

Extreme events on networks and spatially extended regions

Ravindra E. Amritkar

*Institute of Infrastructure, Technology,
Research and Management (IITRAM)
Maninagar, Ahmedabad 380 026
ravin012@gmail.com*

Extreme events are very common in nature and many times they are associated with some calamities such as typhoons, earthquakes, floods etc. We study extreme events on complex networks using the random walk model where the extreme events are defined as surpassing of the flux above a prescribed threshold. We find that the nodes with smaller number of links are more prone to extreme events than the ones with larger number of links. We also use the model of a brownian particle in a potential and show that the probability of extreme events depends on the local potential. We find that except for very small and very large sizes of the local region, the probability of extreme events near a maximum of potential is larger than that near a minimum.