The Brownian net

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October 20, 2006

Abstract: The (standard) Brownian web is a collection of coalescing one-dimensional Brownian motions, starting from each point in space and time. It arises as the diffusive scaling limit of a collection of coalescing random walks. We show that it is possible to obtain a nontrivial limiting object if the random walks in addition branch with a small probability. We call the limiting object the Brownian net, and study some of its elementary properties.

Keywords: Brownian net, Brownian web, branching-coalescing random walks, branching-coalescing point set

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