

Random walks on planar graphs

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We will discuss several results relating the behavior of a random walk on a planar graph and the geometric properties of a nice embedding of the graph in the plane (specifically, circle packing of the graph). An example of such a result is that for a bounded degree graph, the simple random walk is recurrent if and only if the boundary of the nice embedding is a polar set (that is, Brownian motion misses it almost surely). We will also present a connection between circle packings and square tilings.

Based of joint works with Omer Angel, Martin Barlow, Daniel Jerison, Asaf Nachmias, Matan Seidel and Juan Souto.

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