

Path decompositions of random directed graphs

Viresh Patel (Amsterdam)

In this talk we consider the problem of decomposing the edges of a digraph into as few paths as possible. The minimum number of paths needed in such an edge decomposition is called the path number of the digraph.

The problem of determining the path number is generally NP-hard. However, there is a simple lower bound for the path number of a digraph in terms of its degree sequence, and a conjecture of Alspach, Pullman, and Mason from 1976 states that this lower bound gives the correct value of the path number for any even tournament. The conjecture was recently resolved, and in this talk I will discuss to what extent the conjecture holds for other digraphs. In particular I will discuss some of the ingredients of a recent result showing that the conjecture holds with high probability for the random directed graph $D_{n,p}$ for a large range of p .

This is joint work with Alberto Espuny Díaz and Fabian Stroh.