## CONTENTS

Abstract		7
Chapter 1	Introduction	9
Chapter 2	Notation and terminology. A short survey	13
Chapter 3	The classical Hardy inequality	19
Chapter 4	The Hardy inequality in weighted $L^p$ -spaces	29
Chapter 5	The Hardy inequality between weighted $L^p - L^q$ spaces	43
Chapter 6	Weighted Hardy type inequalities for sequences	57
Chapter 7	Compactness of the Hardy operator and spectral problems connected to the Hardy operator	61
Chapter 8	Multidimensional weighted Hardy inequalities for functions and sequences	67
Chapter 9	Further generalizations and related results	73
A	Weighted weak type Hardy inequalities	73
В	Weighted inequalities for Hardy-Volterra integral operators	80
C	Higher order Hardy inequalities	81
D	Fractional order Hardy inequalities	83
E	A limiting case of Hardy inequality for functions and sequences	84
F Cha	Convexity and classical Hardy inequality. Hardy inequality for general means	87
Chapter 10	The weighted Hardy inequality for monotone functions and sequences	91
Chapter 11	The Hardy inequality in Banach function spaces	111
A	The Hardy inequality in Orlicz spaces	112
В	The Hardy inequality in Lorentz spaces	125
C	The Hardy inequality in rearrangement invariant spaces	126
D	The Hardy inequality in general Banach function spaces	132
References		135
Appendix	The Prehistory of the Hardy Inequality	147