

QUANTITATIVE RECTIFIABILITY AND ELLIPTIC EQUATIONS

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Abstract

A classical theorem of F. and M. Riesz states that for a simply connected domain in the complex plane with a rectifiable boundary, harmonic measure and arc length measure on the boundary are mutually absolutely continuous. On the other hand, an example of C. Bishop and P. Jones shows that the latter conclusion may fail, in the absence of some sort of connectivity hypothesis.

In this talk, we discuss recent developments in an ongoing program to find scale-invariant, higher dimensional versions of the F. and M. Riesz Theorem, as well as converses. In particular, we discuss substitute results that continue to hold in the absence of any connectivity hypothesis.