37th International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms

AofA 2026, June 22–26, 2026, Munich, Germany

Edited by

Konstantinos Panagiotou

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Editors

Konstantinos Panagiotou
Institute for Mathematics, LMU Munich, Germany
kpanagio@math.lmu.de

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Dedicated to the memory of Philippe Flajolet

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Preface

The 37th International Conference/Meeting on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2026) was held at the Ludwig-Maximilians-Universität München, Germany, during June 22 – 26, 2026.

Analysis of Algorithms (AofA) is a field at the boundary of computer science and mathematics, in particular probability theory and analytic and enumerative combinatorics. The goal is to obtain a precise understanding of the asymptotic and probabilistic characteristics – for example the amount of time, storage, or other resources needed – of algorithms and data structures. A unifying theme is the use of probabilistic, combinatorial, and analytic methods. The objects to be studied include random branching processes, graphs, permutations, trees, and strings. See also the AofA community website

`https://www.math.aau.at/AofA/`

for more and up-to-date information on the community and prior events. The call for papers invited papers in

- analytic algorithmics and combinatorics,
- probabilistic analysis of algorithms and
- randomized algorithms.

We also welcomed papers addressing problems such as: combinatorial algorithms, string searching and pattern matching, sublinear algorithms on massive data sets, network algorithms, graph algorithms, caching and memory hierarchies, indexing, data mining, data compression, coding and information theory, and computational finance. Papers addressing bridges to research in related fields such as statistical physics, computational biology, computational geometry, and simulation were also welcome.

The conference program featured the 2026 Philippe Flajolet Lecture by Hsien-Kuei Hwang, 30 contributed papers, which are collected in this volume, as well as six invited lectures by Éric Fusy (Laboratoire d'Informatique Gaspard Monge), Matthew Kwan (Institute of Science and Technology Austria), Irène Marcovici (Université de Rouen Normandie), Michal Opler (Czech Technical University in Prague), Will Perkins (Georgia Tech), and Bruno Salvy (ENS Lyon). A typical convention in the field is to list authors in alphabetical order. The order of the contributed papers in these proceedings reflects the chronological order of presentation at the conference.

Flajolet Lecture

The *Philippe Flajolet Lecture Prize* for outstanding contributions to analytic combinatorics and analysis of algorithms is awarded every two years by the Analysis of Algorithms community. At the AofA 2026 conference, Hsien-Kuei Hwang presented the seventh Flajolet Lecture, entitled *Laplace, Cauchy and Early Analytic Combinatorics*. The first paper in this volume is dedicated to his talk. The abstract reads as follows:

> 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

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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.

Previous Flajolet Lectures Prize recipients are Donald E. Knuth, Robert Sedgewick, Luc Devroye, Wojciech Szpankowski, Svante Janson and Michael Drmota.

The prize is named in honor and recognition of the extraordinary accomplishments of the late Philippe Flajolet and his formative influence on the growth and flourishing of the AofA community. Philippe spent most of his scientific life at INRIA, France. He is best known for fundamental advances in mathematical methods for the analysis of algorithms. His research laid the foundation of a subfield of mathematics now known as analytic combinatorics. Analytic combinatorics is a modern basis for the quantitative study of combinatorial structures (such as words, trees, mappings, and graphs), with applications to probabilistic study of algorithms that are based on these structures. It also strongly influences research in other scientific domains, such as statistical physics, computational biology, and information theory. Flajolet's work takes the field forward by introducing original approaches in combinatorics based on two types of methods: symbolic and analytic. The symbolic side is based on the automation of decision procedures in combinatorial enumeration to derive characterizations of generating functions. The analytic side treats those functions as functions in the complex plane and leads to precise characterization of limit distributions. Beyond these foundational contributions, Philippe's research opened new avenues in various domains of applied computer science, including streaming algorithms, communication protocols, database access methods, data mining, symbolic manipulation, text-processing algorithms, and random generation.

Konstantinos Panagiotou,
on behalf of the Program and Steering Committees

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