

## Speaker

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## Title

Irreducibility of combinatorial objects: asymptotic probability and interpretation

## Abstract

Various combinatorial structures admit, in a broad sense, a notion of irreducibility: graphs can be connected, permutations can be indecomposable, polynomials can be irreducible, etc. We are interested in the probability that any such labeled object picked randomly is irreducible, as its size tends to infinity. In this talk, for certain classes, we obtain the asymptotics for this probability in a common manner. We show that the coefficients appearing in those asymptotics are integers and can be interpreted as the counting sequences of other “derivative” structures. Moreover, we obtain asymptotic probabilities that a random combinatorial object has a given number of irreducible components. Applications include connected graphs, indecomposable permutations, irreducible tournaments, connected square-tiled surfaces, indecomposable perfect matchings, combinatorial maps, etc. Also, with the help of species theory, we treat the Erdős–Rényi  $G(n, p)$  model.

This is a joint work with Thierry Monteil.