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Ariel E Barton* (bartonae@missouri.edu) and **Lesley A Ward**. *A new class of harmonic measure distribution functions.*

Let Ω be a planar domain containing 0. Let $h_\Omega(r)$ be the harmonic measure at 0 in Ω of the part of the boundary of Ω within distance r of 0. The function h_Ω is called the harmonic measure distribution function of Ω .

In this talk we address the inverse problem by discussing several sets of sufficient conditions on a function f for f to arise as a harmonic measure distribution function.

In particular, earlier work of Snipes and Ward shows that for each function f that increases from zero to one, there is a sequence of multiply connected domains X_n such that h_{X_n} converges to f pointwise almost everywhere. We show that if f satisfies our sufficient conditions, then $f = h_\Omega$, where Ω is a subsequential limit of bounded simply connected domains that approximate the domains X_n . Further, the limit domain is unique in a class of suitably symmetric domains. Thus $f = h_\Omega$ for a unique symmetric bounded simply connected domain Ω . (Received January 24, 2014)