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Regularity of Weak Solutions of the Monge–Ampère Equation

Regularity properties of Aleksandrov solutions to the Dirichlet problem for the Monge–Ampère equation $\det D^2 u = \mu$ where μ is a Borel measure on a convex domain in $\mathbb{R}^n$ will be discussed. The measure μ satisfies a condition, introduced by Jerison, that is weaker than the doubling condition. Some of the results of Caffarelli's regularity theory for the Monge–Ampère equation, more specifically strict convexity and interior $C^{1,\alpha}$ regularity, are extended to the solutions of these problems.

This is joint work with Cristian Gutierrez.