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Generalized Lipschitz Functions

CMFT 5 No.2 (2005), 431–444. [ISSN 1617-9447]

Abstract. In this note the class $\text{Lip}_{\alpha(t)}$ of continuous functions is introduced. The definition is arranged so that for the constant function $\alpha(t) \equiv \alpha$, the class $\text{Lip}_{\alpha(t)}$ is nothing but the classical Lipschitz space Lip_{α} . Then, to justify that our set of axioms for $\alpha(t)$ are properly chosen, some celebrated theorems of Privalov, Titchmarsh, Hardy and Littlewood about Lip_{α} functions are shown to be also valid for $\text{Lip}_{\alpha(t)}$ functions.

Keywords. Lipschitz functions, test function, associated test function, Hilbert transform, Hardy classes.

2000 MSC. Primary 26A16; Secondary 32A40.

Received. October 21, 2004, in revised form October 18, 2005.