

# THE ROLE OF PARAMETERS IN HARDY-TYPE INEQUALITIES

ALOIS KUFNER

UNIVERSITY OF WEST BOHEMIA, PLZEN, CZECH REPUBLIC

INSTITUTE OF MATHEMATICS OF THE CZECH ACADEMY OF SCIENCES, PRAGUE, CZECH REPUBLIC

ABSTRACT. It will be shown, how in weighted norm inequalities between  $L^p$  and  $L^q$  spaces (for general real values of  $p$  and  $q$ , i.e. for spaces which are not necessarily normed!!) the particular parameters can have influence to the inequality sign as well as to the conditions of the validity of the inequality under consideration. The main attention will be paid to new scales of (equivalent) necessary and sufficient conditions for the validity of the corresponding Hardy and reverse Hardy inequalities in the particular domain of parameters  $p, q$ . In some cases, even 15 different scales will be given.