Entropy solutions for the $p(x)$-Laplace equation

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Abstract

We consider a Dirichlet problem in divergence form with variable growth, modeled on the $p(x)$-Laplace equation. We obtain existence and uniqueness of an entropy solution for L^1 data, as well as integrability results for the solution and its weak gradient. The proofs rely crucially on *a priori* estimates in Marcinkiewicz spaces with variable exponent. Joint work with José Miguel Urbano (Universidade de Coimbra, Portugal).