Fixed point theorems for Kikkawa-Suzuki type multivalued operators in gauge spaces

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ABSTRACT.

Let $\eta : [0,1[\to \left]\frac{1}{2},1\right]$ be a function defined by $\eta(a) := \frac{1}{1+a}$. Let (X,d) be a metric space and $Y \subseteq X$. Then, $F : Y \to P_{b,cl}(X)$ is called an $a-$KS multivalued operator if $a \in [0,1[$ and

$$x,y \in Y \text{ with } \eta(a) \cdot D(x,F(x)) \leq d(x,y) \text{ implies } H(F(x),F(y)) \leq a \cdot d(x,y).$$

Kikkawa and Suzuki recently proved in [5] that if F is an $a-$KS multivalued operator in a complete metric space then F has a fixed point. The aim of this article is to extend their results to gauge spaces.

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