

ABOUT A QUASILINEAR ELLIPTIC PROBLEM INVOLVING SUB-LINEAR AND SUPER-LINEAR TERMS

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We deal with existence and non-existence of positive solutions for the problem

$$\begin{cases} -\Delta_p u = g(x, u) + \lambda f(x, u) & \text{in } \Omega, \\ u > 0 & \text{in } \Omega, \quad u = 0 \text{ on } \partial\Omega, \end{cases}$$

where $\Omega \subset \mathbb{R}^N$ is a smooth bounded domain, Δ_p is the p-Laplacian operator, $1 < p < \infty$, $\lambda > 0$ is a real parameter and $g, f : \Omega \times (0, \infty) \rightarrow [0, \infty)$ are continuous functions with no polynomial type growth restrictions. No monotonicity condition is required of the nonlinearities. We exploit the lower and upper solutions, combined with a technique of monotonicization-regularization of the nonlinearity f and g .

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