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On the Size of the Nodal Sets of Solutions of Elliptic and Parabolic PDEs

IGOR KUKAVICA
University of Southern California

Abstract. In this talk we will present various results on the size of the nodal (zero) set for solutions of partial differential equations of elliptic and parabolic type. In particular, we will establish a sharp upper bound for the $(n - 1)$ -dimensional Hausdorff measure of the nodal sets of the eigenfunctions of regular analytic elliptic problems. We will also show certain more recent results concerning semilinear equations (e.g. Navier–Stokes equations) and equations with non-analytic coefficients.