1137-28-185 **Laramie Paxton*** (realtimemath@gmail.com) and **Kevin R. Vixie** (vixie@speakeasy.net).
A C^1 Boundary Measure in Two Dimensions.

The intersection of harmonic analysis and geometric measure theory (GMT) is an active area in mathematical research. Singular integrals are central to Fourier analysis, for example the Hilbert transform, while the generalized surfaces in GMT known as rectifiable sets behave measure-theoretically like C^1 submanifolds. In this talk, we present a singular integral that uses the distance function to compute the $(n-1)$-dimensional Hausdorff measure $\mathcal{H}^{n-1}$ of a compact C^1 hypersurface in $\mathbb{R}^n$ for the case of $n = 2$. We will also discuss the "barehanded" approach to the proof and briefly mention the case for arbitrary finite dimensions $n \in \mathbb{N}$. (Received February 03, 2018)