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Classes of measures generated by capacities

For $\beta < 1$, the fractional Carleson condition for a measure μ on the upper half-space \mathbf{R}_+^{n+1} :

$$\mu(T(B)) \leq C|B|^\beta$$

for all balls B in \mathbf{R}^n , where $|B|$ is Lebesgue measure and $T(B)$ is the tent over B , is not equivalent to the same condition for open sets. In joint work with Georgi Karadzhov and Jie Xiao, we show that these Carleson-type conditions (involving balls) are equivalent to conditions bounding the measure of the tent $T(O)$ over an open set O by a function of its capacity. The capacities used include Riesz, Bessel, Besov and Hausdorff capacities. These conditions are analogous to conditions introduced by Maz'ya for measures on \mathbf{R}^n .