

Boundedness of several operators on weighted Herz spaces

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Abstract. We consider the boundedness of singular integral operators and fractional integral operators on weighted Herz spaces. For this purpose we introduce generalized Herz space. Our results are the best possible.

1. Introduction

Since Beurling [1] introduced the Beurling algebras and Herz [5] generalized these spaces, many studies have been done for Herz spaces (see, for example, [2], [4], [7] and [11]). Weighted Herz spaces are also considered in [6], [8] [9] and [10]. But they consider only A_1 weights or power weights.

In this paper we consider the boundedness of singular integral operators and fractional integral operators on weighted Herz spaces with A_p weights. For this purpose, we introduce generalized Herz spaces, and as corollaries of our theorems we obtain the boundedness of these operators on weighted Herz spaces.