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Maximal operators and decoupling for $\Lambda(p)$ Cantor measures

We construct a class of Cantor-type measures for which the associated maximal operators obey a Sobolev- L^p estimate. This complements an earlier result of Laba-Pramanik in that the bound we obtain is weaker, but applicable under less restrictive assumptions. In particular, we are able to include measures supported on self-similar sets and sets of arbitrarily low Hausdorff dimension. The proof is based on multiplier estimates obtained via decoupling.