

## Guest Editorial

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The Ninth ACM-SIAM Meeting on Analytic Algorithmics and Combinatorics (ANALCO 2012) was held in Kyoto, Japan on January 16th, 2012. The aim of ANALCO is to provide a forum for the presentation of original research in the analysis of algorithms and related combinatorial structures, which are largely developed and influenced by Philippe Flajolet's research works. This special issue contains extended and peer-reviewed journal versions of five selected papers among those that were presented in that meeting. The themes addressed include random planar maps, analysis of the hiring problem, graph inequalities, random acyclic graphs, and Boolean satisfiability problem.

Maps are connected planar graphs coupling with an embedding in the plane. Diverse aspects (including physical, combinatorial, asymptotic, and stochastic) of random maps have received much recent attention in the literature. The paper “A central limit theorem for the number of degree- $k$  vertices in random maps” by Drmota and Panagiotou aims at clarifying the normal limiting distribution of the number of vertices of given degree in random planar maps; the method of proof relies on generating functions and deep complex analysis.

In an online selection scenario, candidates (with an unknown total) are interviewed one after another, how many candidates will be hired if the strategy “hiring above

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the median” is applied for the score of each candidate? The paper “Analysis of the “hiring above the median” selection strategy for the hiring problem” by Helmi and Panholzer gives a detailed probabilistic analysis of this interesting strategy under a random permutation model and derived many fine exact and limiting properties, some being less expected.

Paths of a given length in a graph are closely connected to many graph properties and are often encountered in different applications. In the paper “Inequalities for the number of walks in graphs” by Täubig, Weihmann, Kosub, Hemmecke, and Mayr a “sandwich-type” theorem is derived for the number of walks of a given length in undirected graphs. Implications, connections with the largest eigenvalues and extensions are also discussed.

Extensional acyclic digraphs are graphs without oriented cycles and no two out-neighbors sharing a common node. Such an extensionality arose naturally in set theory and related areas. Wagner clarified in the paper “Asymptotic enumeration of extensional acyclic digraphs” many asymptotic properties of such graphs by analytic combinatorial tools. In particular, not only the fundamental enumeration problem is solved but also the distributions of the number of sources, the number of arcs, and the maximum rank are all characterized.

Satisfiability of Boolean expressions leads often to computationally intractable problems. Such an aspect is examined in the paper “Message Passing Algorithms for MLS-3LIN Problem” by Watanabe for the specific framework of 3LIN under a perturbed planted solution model, focusing on the average-case performance of message-passing algorithms.

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