WEAK FACTORIZATION AND HANKEL OPERATORS ON HARDY-ORLICZ AND BERGMAN-ORLICZ SPACES

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ABSTRACT. The holomorphic Hardy-Orlicz spaces are natural generalizations of the usual Hardy spaces in the unit ball of $\mathbb{C}^n$. Weak factorization theorem for function in Hardy spaces has been obtained by R. Coifman, R. Rochberg and G. Weiss. We give several generalization of this weak factorization theorem for functions in $\mathcal{H}^\Phi(\mathbb{B}^n)$, with concave growth function, in terms of products of Hardy-Orlicz functions with convex or concave growth functions. We then apply the result to characterize the symbols of (small)Hankel operators that extend into bounded operators from the Hardy-Orlicz $\mathcal{H}^{\Phi_1}(\mathbb{B}^n)$ into $\mathcal{H}^{\Phi_2}(\mathbb{B}^n)$ in the unit ball of $\mathbb{C}^n$, in the case where the growth functions Φ_1 and Φ_2 are either concave or convex. The analogue problem in the case of Bergman-Orlicz spaces is studied, we will give partial results in this situation. This talk is based on joint work with B. Sehba.