

1145-51-305

Elene Karangozishvili* (karangoe@lafayette.edu). *Investigating shortest paths in generalizations of the Cantor Set*. Preliminary report.

The Sierpiński carpet and Menger sponge are well-studied generalizations of the Cantor set to higher dimensions, but they are only two of a doubly-infinite family of fractals that naturally generalize the Cantor set. Most of these higher-dimensional fractals are connected sets, so we study each with a goal of better understanding different types of paths that join two arbitrary points and stay in the fractal. In particular we determine the shortest taxicab distance between any two points in the fractal and construct an explicit path which realizes it. This allows us to compare the taxicab metric in the fractal with the standard Euclidean metric. (Received August 29, 2018)