

# Bigeodesics and Polymer Watermelons in Last Passage Percolation

Riddhipratim Basu  
(Tata Institute of Fundamental Research)

I shall describe two results for the exactly solvable model of exponential last passage percolation that are connected by the common theme of understanding rarity of multiple disjoint geodesics across on-scale (i.e.,  $n \times n^{2/3}$ ) rectangles. The first result shows that almost surely there does not exist any non-trivial bi-infinite geodesic. In the second, we consider the “polymer watermelon” given by the maximal weight collection of  $k$  disjoint geodesics between origin and the point  $(n, n)$  and identify its fluctuation exponents in  $k$ . I shall also discuss the role of integrable probability estimates in these results and some possible extensions if time permits.