1145-31-1402   **Sizhen Fang**, **Dylan A. King**, **Eun Bi Lee*** (el542@cornell.edu) and **Robert S. Strichartz**.
Spectral Decimation for Families of Self-Similar Symmetric Laplacians on the Sierpinski Gasket.

We construct a one-parameter family of Laplacians on the Sierpinski Gasket that are symmetric and self-similar for the 9-map iterated function system obtained by iterating the standard 3-map iterated function system. Our main result is the fact that all these Laplacians satisfy a version of spectral decimation that builds a precise catalog of eigenvalues and eigenfunctions for any choice of the parameter. We give a number of applications of this spectral decimation. We also prove analogous results for fractal Laplacians on the unit Interval, and this yields an analogue of the classical Sturm-Liouville theory for the eigenfunctions of these one-dimensional Laplacians. (Received September 21, 2018)