

Lawler, Gregory F.; Werner, Wendelin

The Brownian loop soup. (English) Zbl 1049.60072
Probab. Theory Relat. Fields 128, No. 4, 565-588 (2004).

The subject of the paper is the study of Brownian measures on spaces of curves in the plane and their images under conformal invariance. Bridge-type Brownian measures are first considered. The Brownian bubble measure is a measure on loops in the upper half-plane rooted at the origin. The Brownian loop measure is a conformally invariant measure on unrooted loops. The last section is devoted to the relation between the Brownian loop soup of intensity $\lambda > 0$ which is a Poisson point process of intensity λ times the Brownian loop measure and the Brownian bubble soup which is a Poisson point process with intensity λ times the Brownian bubble measure. The point is that if we travel along a simple curve in the upper half-plane and encounter a loop in the loop soup, we can transform it into a bubble rooted at the origin. The relation of these topics with the Schramm-Loewner evolution curves is detailed in the introduction.

Reviewer: [Dominique Lepingle \(Orléans\)](#)

MSC:

[60J65](#) Brownian motion

[81T40](#) Two-dimensional field theories, conformal field theories, etc. in quantum mechanics

Cited in **12** Reviews

Cited in **87** Documents

Keywords:

[Brownian loops](#); [conformal invariance](#)

Full Text: [arXiv](#)