44th Summer Symposium in Real Analysis

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Application of Perron Trees to Geometric Maximal Operators

We characterize the $L^p(\mathbb{R}^2)$ boundeness of the geometric maximal operator $M_{a,b}$ associated to the basis $\mathcal{B}_{a,b}$ $(a, b > 0)$ which is composed of rectangles R whose eccentricity and orientation is of the form

$$(e_R, \omega_R) = \left(\frac{1}{n^a}, \frac{\pi}{4n^b}\right)$$

for some $n \in \mathbb{N}^*$. The proof involves *generalized Perron trees.*