

1119-60-58

Eviatar B Procaccia* (procaccia@math.tamu.edu), Department of Mathematics, Mailstop 3368, Texas A&M University, College Station, TX 77843. *Can one hear the shape of a random walk?*

We consider a Gibbs distribution over random walk paths on the square lattice, proportional to the cardinality of the path's boundary. We show that in the zero temperature limit, the paths condensate around an asymptotic shape. This limit shape is characterized as the minimizer of the functional, mapping open connected subsets of the plain to the sum of their principle eigenvalue and perimeter (with respect to some norm). A prime novel feature of this limit shape is that it is not in the class of Wulff shapes. (Received February 03, 2016)