On Existence and Nonexistence of Entire Positive Solutions of a Class of Quasilinear Problems

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Abstract. In the talk I present some results concerning existence, asymptotic behavior and nonexistence of entire, positive and bounded solutions which converge to zero at infinite for the quasilinear equation $-\Delta_p u = a(x)f(u) + \lambda b(x)g(u), x \in \mathbb{R}^N, 1 , where <math>f, g : [0, \infty) \to (0, \infty)$ and $a(x), b(x) \geq 0$ are continuous functions not identically zero. For suitable functions f and g we shall show that there exist λ^* , $\lambda_* > 0$ with $\lambda^* \geq \lambda_*$ such that the above problem admits at least a solution for each $0 \leq \lambda < \lambda_*$ and no solution for $\lambda > \lambda^*$. Penalty arguments, variational principles, lower-upper solutions and an approximation procedure will be exploited.

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