Chun-Kit Lai* (cklai@sfsu.edu), San Francisco, CA 94132, and Dorin Ervin Dutkay, Orlando, FL. Self-affine spectral measures and frame spectral measures on $\mathbb{R}^d$.

Given an expansive matrix $R$, and two digit sets $B$ and $L$. $(R, B, L)$ is called a Hadamard triple if the matrix $[\frac{1}{\sqrt{N}} e^{2\pi i R^{-1} b,l}]$ is a unitary matrix. There has been conjecture that Hadamard triples generate self-affine spectral measures. We show that under a natural geometric condition, the Hadamard triples $(R, B, L)$ will generate a self-affine spectral measure.

We also relax the Hadamard triple condition to an almost Parseval frame condition. This condition, if satisfied, is sufficient to generate a Fourier frame for a self-affine measure.

This is a joint work with Dorin Dutkay. (Received January 16, 2015)