

Existence of entropy solutions for degenerate quasilinear elliptic equations

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Abstract. We prove the existence of entropy solutions for the Dirichlet problem

$$(P) \begin{cases} -\operatorname{div}(\omega(x)\mathcal{A}(x, u, \nabla u)) = f(x), & \text{in } \Omega \\ u(x) = 0, & \text{on } \partial\Omega \end{cases}$$

where Ω is a bounded open set of \mathbb{R}^n ($n \geq 2$), $f \in L^1(\Omega)$, and ω is a weight function (i.e., a locally integrable function on \mathbb{R}^n such that $0 < \omega(x) < \infty$ a.e. $x \in \mathbb{R}^n$).