

# Potential theory and regularity of non-smooth domains

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ABSTRACT

In this talk we would like to convey the idea that there is a strong relationship between the geometry of the boundary of a domain in Euclidean space and the boundary regularity of the solutions to Laplace's equation. In particular we will show that the doubling properties of the harmonic measure and the "regularity" of the Poisson kernel of a domain  $K_M(\mathfrak{g}, \mathfrak{f})$  in Euclidean space characterize the geometry and the "smoothness" of the boundary of  $K_M(\mathfrak{g}, \mathfrak{f})$ . We introduce some new notions of regularity which are well adapted to study domains whose boundaries are not smooth enough to fit into the classical scheme.