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Michael Perlmutter* (mperlmut@math.purdue.edu). *Calderón-Zygmund Operators Arising from Projections of Martingale Transforms.*

Probabilistic methods provide a powerful tool for studying the L^p boundedness of classical Calderón-Zygmund operators such as the Riesz and Beurling-Ahlfors transforms. These classical operators may be interpreted as particular cases of the projections of the martingale transforms of stochastic integrals with respect to Brownian motion. An advantage of this approach is that it gives very good information on the size of these L^p bounds and, in particular, provides constants that are independent of the dimension. We show that a large class of these probabilistic operators, as well as other closely related operators, are in fact Calderón-Zygmund operators. Consequently, such operators are not only bounded on L^p , $1 < p < \infty$, but also satisfy weak-type inequalities. Unlike the boundedness on L^p , which can be obtained directly from the Burkholder martingale transform inequalities, the weak-type estimates do not follow from the corresponding martingale results. (Received January 08, 2015)