

1086-VK-2176      **Kate E Ellis\*** ([keellis@csupomona.edu](mailto:keellis@csupomona.edu)). *Fractal Strings and Complex Dimensions of Step Functions*. Preliminary report.

Classically, a fractal string is constructed from a bounded open subset of the real line. This fractal string allows one to find a zeta function whose abscissa of convergence is the box counting dimension of the boundary of the open set. In this talk, we will introduce a method which, for a given step function, allows us to define a unique fractal string. This allows us to further define a geometric zeta function and complex dimensions associated with the step function. Applications of this technique include determining upper box counting dimensions of bounded sets and expressing the counting function as a series over complex dimensions. (Received September 25, 2012)