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Uta Renata Freiberg* (freiberg@mathematik.uni-siegen.de), University of Siegen, FB6 - Mathematics, Walter-Flex-Strasse 3, 57068 Siegen, Germany. *Eigenfrequencies of V-variable Sierpinski gaskets.*

The concept of V-variable fractals (developed by Barnsley, Hutchinson and Stenflo) allows describing new families of random fractals, which are intermediate between the notions of deterministic and of random fractals including random recursive as well as homogeneous random fractals. The parameter V describes the degree of variability of the realizations. Brownian motion and Laplacian can be constructed from the associated Dirichlet forms. The properties of these objects are modified by the random environment. We obtain the spectral dimension (i.e. the exponent of the leading term of the eigenvalue counting function of the Laplacian) by applying Kesten-Furstenberg techniques. The results have been obtained in collaboration with Ben Hambly and John Hutchinson. (Received August 10, 2010)