

**Anello, Giovanni; Cordaro, Giuseppe**

**Infinitely many arbitrarily small positive solutions for the Dirichlet problem involving the  $p$ -Laplacian.** (English) [Zbl 1064.35053](#)

Proc. R. Soc. Edinb., Sect. A, Math. 132, No. 3, 511-519 (2002); corrigendum 133, No. 1, 1 (2003).

The authors present a result of existence of infinitely many arbitrarily small positive solutions to the Dirichlet problem involving the  $p$ -Laplacian:

$$-\Delta_p u = \lambda f(x, u) \text{ in } \Omega \quad u = 0 \text{ on } \partial\Omega,$$

where  $\Omega \in \mathbb{R}^N$  is a bounded set with sufficiently smooth boundary  $\partial\Omega$ ,  $p > 1$ ,  $\lambda > 0$ , and  $f : \Omega \times \mathbb{R} \rightarrow \mathbb{R}$  is a Carathéodory function satisfying the condition: there exists  $\bar{t} > 0$  such that

$$\sup_{t \in [0, \bar{t}]} f(\cdot, t) \in L^\infty(\Omega).$$

{In the corrigendum several errors are corrected, esp. “a.e. positive” has to be changed into “nonzero and nonnegative”}.

Reviewer: [Josef Diblík \(Brno\)](#)

**MSC:**

[35J60](#) Nonlinear elliptic equations

[35B05](#) Oscillation, zeros of solutions, mean value theorems, etc. in context of PDEs

[35D05](#) Existence of generalized solutions of PDE (MSC2000)

[35J20](#) Variational methods for second-order elliptic equations

[35J25](#) Boundary value problems for second-order elliptic equations

Cited in **21** Documents

**Keywords:**

[Dirichlet problem](#); [small positive solutions](#);  [\$p\$ -Laplacian](#)

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