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A CLASS OF DE GIORGI TYPE AND LOCAL BOUNDEDNESS

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Abstract. Under appropriate assumptions on the $N(\Omega)$-function, the De Giorgi process is presented in the framework of Musielak–Orlicz–Sobolev spaces. As the applications, the local boundedness property of the minimizers for a class of the energy functionals in Musielak–Orlicz–Sobolev spaces is proved; and furthermore, the local boundedness of the weak solutions for a class of fully nonlinear elliptic equations is provided.

1. Introduction

In the study of nonlinear differential equations, it is well known that more general functional spaces can handle differential equations with more complex nonlinearities. If one would like to study a general form of differential equations, it is crucial to find a proper functional space in which the solutions may exist. The Musielak–Orlicz–Sobolev (or Musielak–Sobolev) space is such a generalization of the Sobolev space that the classical Sobolev spaces, variable exponent Sobolev spaces and Orlicz–Sobolev spaces can be interpreted as its special cases.

The properties and applications of Orlicz–Sobolev spaces and variable exponent Sobolev spaces have been studied extensively in recent years, see for example

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