**Jahedi, S.**; **Yousefi, B.**

**Composition operators on Banach spaces of formal power series.** (English) Zbl 1150.47014

Boll. Unione Mat. Ital., Sez. B, Artic. Ric. Mat. (8) 6, No. 2, 481-487 (2003).

Let $(\beta_n)$ be a sequence of positive numbers and take $1 \leq p < \infty$ and $q$ such that $p^{-1} + q^{-1} = 1$. Consider the space $H^p(\beta)$ of all formal power series $f(z) = \sum a_n z^n$ such that $\sum |a_n|^p \beta_n^p < \infty$. Under the additional hypothesis that there exists a non-negative integer $j$ such that $\sum n^{qj} \beta_n^{-q} < \infty$, and using well-known techniques introduced by A. L. Shields, the authors prove that if a composition operator $C_\phi$ is compact on $H^p(\beta)$, then the modulus of the non-tangential limit of $\phi^{(j+1)}$ is greater than one at every point of the unit circle. It is also shown that if $C_\phi$ is Fredholm on $H^p(\beta)$, then $\phi$ must be an autormophism of the open unit disk.

Rewiever's remark: It appears that the proofs cannot be applied for the case $p = 1$ and, at least, this case should have been treated separately; for instance, for $p = 1$, so that $q = \infty$, what is the formulation of the the condition $\sum n^{qj} \beta_n^{-q} < \infty$?

Reviewer: Pedro J. Paúl (Sevilla)

**MSC:**

47B33 Linear composition operators
46B99 Normed linear spaces and Banach spaces; Banach lattices

Cited in **6** Documents

**Full Text:** EuDML