Michelen, Marcus; Pemantle, Robin; Rosenberg, Josh
Invasion percolation on Galton-Watson trees. (English) Zbl 1466.60211

Summary: We consider invasion percolation on Galton-Watson trees. On almost every Galton-Watson tree, the invasion cluster almost surely contains only one infinite path. This means that for almost every Galton-Watson tree, invasion percolation induces a probability measure on infinite paths from the root. We show that under certain conditions of the progeny distribution, this measure is absolutely continuous with respect to the limit uniform measure. This confirms that invasion percolation, an efficient self-tuning algorithm, may be used to sample approximately from the limit uniform distribution. Additionally, we analyze the forward maximal weights along the backbone of the invasion cluster and prove a limit law for the process.

MSC:
60K35 Interacting random processes; statistical mechanics type models; percolation theory

Keywords:
backbone; incipient infinite cluster; limit uniform; Poisson point process; pivot; self-organized criticality

Full Text: DOI arXiv Euclid

References:


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.