e Applicata, 196 (2017) 877–903.