

LOGARITHMIC BUMP CONDITIONS FOR CALDERÓN–ZYGMUND OPERATORS ON SPACES OF HOMOGENEOUS TYPE

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Abstract: We establish two-weight norm inequalities for singular integral operators defined on spaces of homogeneous type. We do so first when the weights satisfy a double bump condition and then when the weights satisfy separated logarithmic bump conditions. Our results generalize recent work on the Euclidean case, but our proofs are simpler even in this setting. The other interesting feature of our approach is that we are able to prove the separated bump results (which always imply the corresponding double bump results) as a consequence of the double bump theorem.

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Key words: Calderón–Zygmund operators, two weight inequalities, bump conditions, spaces of homogeneous type, dyadic operators.