WEIGHTED ESTIMATES FOR MARCINKIEWICZ INTEGRALS WITH NON–SMOOTH KERNELS ON SPACES OF HOMOGENEOUS TYPE AND THEIR APPLICATIONS

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Abstract. Given a family of operators that act like approximations of the identity, we obtain weighted estimates for the Marcinkiewicz integrals with non-smooth kernels on spaces of homogeneous type. As applications of weighted estimates, we also establish the boundedness of these operators on the homogeneous Herz spaces over Euclidean spaces, and on the homogeneous weak Herz spaces for the endpoint case. We also study the boundedness of commutators of Marcinkiewicz integrals and BMO functions on various spaces.

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