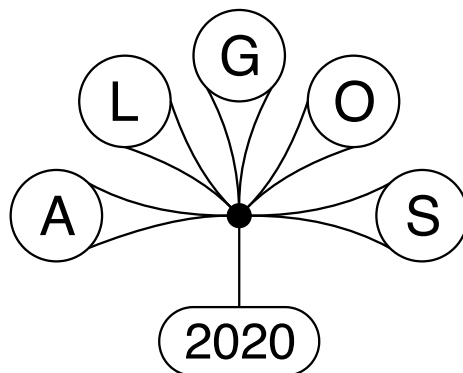


Proceedings



First International Conference
“Algebras, graphs and ordered sets”
ALGOS 2020

August 26–28, 2020

Nancy, France

Editors

Miguel Couceiro (Loria)

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<https://algos2020.loria.fr/>

Preface

Originating in arithmetics and logic, the theory of ordered sets is now a field of combinatorics that is intimately linked to graph theory, universal algebra and multiple-valued logic, and that has a wide range of classical applications such as formal calculus, classification, decision aid and social choice.

This international conference “Algebras, graphs and ordered set” (ALGOS) brought together specialists in the theory of graphs, relational structures and ordered sets, topics that are omnipresent in artificial intelligence and in knowledge discovery, and with concrete applications in biomedical sciences, security, social networks and e-learning systems. One of the goals of this event was to provide a common ground for mathematicians and computer scientists to meet, to present their latest results, and to discuss original applications in related scientific fields. These fruitful exchanges have motivated ongoing multidisciplinary projects.

The first edition of ALgebras, Graphs and Ordered Sets (ALGOS 2020) had a particular motivation, namely, an opportunity to honour Maurice Pouzet on his 75th birthday! For this reason, we particularly welcomed submissions in areas related to Maurice’s many scientific interests:

- Lattices and ordered sets
- Combinatorics and graph theory
- Set theory and theory of relations
- Universal algebra and multiple valued logic
- Applications: formal calculus, knowledge discovery, biomedical sciences, decision aid and social choice, security, social networks, web semantics...

The many submissions were subject to a strict reviewing process that resulted in the selection of 27 contributions. In addition to the contributions appearing in this volume (in the form of short and long papers), ALGOS 2020 also included

Extended abstracts:

Some remarks on Skula spaces

Robert Bonnet

Permanent and determinant of Toeplitz-Hessenberg matrices with generalized Fibonacci and Lucas entries

Ihab Eddine Djellas, Hacène Belbachir, and Amine Belkhir

Integer sequences and ellipse chains inside a hyperbola

Soumeiya M. Tebtoub, Hacène Belbachir, and László Németh

Binomial coefficients and s -Lah numbers

Imène Touaibia, Hacène Belbachir, and Miloud Mihoubi

On generalization of bi-periodic r -numbers

N. Rosa Ait-Amrane

From ternary abstract cosets to groups and from medians to semilattices via base-points: comments on analogies

Stephan Foldes and Gerasimos Meletiou

On the enumeration of p -oligomorphic groups

Justine Falque

Log-concavity and unimodality in arithmetical triangles

Assia F. Tebtoub

Special sessions (dedicated and open problems):

Reconstruction of digraphs up to complementation

Aymen Ben Amira, Jamel Dammak, and Hamza Si Kaddour

Big Ramsey degrees of the universal homogeneous partial order are finite

Jan Hubička

Well quasi ordering and embeddability of relational structures

Maurice Pouzet

On relational structures with polynomial profile

Nicolas M. Thiéry

Recursive construction of the minimal prime digraphs

Mohammad Alzohairi, Moncef Bouaziz, and Youssef Boudabbous

Plenary talks:

The colorful world of rainbow sets

Ron Aharoni

F_3 -reconstruction

Youssef Boudabbous and Christian Delhommé

Extremal problems for boolean lattices and their quotients

Dwight Duffus

On logics that make a bridge from the discrete to the continuous

Mirna Džamonja

Graph searches and maximal cliques structure for cocomparability graphs

Michel Habib

Ordering infinities

Joris van der Hoeven

Maurice's siblings

Claude Laflamme

Applications of order trees in infinite graphs

Max Pitz

Synchronous programming of real-time systems or turning mathematics into trustable code

Marc Pouzet

Partitioning subgroups of the symmetric group $\mathfrak{S}(U)$

Norbert Sauer

Twin-width

Stéphan Thomassé

EPPA & Ramsey

Jaroslav Nešetřil

ALGOS 2020 was originally planned to take place on August 26 (Wednesday), 27 (Thursday), 28 (Friday) of 2020, at the Lorraine Research Laboratory in Computer Science and its Applications (LORIA, UMR 7503). However, due to the covid-19 pandemic, we were forced to move it fully online... We are truly thankful to IRISA (“Institut de Recherche en Informatique et Systèmes Aléatoires”) for providing the access to an instance of platform Big Blue Button for hosting our online event.

On behalf of the organising committee we also wish to express our deepest gratitude to all members of the scientific committee and to all colleagues and friends of Maurice Pouzet, that contributed to the reviewing process, to the scientific content to honour Maurice, and that agreed to participate in this non physical form.

Miguel Couceiro
Pierre Monnin
Amedeo Napoli

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