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Bloch spaces of holomorphic functions in the polydisk

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Abstract. This work is an introduction to anisotropic spaces of holomorphic functions, which have ω-weight and are generalizations of Bloch spaces to a polydisc. We prove that these classes form an algebra and are invariant with respect to monomial multiplication. Some theorems on projection and diagonal mapping are proved. We establish a description of $(A^p(\omega))^*$ (or $(H^p(\omega))^*$) via the Bloch classes for all $0 < p \leq 1$.

1. Introduction

The aim of this paper is to extend the Bloch spaces to a polydisk so that the well-known properties of the Bloch spaces of one variable remain true. Moreover, our generalization gives results which are new also for function of one variable. We are interested, for instance, in theorems on projection and the description of $(A^p(\alpha))^*$ via Bloch spaces. One can consider other generalisations of the Bloch space for polydisk (see for example [1]).

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