

# Lipschitz continuity of nonnegative minimizers of function of Bernoulli type with nonstandard growth

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I will report on research done in collaboration with Claudia Lederman from the University of Buenos Aires on the Lipschitz continuity of nonnegative minimizers to functionals

$$J(u) = \int_{\Omega} F(x, u(x) \nabla u(x)) + \lambda(x) \chi_{\{u>0\}} dx.$$

Here  $F(x, s, \eta)$  is a function of  $p(x)$ -type growth with  $p$  Lipschitz continuous, and  $0 \leq \lambda_1 \leq \lambda(x) \leq \lambda_2 < \infty$ .

For example, we may take  $F(x, s, \eta) = a(x, s)|\eta|^{p(x)} + b(x)|s|^{p^*(x)}$ ,  $0 \leq b(x) \in L^\infty$ ,  $0 < a_0 \leq a(x) \leq a_1 < \infty$  satisfying some suitable assumptions. Also,  $F(x, s, \eta) = G(|\eta|^{p(x)}) + f(x, s)$  with  $G$  strictly convex and suitable  $f$ . Here,  $p^* = \frac{Np(x)}{N-p(x)}$  when  $\max_{\Omega} p < N$ .