

**Meeting:** 999, Nashville, Tennessee, SS 2A, Special Session on Wavelets, Frames, and Sampling

999-41-248      **Bruce Kessler\*** ([bruce.kessler@wku.edu](mailto:bruce.kessler@wku.edu)), Department of Mathematics, 1 Big Red Way, Bowling Green, KY 42101, and **Matt Dawson** and **Justin Grieves**. *Balanced Scaling Vectors Using Fractal Functions*. Preliminary report.

Balanced scaling vectors (sometimes called balanced multiwavelets) have the advantage over standard scaling vectors that no prefiltering of the raw data is required; that is, the raw data can be used as the scaling function coefficients and still preserve polynomial order of the data. Most research into constructing balanced scaling vectors have involved manipulations on the mask of an existing scaling vector and constructing a balanced dual scaling vector. The goal of this talk is to show the construction of balanced orthogonal scaling vectors on  $R^1$ , using the theory of fractal interpolation functions. The application of these bases to digital images for the purpose of image compression will be illustrated. (Received August 24, 2004)