Title: Applications of electrical network theory to questions in graph theory

Short Description: I spent this semester continuing to learn about graph theory while working on code for more specific concepts. I developed code to compute the effective resistance of a graph using the pseudoinverse of the Laplacian in Matlab. In addition, I learned about circle packing and explored the potential it could have when applied to the Sierpinski carpet.

References Consulted:

- Beurling’s Criterion and Extremal Metrics For Fuglede Modulus, M. Badger

Preprints or Articles (in LaTeX): None for the moment.

Software Code:

- Converted Python code for computing modulus of families of walks on graphs to C.
- Generated Sierpinski carpet graph approximation in C.
- Generated code for computing effective resistance on graphs in Matlab