BCR ALGORITHM AND THE $T(b)$ THEOREM

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Abstract

We show using the Beylkin-Coifman-Rokhlin algorithm in the Haar basis that any singular integral operator can be written as the sum of a bounded operator on L^p, $1 < p < \infty$, and of a perfect dyadic singular integral operator. This allows to deduce a local $T(b)$ theorem for singular integral operators from the one for perfect dyadic singular integral operators obtained by Hofmann, Muscalu, Tao, Thiele and the first author.