

Seminar of Probability and Stochastic Process

Wednesday, 9th November, from 10h15 to 11h00

[GRA3 31](#), EPFL, Ecublens

[Prof. Stanislav Volkov](#)

University of Bristol

Forest fires with a single ignition point

Abstract:

We consider a version of the forest fire model on the graph of non-negative integers, where each vertex of a graph becomes occupied with rate one. An origin is hit by lightning with the same rate, and when this occurs, the whole cluster of occupied vertices containing it is burnt out. We show that the times between consecutive burnouts at vertex n , divided by $\log n$, converge weakly to a random variable with survival function given by the Dickman function.

We also show that on transitive graphs with a non-trivial site percolation threshold and one infinite cluster at most, the distributions of the time until the first burnout of any vertex have exponential tails.

Finally, we present an elementary computation of an interesting limit (as n goes to infinity): $\sum_{k=1}^n \binom{n}{k} (-1)^k \log k - \log \log n$.

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