1077-60-2960 **Erin P.J. Pearse*** (ep@ou.edu). *Self-similar fractals as boundaries of networks.*

For a given pcf self-similar fractal, a certain network (weighted graph) is constructed whose ideal boundary is (homeomorphic to) the fractal. This construction is a Representation of a connected self-similar fractal as the boundary of a reversible Markov chain (i.e., a simple random walk on a network), and builds on earlier work of Denker & Sato, Kaimanovich, Kigami, and relates to current work by Lau, Ju, Ngai, and Wang. In this case, however, the network is actually constructed using the iterated function system that defines the original fractal set. The boundary construction is effected using certain functions of finite energy which behave like bump functions on the boundary and which replace the more standard Martin kernels. The simple random walk converges to the boundary almost surely, with respect to the standard measure on its trajectory space. The usual graph energy is a Dirichlet form on the network whose trace to the boundary can be understood as a Dirichlet form on the fractal associated to a certain jump process. (Received September 27, 2011)