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A PROOF OF THE WEAK (1,1) INEQUALITY FOR SINGULAR INTEGRALS WITH NON DOUBLING MEASURES BASED ON A CALDERÓN-ZYGMUND DECOMPOSITION

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Abstract

Given a doubling measure μ on $\mathbb{R}^d$, it is a classical result of harmonic analysis that Calderón-Zygmund operators which are bounded in $L^2(\mu)$ are also of weak type $(1,1)$. Recently it has been shown that the same result holds if one substitutes the doubling condition on μ by a mild growth condition on μ. In this paper another proof of this result is given. The proof is very close in spirit to the classical argument for doubling measures and it is based on a new Calderón-Zygmund decomposition adapted to the non doubling situation.

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