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**Maria Carmen Reguera\*** (mreguera@math.gatech.edu) and **Christoph Thiele**. *A counterexample to Muckenhoupt-Wheeden Conjecture.*

Muckenhoupt-Wheeden Conjecture asserts that given any weight  $w$ , a Calderón-Zygmund operator  $T$  should map  $L^1(Mw)$  to  $L^{1,\infty}(w)$ , where  $M$  is the Hardy-Littlewood maximal operator. When  $T$  is replaced by the maximal operator  $M$ , the inequality is known to be true and was proven by C. Fefferman and E. Stein in early seventies. We construct a weight  $w$  for which the Hilbert transform fails to map  $L^1(Mw)$  to  $L^{1,\infty}(w)$ , hence disproving the Conjecture. The proof is a simplification of a previous construction for the dyadic case by the author. This is joint work with Christoph Thiele. (Received January 18, 2011)