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Serrin's overdetermined problem in rough domains

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The classical Serrin's overdetermined theorem states that a C^2 bounded domain, which admits a function with constant Laplacian that satisfies both constant Dirichlet and Neumann boundary conditions, must necessarily be a ball. Similar results also hold for the anisotropic Laplacian, and even more general elliptic operators. While extensions of these theorems to non-smooth domains have been explored since the 1990s, the applicability of Serrin's theorem to Lipschitz domains remained unknown. In this talk we discuss some recent progress on this problem, for both isotropic and anisotropic cases, showing that the results hold for domains under some weak assumptions, including Lipschitz domains.