Spanning trees in dense directed graphs

Amarja Kathapurkar

In 2001, Komlós, Sárközy and Szemerédi proved that for sufficiently large n, every n-vertex graph with minimum degree at least $n/2 + o(n)$ contains a copy of every n-vertex tree with maximum degree at most $O(n/\log n)$. We prove the corresponding result for directed graphs.

That is, we show that for sufficiently large n, every n-vertex directed graph with minimum semidegree at least $n/2 + o(n)$ contains a copy of every n-vertex oriented tree whose underlying maximum degree is at most $O(n/\log n)$. This improves a recent result of Mycroft and Naia, which requires the oriented trees to have bounded underlying maximum degree.

This is joint work with Richard Montgomery.