MUCKENHOUPT-WHEEDEN TYPE AND POINTWISE BOUNDS IN QUASILINEAR MEASURE DATUM PROBLEMS

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Abstract. Muckenhoupt-Wheeden type bounds and pointwise bounds by Wolff's potentials are obtained for gradients of solutions to a class of quasilinear elliptic equations with measure data. Such results are obtained globally over sufficiently flat domains in $\mathbb{R}^n$ in the sense of Reifenberg. The principal operator here is modeled after the p-Laplacian, where for the first time singular case $\frac{3n-2}{2n-1} < p \leq 2 - \frac{1}{n}$ is considered. As an application, sharp existence results and sharp bounds on the size of removable singular sets are deduced for a quasilinear Riccati type equation having a gradient source term with linear or super-linear power growth. This talk is based on joint work with Quoc-Hung Nguyen.

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