

Three-dimensional loop-erased random walks

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The loop-erased random walk (LERW) is a model for random self-avoiding curves, introduced by Lawler in the early 1980s. While the scaling limits of LERW are well understood in dimensions two, four, and higher, the three-dimensional case presents unique challenges. This talk will present recent progress on the large-scale geometry of three-dimensional LERW. We establish the existence of the Minkowski content of its scaling limit and derive sharp estimates for the one-point function and ball-hitting probabilities for LERW on $\mathbb{Z}^3$. This work is joint with Xinyi Li and Daisuke Shiraishi.

In Special Session 51 on Discrete Stochastic Models and Applications at the Mathematical Congress of the Americas 2025.