

A Brézis-Oswald problem to Φ –*Laplacian* operator in the presence of singular terms

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Abstract

We are concerned in showing existence and uniqueness of solution in $W_{loc}^{1,\Phi}(\Omega)$ to the problem

$$\begin{cases} -\Delta_{\Phi}u = f(x, u) \text{ in } \Omega, \\ u > 0 \text{ in } \Omega, u = 0 \text{ on } \partial\Omega, \end{cases}$$

where f has Φ -sublinear growth and may be singular at $u = 0$. Our results are an improvement and complement of the classical Brézis-Oswald results to Orlicz-Sobolev setting for singular nonlinearities. In particular, the comparison principle for $W_{loc}^{1,\Phi}(\Omega)$ -solutions is new even for the Laplacian operator setting.