Sharp one and two-weight norm inequalities

José María Martell Berrocal[1]

We present sharp one and two-weight norm inequalities for some of the classical operators of harmonic analysis: the Hilbert and Riesz transforms, the Beurling-Ahlfors operator, the dyadic square function and the vector-valued maximal function. In the one weight case we study the dependence on the A_p constant for the strong inequalities with Muckenhoupt weights. Petermichl and Volberg obtained the sharp results for the Hilbert and Riesz transforms, and for the Beurling-Ahlfors operator by using Haar shift dyadic operators, Bellman functions and two-weight Tb theorems. In the two-weight case we look for sufficient Muckenhoupt type conditions on a pair of weights to obtain strong two-weight estimates.

[1] *ICMAT*
Consejo Superior de Investigaciones Científicas