Random coalescing geodesics in first-passage percolation

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Abstract

A metric on $\mathbb{Z}^2$ is obtained by assigning non-negative i.i.d. weights to the edges of the nearest neighbour lattice. We discuss the existence and properties of geodesics in this metric. Via the study of *random coalescing geodesics*, we show that the number of (semi-)infinite geodesics starting at the origin is almost surely constant and that each geodesic has an asymptotic 'direction'.