

Convergence of the outer boundaries of random walk loop soup clusters to CLE

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Resumo/Abstract:

Lawler and Trujillo Ferreras introduced the random walk loop soup and showed that it converges to the Brownian loop soup, in the sense that with probability tending to 1, there is a one-to-one correspondence between macroscopic random walk loops and macroscopic Brownian loops such that corresponding loops are close. We prove that when the intensity of the loop soup is less than or equal to 1, the collection of outer boundaries of outermost clusters of macroscopic random walk loops converges in distribution to a conformal loop ensemble (CLE), with respect to the induced Hausdorff distance on collections of compact subsets of the plane. In the course of the proof, we show that the outer boundary of random walk converges in the Hausdorff distance to the outer boundary of Brownian motion. This is joint work with Federico Camia and Marcin Lis.