

1106-AA-2551      **Nishu Lal\*** (lal@oxy.edu), 1600 Campus Rd, Los Angeles, CA 90041, and **Michel L. Lapidus** (lapidus@math.ucr.edu), University of California, Riverside, Riverside, CA 92521. *Spectral Decimation and Complex Dynamics: Laplacians on Self-Similar Fractals and Their Spectral Zeta Functions.*

We discuss the spectral zeta functions of certain self-similar differential operators, such as fractal Sturm-Liouville operators on the half-line and the Laplacian on the unbounded Sierpinski gasket. In the case of the bounded Sierpinski gasket, as was shown by A. Teplyaev, extending the known relation by M. Lapidus for fractal strings, the spectral zeta function of the Laplacian has a factorization formula with respect to the iteration of a rational map on  $\mathbb{C}$  which arises from the decimation method. Using the decimation method and its extension to several complex variables by C. Sabot, we obtain an analogous factorization formula of the spectral zeta function, but now expressed in terms of a suitable hyperfunction, a geometric zeta function, and the iteration of a multi-variable rational function acting in complex projective space. This talk is based on joint work with M. Lapidus. (Received September 16, 2014)