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ORLICZ-SOBOLEV SPACES WITH ZERO BOUNDARY VALUES ON METRIC SPACES

NOUREDDINE AÏSSAOUI

Abstract. In this paper we study two approaches for the definition of the first order Orlicz-Sobolev spaces with zero boundary values on arbitrary metric spaces. The first generalization, denoted by $M_{\Phi}^{1,0}(E)$, where E is a subset of the metric space X, is defined by the mean of the notion of the trace and is a Banach space when the N-function satisfies the Δ_2 condition. We give also some properties of these spaces. The second, following another definition of Orlicz-Sobolev spaces on metric spaces, leads us to three definitions that coincide for a large class of metric spaces and N-functions. These spaces are Banach spaces for any N-function.

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Ecole Normale Supérieure, B.P 5206 Ben Souda, Fès, Maroc
n.aissaoui@caramail.com