

Meeting: 1000, Albuquerque, New Mexico, SS 10A, Special Session on Multiscale Methods and Sampling in Time-Frequency Analysis

1000-43-23 **John J Benedetto** (jjb@math.umd.edu), Department of Mathematics, University of Maryland, College Park, MD 20742, and **Juan R Romero*** (jrr@math.umd.edu), Department of Mathematics, University of Maryland, College Park, MD 20742. *Construction of scaling functions in GMRA for wavelet sets*. Preliminary report.

The setting is the theory of single dyadic orthonormal wavelets for Euclidean space in the context of GMRA (generalized multiresolution analysis). These wavelets are inverse Fourier transforms of characteristic functions of sets called wavelet sets. For such wavelets there is no associated MRA and, in particular, there are no associated scaling functions. On the other hand, the theory of GMRA does associate scaling functions to the wavelets it produces, including those derived from wavelet sets. These scaling functions are produced qualitatively. Our result is the construction of families of scaling sets associated with a large class of single dyadic orthonormal wavelets. (Received July 06, 2004)