

TWO-WEIGHT NORM INEQUALITIES FOR POTENTIAL TYPE AND MAXIMAL OPERATORS IN A METRIC SPACE

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Abstract: We characterize two-weight norm inequalities for potential type integral operators in terms of Sawyer-type testing conditions. Our result is stated in a space of homogeneous type with no additional geometric assumptions, such as group structure or non-empty annulus property, which appeared in earlier works on the subject. One of the new ingredients in the proof is the use of a finite collection of adjacent dyadic systems recently constructed by the author and T. Hytönen. We further extend the previous Euclidean characterization of two-weight norm inequalities for fractional maximal functions into spaces of homogeneous type.

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Key words: Space of homogeneous type, dyadic cube, adjacent dyadic systems, dyadic operator, positive integral operator, testing condition.