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G. M. Figueiredo
Universidade Federal do Pará, Faculdade de Matemática, 66075-110 Belém - Pa, Brazil
giovany@ufpa.br

J. A. Santos
Universidade Federal de Campina Grande, Unidade Acadêmica de Matemática e Estatística, 58109-970 Campina Grande - PB, Brazil
jefferson@dme.ufcg.edu.br

On a Nonlocal Multivalued Problem in an Orlicz-Sobolev Space via Krasnoselskii's Genus

This paper is concerned with the multiplicity of nontrivial solutions in an Orlicz-Sobolev space for a nonlocal problem involving N-functions and theory of locally Lispchitz continuous functionals. More precisely, in this paper, we study a result of multiplicity to the following multivalued elliptic problem:

$$\begin{cases} -M\left(\int_\Omega \Phi(|\nabla u|)dx\right) div\big(\phi(|\nabla u|)\nabla u\big) - \phi(|u|)u \in \partial F(u) \text{ in } \Omega, \\ u \in W_0^1 L_\Phi(\Omega), \end{cases}$$

where $\Omega \subset \mathbb{R}^N$ is a bounded smooth domain, $N \geq 2$, M is continuous function, Φ is an N-function with $\Phi(t) = \int_0^{|t|} \phi(s)s\,ds$ and $\partial F(t)$ is a generalized gradient of $F(t)$. We use genus theory to obtain the main result.