

Q_K type spaces of analytic functions

Hasi Wulan and Jizhen Zhou

(Communicated by Miroslav Engliš)

2000 Mathematics Subject Classification. 30D45, 30D50.

Keywords and phrases. Möbius-invariant, Q_K spaces and $Q_K(p, q)$ spaces.

Abstract. For a nondecreasing function $K : [0, \infty) \rightarrow [0, \infty)$ and $0 < p < \infty$, $-2 < q < \infty$, we introduce $Q_K(p, q)$, a Q_K type space of functions analytic in the unit disk and study the characterizations of $Q_K(p, q)$. Necessary and sufficient conditions on K such that $Q_K(p, q)$ become some known spaces are given.

1. Introduction

The Green function in the unit disk Δ with singularity at $a \in \Delta$ is given by $g(z, a) = \log \frac{1}{|\varphi_a(z)|}$, where $\varphi_a(z) = (a - z)/(1 - \bar{a}z)$ is a Möbius transformation of Δ . For $0 < r < 1$, let $\Delta(a, r) = \{z \in \Delta : |\varphi_a(z)| < r\}$ be the pseudo-hyperbolic disk with center $a \in \Delta$ and radius r .

Through this paper, we assume that $K : [0, \infty) \rightarrow [0, \infty)$ is a right-continuous and nondecreasing function. For $0 < p < \infty$, $-2 < q < \infty$, we

The authors are supported by NNSF of China (No.10371069) and NSF of Guangdong Province of China (No. 04011000).