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Hausdorff dimension and σ finiteness of some
 p harmonic measures

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Recall that \hat{u} is said to be p harmonic in an open set G (p fixed, $1 < p < \infty$) if \hat{u} is a weak solution to the p Laplace equation, $\nabla \cdot (|\nabla \hat{u}|^{p-2} \nabla \hat{u}) = 0$ in G . In this talk for fixed p , $1 < p < \infty$, we consider a measure, $\hat{\mu}$, associated with a positive p harmonic function \hat{u} in $G \subset R^n$ with continuous boundary value 0 on a portion Γ of ∂G . We first outline results obtained by the presenter and coauthors when Γ is the boundary of a bounded simply connected domain $\subset R^2$. Our results generalize a famous theorem of Makarov concerning the dimension of harmonic measure. During the second part of this talk we consider p harmonic measures in R^n , $n \geq 3$. In this case we discuss recent work by the presenter and coauthors on the ‘natural generalization’ of a theorem of Jones and Wolff for harmonic measure to the p harmonic setting when $p \geq n$. Also, time permitting, we discuss open problems concerning p harmonic measure and related topics.