

Title: Hilbert matrix operator on Besov spaces

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We show that if $0 < p \leq \infty$, $1 < q \leq \infty$, then the Besov spaces $H_{1+1/p}^{p,q,1}$ are not mapped by the Hilbert matrix operator H into the Bloch space \mathcal{B} . As a corollary, we have that the space $VMOA$ is also not mapped by H into the Bloch space \mathcal{B} . In [7], it is shown that if a function $f(z) = \sum_{k=0}^{\infty} \widehat{f}(k)z^k$, holomorphic in the unit disc, belongs

to the logarithmically weighted Bergman space $A_{\log \alpha}^2$, $\alpha > 2$, then $\sum_{k=0}^{\infty} \frac{|\widehat{f}(k)|}{k+1} < \infty$.

We show that this implication holds only when $\alpha > 1$. In [7], it is also shown that if $\alpha > 3$, then H maps $A_{\log \alpha}^2$ into the Bergman space A^2 . We improve this result by proving that H maps $A_{\log \alpha}^2$ into A^2 when $\alpha > 2$.

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