

Applications of Discrete Mathematics to the Analysis of Algorithms (I)

Organizer(s):

Conrado Martínez (U. Politècnica Catalunya, Spain)

Daniel Panario (Carleton U.)

Description:

This minisymposium is centered around the mathematical analysis of algorithms, the area founded back in the sixties by Don Knuth's pioneering work on the analysis of linear probing hashing and quickselect. The goal of this area is to find precise estimations of the performance of important algorithms and data structures on average, variance and, whenever possible, its probability distribution. This kind of analysis is important if we need to know the "typical" behavior of an algorithm, and the most natural for randomized algorithms.

The area has witnessed many advances in recent years and this minisymposium aims to provide an overview of these, as well as the basic foundations of the field. The talks will also emphasize the fundamental role played by discrete mathematics (combinatorics, enumeration, discrete probability, and so on) as well as other areas of classical mathematics (most notably real and complex analysis) in the development and progress of this area.

Titles and Speakers:

- *Applications of Discrete Mathematics to the Analysis of Algorithms*
Conrado Martínez (U. Politècnica Catalunya, Spain)
- *On Selection, Partial Sorting and Quicksort*
Markus Kuba (TU Wien, Austria)
- *Optimality of Video-on-Demand Broadcast Protocols*
David Kirkpatrick (U. British Columbia, Canada)
- *Smallest Components in Decomposable Structures with a Restricted Pattern*
Li Dong (Carleton U., Canada)