

Nagel, Alexander; Stein, Elias M.

On certain maximal functions and approach regions. (English) Zbl 0546.42017
Adv. Math. 54, 83-106 (1984).

To each set $\Omega \subset \mathbb{R}_+^{n+1}$ a version of the Hardy- Littlewood maximal function is associated as follows:

$$M_{\Omega}f(x_0) = \sup_{(x,y) \in \Omega} (1/|B(0,y)|) \int_{B(0,y)} |f(x_0 + x + t)| dt$$

where $B(0,y) = \{t \in \mathbb{R}^n; |t| < y\}$. A necessary and sufficient condition in order that the operator M_{Ω} is weak type (1,1) and strong type (p,p) for $1 < p \leq \infty$ is established. Some generalization is given and is applied to the study of certain tangential maximal functions of Poisson integrals of potentials.

Reviewer: [H.Tanabe](#)

MSC:

[42B25](#) Maximal functions, Littlewood-Paley theory
[42B30](#) H^p -spaces

Cited in **14** Reviews
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Keywords:

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