Publicacions Matemàtiques, Vol **41** (1997), 577–604.

NORM INEQUALITIES FOR THE MINIMAL AND MAXIMAL OPERATOR, AND DIFFERENTIATION OF THE INTEGRAL

David Cruz-Uribe, SFO, C. J. Neugebauer and V. Olesen

Abstract

We study the weighted norm inequalities for the minimal operator, a new operator analogous to the Hardy-Littlewood maximal operator which arose in the study of reverse Hölder inequalities. We characterize the classes of weights which govern the strong and weak-type norm inequalities for the minimal operator in the two weight case, and show that these classes are the same. We also show that a generalization of the minimal operator can be used to obtain information about the differentiability of the integral in cases when the associated maximal operator is large, and we give a new condition for this maximal operator to be weak $(1, 1)$.

Keywords. Minimal operator, maximal operator, weighted norm inequalities, differentiation of the integral.
1991 *Mathematics subject classifications*: 42B25.