THE MULTI–PARAMETER HAUSDORFF OPERATORS ON $H^1$ AND $L^p$

DUONG QUOC HUY AND LUONG DANG KY

Abstract. In the present paper, we characterize the nonnegative functions $\varphi$ for which the multi-parameter Hausdorff operator $\mathcal{H}_\varphi$ generated by $\varphi$ is bounded on either the multi-parameter Hardy space $H^1(\mathbb{R} \times \cdots \times \mathbb{R})$ or $L^p(\mathbb{R}^n)$, $p \in [1, \infty)$. The corresponding operator norms are also obtained. Our results improve some recent results in [4, 15, 16, 18] and give an answer to an open question posted by Liflyand [12].


Keywords and phrases: Hausdorff operators, multi-parameter Hardy spaces, Hilbert transforms, maximal functions.

REFERENCES

