Combinatorics Seminar

Friday 10th October 14:15 (changed time)

AE06, Steyrergasse 30

Concatenating random matchings

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We consider the following model for random graphs, inspired by the multiplication of generators of the so-called Brauer algebra: Fix an integer n, and consider uniformly random perfect matchings on $2n$ vertices, arranged in two columns of n vertices each. These matchings can be concatenated, by identifying the right-hand side vertices of the first matching with the left-hand side vertices of the second matching. This operation can be iterated to obtain concatenations of t i.i.d. matchings which we call random Brauer diagrams of length t. We investigate the component structure of Brauer diagrams as t tends to infinity, and find limit theorems for the number of components, the number of components of a given shape, and the length of the path connecting the left-most column of vertices to the right-most (which exists iff n is odd). The proof strategies rely both on renewal theory and on combinatorial arguments related to the exploration processes of components.

Based on joint work with Paul Thévenin, Université d'Angers.

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