AofA 2026 – Program and Abstracts

22-26 June 2026

LMU Munich, Institute of Mathematics, Theresienstr. 39, D-80333 Munich

Hint: Click on a day name to jump directly to the detailed program of the corresponding day.

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8:00-9:00	Registration				
9:00-10:00	*Invited Talk* Bruno Salvy	*Invited Talk* Will Perkins	*Flajolet Lecture* Hsien-Kuei Hwang	*Invited Talk* Petra Berenbrink	*Invited Talk* Matthew Kwan
10:00-10:30	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
10:30-12:30	Session A	Session C	Session E	Session F	Session H
12:30-13:30	Lunch	Lunch	Lunch	Lunch	
13:30-14:30	*Invited Talk* Eric Fusy	*Invited Talk* Irene Marcovici	Excursion	*Invited Talk* Michal Opler	
14:30-15:00	Coffee Break	Coffee Break		Coffee Break	
15:00-17:00	Session B	Session D Break		Session G	
17:00-19:00		Business Meeting			

Monday 22 June 2026, Room B006 (Institute of Mathematics)

8:00 - 9:00	Registration
9:00-10:00	**Invited Speaker** *Bruno Salvy* Effective asymptotics of combinatorial systems
10:00-10:30	Coffee Break
	Session A
10:30-11:00	*Jacob Lundblad and Stephan Wagner* Path length and external path length in random trees
11:00-11:30	*Nadja Azzouz, Olivier Bodini, Francis Durand and Bernhard Gittenberger* Efficient sampling of increasing trees
11:30-12:00	*Philipp Beltran, Benedikt Stufler, Louigi Addario-Berry and Paul Thévenin* Scaling limits of multitype Bienaymé trees
12:00-12:30	*Michael Fuchs and Tsan-Cheng Yu* Semi-Simplex Phylogenetic Networks: Tree-Child Networks and Galled Trees
12:30-13:30	Lunch
13:30-14:30	**Invited Speaker** *Eric Fusy* Leap generators for composition schemes
14:30-15:00	Coffee Break
	Session B
15:00-15:30	*Michael Drmota and Yitian Wang* Local Central Limit Theorems for Subgraph Counts in Subcritial Graph Families
15:30-16:00	*Fabian Burghart* Ancestries and descendants in a random DAG
16:00-16:30	*Nicolas Tokka* Local Limit of Random Regular Bipartite Planar Maps
16:30-17:00	*Jeremie Bettinelli and Dimitri Korkotashvili* Link between bipartite and general unicellular toroidal maps via slit–slide–sew bijections

Tuesday 23 June 2026, Room B006 (Institute of Mathematics)

9:00-10:00	**Invited Speaker** *Will Perkins* Sampling algorithms, asymptotic enumeration, and statistical physics
10:00-10:30	Coffee Break
	Session C
10:30-11:00	*Niccolò Bosio, Benedikt Stufler and Markus Kuba* Gibbs partitions and lattice paths
11:00-11:30	*Benedikt Stufler* Poisson-Dirichlet graphons and permutons
11:30-12:00	*Michael Drmota and Zéphyr Salvy* Asymptotic Transfer in Critical Recursive Composition Schemes
12:00-12:30	*Hexuan Liu, Michael Wallner and Guan-Ru Yu* A Combinatorial Framework for the Pons-Batle Identity: Young Tableaux, Lattice Paths, and Limit Laws
12:30-13:30	Lunch
13:30-14:30	**Invited Speaker** *Irene Marcovici* Frequency of letters in some self-descriptive sequences
14:30-15:00	Coffee Break
	Session D
15:00-15:30	*Valentin Blomer and Kai-Uwe Bux* The cost of cyclic permutations and remainder sums in the Euclidean algorithm
15:30-16:00	*Aurélien Guerder* Cycle structure of random standardized permutations
16:00-16:30	*Calum Buchanan, Fabian Burghart, Stephan Wagner and Mei Yin* On cycles in multiset permutations, parking functions, and related structures
16:30-17:00	Break
17:00-19:00	Business Meeting

Wednesday 24 June 2026
Senate room E110 (Main Building, Geschwister Scholl Pl. 1)

9:00-10:00	**Flajolet Lecture** *Hsien-Kuei Hwang* Laplace, Cauchy and Early Analytic Combinatorics
10:00-10:30	Coffee Break
	Session E
10:30-11:00	*Michael Drmota and Eva-Maria Hainzl* Singularly perturbed discrete differential equations and pattern counts in simple triangulations
11:00-11:30	*Victor Dubach, Thomas Budzinski, Valentin Féray,* *Mohamed Slim Kammoun and Mylene Maïda* Large deviation principles for pattern-avoiding permutations, and limit shapes for constrained Mallows permutations
11:30-12:00	*Cecilia Holmgren, Jasper Ischebeck and Svante Janson* Fringe subtrees of split trees
12:00-12:30	*Eva-Maria Hainzl* Formulas and asymptotics of hypergraph Catalan numbers
12:30-13:30	Lunch
13:30-	Excursion

Thursday 25 June 2026, Room B006 (Institute of Mathematics)

9:00-10:00	**Invited Speaker** *Petra Berenbrink* Synchronisation of population models
10:00-10:30	Coffee Break
	Session F
10:30-11:00	*James Allen Fill* A New Fine-scale Berry-Esseen-type Gumbel-limit Theorem for Multivariate Maxima
11:00-11:30	*Jasper Ischebeck, Florian Lesny and Ralph Neininger* A distributional analysis of QuickXsort for Mergesort
11:30-12:00	*Markus Nebel* Moment Statistics in the Boltzmann Probability Model
12:00-12:30	*Thomas Fischer and Yury Person* Fractional vs Expectation Thresholds: Random Support Case
12:30-13:30	Lunch
13:30-14:30	**Invited Speaker** *Michal Opler* From Marcus–Tardos to optimal algorithms
14:30-15:00	Coffee Break
	Session G
15:00-15:30	*Julius Hallmann, Kostas Lakis and Tamás Makai* The Dispersion Process Has the Same Phase Transition on Almost Every Graph
15:30-16:00	*Sam Olesker-Taylor, Thomas Sauerwald and Luca Zanetti* Graphical Balanced Allocations with Removals
16:00-16:30	*Geoffrey Deperle, Christine Fricker, Philippe Jacquet, Bernard Mans and Alessia Rigonat* Asymptotics of Parking Search in Hyperfractal Networks
16:30-17:00	*Ahmed Alharbi, Cyril Banderier and Charles Bouillaguet* Bounded linear probing hashing

Friday 26 June 2026, Room B006 (Institute of Mathematics)

9:00-10:00	**Invited Speaker** *Matthew Kwan* Very sparse random discrete matrices
10:00-10:30	Coffee Break
	Session H
10:30-11:00	*Guan-Huei Duh, Philipp Sprüssel and Stephan Wagner* Enumeration of bipartite acyclic digraphs
11:00-11:30	*Nadja Azzouz, Olivier Bodini, Francis Durand and Bernhard Gittenberger* Asymptotic analysis of generating functions arising from dynamic graphs
11:30-12:00	*Maximilian Wiesmann* Lee-Yang phenomena in edge-coloured graph counting

Flajolet Lecture

Laplace, Cauchy and Early Analytic Combinatorics

Hsien-Kuei Hwang

Wednesday, June 24, 9:00 - 10:00

In the talk we will trace early historical developments of analytic combinatorics through a single object: the finite difference $\Delta^k 0^n$ (the ordered Stirling numbers). We examine how Laplace transformed this discrete quantity into real integral representations to derive saddle-point approximations, establishing an early encoding–integration–approximation pipeline. Cauchy's 1815 memoir then moved the same problem toward complex-analytic territory. Through this narrative we illustrate a pivotal transition: from an eighteenth-century algebra of formal identities to a nineteenth-century discipline of ε-δ inequalities.

Invited Talks

Effective asymptotics of combinatorial systems

Bruno Salvy

Monday, June 22, 9:00 - 10:00

Analytic combinatorics studies asymptotic properties of families of combinatorial objects using complex analysis on their generating functions. In their reference book on the subject, Flajolet and Sedgewick describe a general approach that allows one to derive precise asymptotic expansions starting from systems of combinatorial equations. In the situation where the combinatorial system involves only cartesian products and disjoint unions, the generating functions satisfy polynomial systems with positivity constraints for which many results and algorithms are known. We extend these results to the general situation. This produces an almost complete algorithmic chain going from combinatorial systems to asymptotic expansions. Thus, it is possible to compute asymptotic expansions of all generating functions produced by the symbolic method of Flajolet and Sedgewick when they have algebraic-logarithmic singularities (which can be decided), under the assumption that Schanuel's conjecture from number theory holds. That conjecture is not needed for systems that do not involve the constructions of sets and cycles. This is joint work with Carine Pivoteau.

Leap generators for composition schemes

Eric Fusy

Monday, June 22, 13:30 - 14:30

Boltzmann sampling constitutes an efficient and simple method for the uniform random generation of combinatorial structures in decomposable classes, avoiding the costly precomputation of coefficients in the recursive method. However, since Boltzmann distribution is spread over the whole class, exact-size generators extracted from Boltzmann samplers typically have superlinear (e.g. quadratic) complexity, due to heavy rejection.

There are nevertheless cases where efficient exact-size implementations are possible: for the sequence construction (i.e., a class $\mathcal{C} = \mathrm{Seq}(\mathcal{B})$) in the supercritical case, a known "leap" process

on top of Boltzmann samplers yields an exact-size random generator with linear-time complexity. As I will explain, the leap generation process extends to supercritical composition schemes $\mathcal{C} = \mathcal{A} \circ \mathcal{B}$, yielding an exact-size sampler of linear time complexity (under conditions on the sampling complexity in $\mathcal{A}$ and $\mathcal{B}$). While exact uniformity of the distribution is lost in general, asymptotic uniformity holds, the total variation distance to the uniform distribution being $\sim c/n^{1/2}$ for some explicit $c > 0$.

A main motivation for this work is that these leap generators can be applied to classes of unlabeled rooted trees such as Pólya trees. Experiments confirm the efficiency of the method and closeness to the uniform distribution. Leap generators can also be developed for certain critical composition schemes, those relating families of planar maps, the total variation distance to the uniform distribution being this time $\sim c/n^{1/3}$ for some explicit c.

This is joint work with Carine Pivoteau. If time allows, I will also describe another type of leap generators for Pólya trees, based on Devroye's method (work in progress with Konstantinos Panagiotou), making it possible to obtain exponentially small (or even zero) total variation distance to the uniform distribution.

Sampling algorithms, asymptotic enumeration, and statistical physics

Will Perkins

Tuesday, June 23, 9:00 - 10:00

I will discuss connections between problems in three different fields: sampling algorithms in computer science, asymptotic enumeration in combinatorics, and phase transitions in statistical physics. The running example will be triangle-free graphs: how do you efficiently sample a uniformly triangle-free graph of a given density? How many of them are there? Is there a phase transition as the density varies? I will give an overview of what is known, what remains open, and the types of tools that are effective in tackling these problems.

Frequency of letters in some self-descriptive sequences

Irene Marcovici

Tuesday, June 23, 13:30 - 14:30

The Oldenburger-Kolakoski sequence 122112122122112112 21... is the unique sequence over the alphabet 1,2 starting with 1 that is a fixed point of the run-length encoding operator. While the definition of this sequence is elementary, its combinatorial and dynamical properties remain largely unknown. In particular, Keane's question regarding the existence of the asymptotic frequency of the symbol 1, conjectured to be 1/2, is still open.

In the first part of the presentation, I will introduce probabilistic variants of the Oldenburger-Kolakoski sequence and prove results concerning the frequency of the symbol 1 in these sequences. We will then define the notion of "smooth sequence", which is another way to extend the scope of study, and discuss the properties of smooth sequences over the alphabet 1,3.

The presentation will be based on different works in collaboration with C. Boisson, D. Jamet, L. Poirier, and T. de la Rue.

Synchronisation of population models

Petra Berenbrink

Thursday, June 25, 9:00 - 10:00

In the population model we have a set of n anonymous agents which interact in randomly chosen pairs. Each agent is, at any point of time, in one state out of a fixed set of possible states. In an interaction the two involved agents are allowed to change their states, the state change only depends on the actual state of the two agents. A population protocol defines the set of all allowed state changes. The goal of a population protocol is to execute simple tasks like electing a leader. An efficient protocol minimizes the total number of states an agent can adopt, as well as the number of interactions required to complete the task.

In this talk I give an overview about leader election, junta election and phase clocks. Many time-efficient population protocols are synchronized via so-called phase clocks. Phase clocks are simple protocols running on each agent. The protocols give signals a signal to the agents every $O(n \log n)$ interactions. The signals divide the interactions of the agents in overlapping intervals, allowing them to work loosely synchronized.

From Marcus–Tardos to optimal algorithms

Michal Opler

Thursday, June 25, 13:30 - 14:30

The Marcus–Tardos theorem, resolving the Füredi–Hajnal conjecture, has a well-known consequence: permutation classes avoiding a fixed pattern grow only singly exponentially. In information-theoretic terms, a pattern-avoiding permutation of length n carries only $O(n)$ bits of entropy, rather than the $\Theta(n \log n)$ of an arbitrary permutation. Can we exploit this decrease in complexity algorithmically?

We will describe two settings where the answer is yes, and where the algorithmic bound matches the information-theoretic optimum up to a constant factor. The first is sorting: an algorithm that sorts a length-n sequence avoiding a fixed pattern π in time proportional to its entropy, optimal up to a constant factor in both comparisons and runtime. The second is encoding: a recent joint work with László Kozma gives a compact data structure that stores such a permutation in a number of bits proportional to its entropy, while supporting rank and unrank queries in constant time. Marcus–Tardos appears in both proofs, though in quite different roles: as a bookkeeping device in the sorting algorithm, and as the source of an explicit decomposition in the data structure.

Very sparse random discrete matrices

Matthew Kwan

Friday, June 26, 9:00 - 10:00

Extremely sparse random matrices tend to be singular, due to the likely presence of "local combinatorial dependencies" such as all-zero columns or pairs of identical columns. We discuss this phenomenon, and some results showing that these kinds of combinatorial dependencies are in some sense the "only" causes of singularity. A key role is played by the leaf-removal algorithm introduced by Karp and Sipser to study the matching number of random graphs. This is joint work with Asaf Ferber, Margalit Glasgow, Ashwin Sah and Mehtaab Sawhney.