

Generalized Ray-Knight Theorems and Scaling Limits of Self-interacting Random Walks

Jonathon Peterson

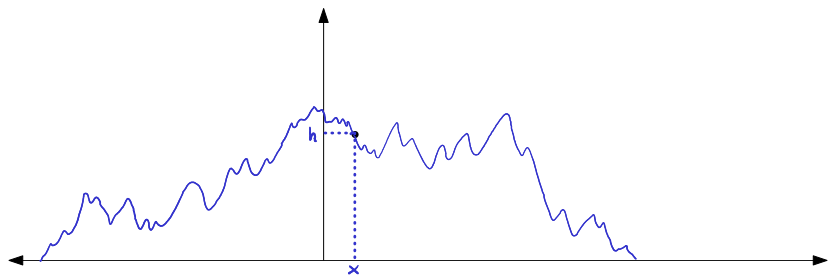
Department of Mathematics
Purdue University

Based on joint work with Elena Kosygina and Tom Mountford

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Generalized Ray-Knight Theorems

Ray-Knight Theorems: Local time profile at inverse local times



Question: Do (scaling limits) of Ray-Knight theorems for a random walk imply a scaling limit for the path of the walk?

Two Recent Results

1 Ray-Knight Theorems are not sufficient.

Convergence and nonconvergence of scaled self-interacting random walks to Brownian motion perturbed at extrema

Ann. of Probab. (51)5:1684–1728.

(joint with E. Kosygina and T. Mountford)

2 Joint Ray-Knight Theorems can work.

Convergence of rescaled “true” self-avoiding walks to the Tóth-Werner “true” self-repelling motion

arXiv:2502.10960

(joint with E. Kosygina)

Joint Ray-Knight Theorems: Multiple local time profile at multiple inverse local times

