

Solutions to a supercritical elliptic problem

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We consider the supercritical problem

$$-\Delta v = |v|^{p-2} v \quad \text{in } \Theta, \quad v = 0 \quad \text{on } \partial\Theta, \quad (1)$$

in a bounded smooth domain $\Theta \subset \mathbb{R}^N$, $N \geq 3$, for $p > \frac{2N}{N-2}$. In some cases one can reduce this problem to a critical problem of the form

$$-\Delta u = Q(x) |u|^{\frac{4}{n-2}} u \quad \text{in } \Omega, \quad u = 0 \quad \text{on } \partial\Omega, \quad (2)$$

in a domain $\Omega \subset \mathbb{R}^n$ of lower dimension by means of a Hopf map and some symmetry considerations.

We shall present some existence and multiplicity results for problem (2) which will give rise to solutions of problem (1) in some particular cases.

This is joint work with Mónica Clapp and Angela Pistoia.