

Distributed MST algorithms and min-degree graph processes.

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We will study the performance of two distributed algorithms related to the construction of a spanning tree in a graph.

First of all we will analyse the execution of GHS algorithm on a complete graph on n vertices with independent random weights. GHS algorithm introduced in [1] is a classical deterministic distributed algorithm, which constructs a minimum spanning tree in a graph with given weights. Among others, we will discuss the relation between the output of the first round of the algorithm and the minimum degree graph process discussed for example in [3].

The second of the considered algorithms is a simple distributed random algorithm, which with high probability (with probability tending to 1 as n tends to infinity) in two rounds constructs a spanning tree approximation in a random graph with independent edges $G(n, p)$. In this case, we will show some results concerning a generalisation of the minimum degree graph process introduced in [2]. These results are crucial in the analysis of the presented algorithm.

References

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