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THE FRACTIONAL INTEGRAL OPERATORS ON MORREY SPACES OVER *Q*-HOMOGENEOUS METRIC MEASURE SPACE

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ABSTRACT

This paper establishes necessary and sufficient condition for the boundedness of the fractional integral operator $I_\alpha f$ on Morrey spaces over metric measure spaces which satisfies the Q-homogeneous and its corollary.

Key words: Morrey Space Classic; Metric Measure Space; Q-Homogeneous.

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1. INTRODUCTION

We consider to a topological space $X := (X, \delta, \mu)$, endowed with complete measure μ such that the space of compactly supported continuous functions is dense in $L^1(X, \mu)$ and there exists a function (metric) $\delta: X \times X \to [0, \infty)$ satisfying the following conditions.

1. $\delta(x, y) = 0$ if and only if $x = y$;
2. $\delta(x, y) > 0$ for all $x \neq y, x, y \in X$;
3. $\delta(x, y) = \delta(y, x)$;
4. $\delta(x, y) \leq \{\delta(x, z) + \delta(z, y)\}$

for every $x, y, z \in X$. We have an assumptions that the balls $B(a, r) := \{x \in X: \delta(x, a) < r\}$ are measurable, for $a \in X, r > 0$, and $0 \leq \mu\big(B(a, r)\big) < \infty$. For every neighborhood V of $x \in X$, there exists $r > 0$, such that $B(x, r) \subset V$. We also assume that $\mu(X) = \infty$, $\mu\{a\} =$