SPEAKER:

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TITLE:

Quantitative properties of the Green function and Geometry

ABSTRACT:

For more than a century, people have been trying to understand the precise connection between the properties of solutions of an equation (PDE properties) and the geometric properties of the set where the equation is given. One important result in these investigations is that under some topological conditions of the set, absolute continuity of the harmonic measure characterizes rectifiability of the set. Unfortunately, this characterization shatters in the case of higher co-dimension (e.g. a curve in 3-dimensional space). Recently, together with collaborators, we have found that some new PDE property, namely, the Green function being almost affine, characterizes rectifiability. This talk is based on joint works with G.David and S.Mayboroda, and a very recent joint work with J.Feneuil and S.Mayboroda.