1035-42-1063 **Keri Kornelson*** (kornelso@math.grinnell.edu), **Palle Jorgensen** and **Karen Shuman**.

Orthogonal exponentials with respect to convolution measures and iterated function systems.

A contractive iterated function system results in an attractor set and an equilibrium (Hutchinson) measure supported on the attractor. We study the properties of such equilibrium measures μ by exploring the existence of orthogonal families of exponential functions in the Hilbert space $L^2(\mu)$.

One example is the Bernoulli affine IFSs on the real line parameterized by $\lambda \in (0, 1)$. In this case, we can find infinite families of orthogonal exponentials for certain rational values of λ, even in the cases where the IFS has overlap. (Received September 18, 2007)