1135-28-1418 **Laramie Paxton*** (realtimemath@gmail.com) and **Kevin R. Vixie**. *A Singular Integral as a Boundary Measure.*

Singular integrals comprise a rich area of analysis, the most well known example being the Hilbert Transform. In this talk, we will discuss a singular integral that also intersects geometric measure theory. For functions $f : \mathbb{R}^n \to \mathbb{R}$ that are $C^{1,1}$ (i.e. the first derivative is Lipschitz continuous), for which 0 is a regular value (i.e. the gradient ∇f does not vanish on the 0-level set), and whose 0-level set is bounded, there is a not too hard proof that our singular integral computes $\mathcal{H}^{n-1}(\{f^{-1}(0)\})$, the $(n-1)$-dimensional Hausdorff measure of the 0-level set of f. We will also briefly mention less regular 0-level sets for which this result holds – for example, distance functions for sets of finite perimeter. (Received September 22, 2017)