

**Greco, A.; Porru, G.**

**Asymptotic estimates and convexity of large solutions to semilinear elliptic equations.**

(English) [Zbl 0889.35028](#)

Differ. Integral Equ. 10, No. 2, 219-229 (1997).

The author investigates asymptotic estimates and convexity of classical solutions of the boundary value problem  $\Delta u = f(u)$  in  $D$ ,  $u(x) \rightarrow \infty$  as  $x \rightarrow \partial D$ . Here  $D \subset \mathbb{R}^N$ ,  $N > 1$ , is a bounded convex smooth domain,  $f(t)$  is a differentiable positive nondecreasing function on  $[t_0, \infty)$  satisfying  $f(t_0) = 0$  and  $F(t)^{-1/2}$  is integrable at infinity, where  $F$  is the primitive function of  $f$ ,  $F(t_0) = 0$ . Let  $\delta(x)$  denote the distance from  $x$  to the boundary of  $D$  and  $\Phi(s)$  be the function defined as

$$\int_{\Phi(s)}^{\infty} [2F(t)]^{-1/2} dt = s.$$

The author investigates the behavior of  $u(x) - \Phi(\delta(x))$  near the boundary of  $D$ .

Reviewer: [D.Medková \(Praha\)](#)

**MSC:**

[35J60](#) Nonlinear elliptic equations

[35J67](#) Boundary values of solutions to elliptic equations and elliptic systems

Cited in **17** Documents

**Keywords:**

[singular boundary value](#)