1072-28-240 **Daniel J Kelleher*** (kelleher@math.uconn.edu), **Matthew Begue**, **Aaron Nelson**, **Hugo Panzo**, **Ryan Pellico** and **Alexander Teplyaev**. *Random walks on barycentric subdivisions and the Strichartz hexacarpet.*

We investigate the relation between simple random walks on repeated barycentric subdivisions of a triangle and a self-similar fractal, Strichartz hexacarpet, which we introduce. We explore a graph approximation to the hexacarpet in order to establish a graph isomorphism between the hexacarpet approximations and Barycentric subdivisions of the triangle, and discuss various numerical calculations performed on the these graphs. We prove that equilateral barycentric subdivisions converge to a self-similar geodesic metric space of dimension log(6)/log(2), or about 2.58. Our numerical experiments give evidence to a conjecture that the simple random walks on the equilateral barycentric subdivisions converge to a continuous diffusion process on the Strichartz hexacarpet corresponding to a different spectral dimension (estimated numerically to be about 1.74). (Received June 29, 2011)