
Enumeration I

(Chair/Président: **Valentin Féray** (CNRS, Université Bordeaux 1))

MAX ALEKSEYEV, University of South Carolina
Unlabeled Motzkin numbers

The n -th Motzkin number represents the number of configurations of nonintersecting chords connecting n labeled points on a circle. Assuming that the points are unlabeled and equally spaced along the circle, we compute the corresponding number of configurations of nonintersecting chords connecting them. We also compute the number of configurations that are not symmetric w.r.t. rotation of the circle by any nontrivial angle.

MOHAN GOPALADESIKAN, Purdue University
Building Random Trees from Blocks

Many modern networks grow from blocks. We study the probabilistic behavior of parameters of a blocks tree, which models several kinds of networks. It grows from building blocks that are themselves rooted trees. We investigate the number of leaves, depth of nodes, total path length and height of such trees. We use methods from the theory of Pólya urns and martingales.

DANIEL KRENN, TU Graz, Austria
The Width of “Canonical” Trees and of Acyclic Digraphs

We analyze various parameters of trees coming from prefix codes and from a problem in number theory, namely representing 1 as a sum of negative powers of a fixed integer base. Asymptotic results are given, for example mean, variance and a central limit theorem for the height and the total path length, respectively, but the main focus of this talk is on the width of such trees. We calculate the mean and show that the width satisfies a certain concentration property. The same method is then used for analyzing the width of acyclic digraphs.

STEPHEN MELCZER, Simon Fraser University
Enumerating Lattice Walks in the Quarter Plane

The enumeration of walks in the quarter plane with small steps is an elegant problem in combinatorics. Recently, much work has been done attempting to classify the seventy nine non-equivalent walks of this type according to analytic properties of their generating functions. We discuss this classification, its usefulness, and outline a method of classifying the final three walks not yet proven by other means. In particular, our method gives a parametrization of the generating function which illuminates the nature of its singularities, proving that they are infinite in number and giving dominant term asymptotics. Joint work with Marni Mishna.