

1127-60-59

Elena Kosygina and **Jonathon Peterson*** (peterson@purdue.edu), 150 N University St, West Lafayette, IN 47907. *Functional limit laws for recurrent excited random walks.*

Excited random walks (also called cookie random walks) are a model for self-interacting random motion where the transition probabilities are dependent on the local time at the current location. While self-interacting random walks are typically very difficult to study, many results for (one-dimensional) excited random walks are remarkably explicit. In particular, one can easily (by hand) calculate a parameter of the model that will determine many features of the random walk: recurrence/transience, non-zero limiting speed, limiting distributions and more.

In this talk I will discuss functional limit laws for one-dimensional excited random walks that are recurrent. For certain values of the parameters in the model the random walks under diffusive scaling converge to a "Brownian motion perturbed at its extremum." This was known previously for the case of excited random walks with boundedly many cookies per site, but we are able to generalize this to excited random walks with periodic cookie stacks. In this more general case, it is much less clear why perturbed Brownian motion should be the correct scaling limit. (Received January 16, 2017)