1106-VK-2112 **Sarah Charley*** (src210@lehigh.edu), 14 E. Packer Ave, Bethlehem, PA 18015, and **Vladimir Dobric** and **Rob Neel**. *Constructing Prescale Functions via the Dilation Equation for Measures.*

One way to understand the dilation equation is through a measure theoretic approach. We consider a general signed measure which satisfies the dilation equation for measures:

$$\mu(M^{-1}A) = \sum_{k\in F} p_k \mu(A-k)$$

for any Borel set A and a finite set F. We are able to explicitly find the support of the measure μ using Dirac delta measures associated with the dilation equation. The prescale function can be computed by an iterative process starting on the support.

For a specific choice of M, the set of points in the plane of the form $\sum_{j=1}^{\infty} M^{-j} p_j$, with $p_j \in \{(0,0),(1,0)\}$ is called the Twin Dragon. Integer lattice shifts of the Twin Dragon tile the plane. We define a new measure ν based on μ, which is defined only on the Twin Dragon: $\nu(A) = \sum_{k\in F} \mu(A-k)$. By creating algebraic equations on our coefficients p_j and using the Radon-Nikodym Theorem, we are able to characterize the prescale functions. Using properties of the dilation equation for measure and the definition of ν, we will show that ν must be a constant multiple of Lebesgue measure on the Twin Dragon. In fact, we will show that $\nu(A) = \nu(T)\lambda(A)$, where T is the Twin Dragon. (Received September 15, 2014)