Some new weighted compact embeddings results and existence of weak solutions for eigenvalue Robin problem

Ismail Aydin\textsuperscript{1} and Cihan UNAL\textsuperscript{2}

\textsuperscript{1}Sinop University
\textsuperscript{2}Assessment, Selection and Placement Center

November 9, 2020

Abstract

In this paper, we prove the existence and multiplicity of solutions for the following Robin problem

\begin{equation*}
\begin{cases}
-\text{div}\left(a(x)\left|\nabla u\right|^{p(x)-2}\nabla u\right) = \lambda b(x)\left|u\right|^{q(x)-2}, & x \in \Omega \\
\frac{\partial u}{\partial \upsilon} + \beta(x)\left|u\right|^{p(x)-2}u = 0, & x \in \partial \Omega,
\end{cases}
\end{equation*}

under some appropriate conditions in double weighted variable exponent Sobolev space by applying Mountain Pass Lemma, Ekeland’s variational principle and Fountain Theorem.

Hosted file

Aydin and Unal.pdf available at https://authorea.com/users/374347/articles/491884-some-new-weighted-compact-embeddings-results-and-existence-of-weak-solutions-for-eigenvalue-robin-problem