EXISTENCE OF INFINITELY MANY WEAK SOLUTIONS FOR NON-UNIFORMLY ELLIPTIC EQUATION WITH MIXED BOUNDARY CONDITIONS IN A VARIABLE EXPONENT SOBOLEV SPACE

Junichi Aramaki*

Division of Science, Tokyo Denki University
Hatoyama-machi, Saitama, 350-0394, Japan
(E-mail: `aramaki@hctv.ne.jp`)

Abstract.   In this paper, we consider a mixed boundary value problem for a nonuniformly elliptic equation containing $p(\cdot)$-Laplacian and the mean curvature operator. More precisely, we are concerned with the problem with the Dirichlet condition on a part of the boundary and the Steklov boundary condition on an another part of the boundary. We attempt to show the existence of infinitely many weak solutions. We use the variational method, in particular, two symmetric mountain pass theorems due to Rabinowitz and Kajikiya, respectively, according to hypotheses on given functions.