

Preface

Research in Graph Theory and Algorithms on Graphs has been increasing in the last decade. In particular, the study of problems related to cliques in graphs has been one of the most trending topics.

This volume contains some of the works presented in the 6th Latin-American Workshop on Cliques in Graphs, which was held in Pirenópolis, Goiás, Brazil, November 9-12, 2014.

The Latin American Workshop on Cliques in Graphs is becoming a traditional workshop on Graph Theory. Previous workshops have been organized in each of the following countries: Brazil (2002), Argentina (2006), Mexico (2008), Brazil (2010) and Argentina (2012). In its origins, the workshop was meant to foster interaction between the Latin-American graph theory and combinatorics researchers, whose interests include cliques, clique graphs, the behaviour of the clique operator, and related issues. In these twelve years the community has grown and the workshop has become not only a place for exchanging ideas on cliques, but a moment to strengthen the relationships between its community members as well as to start new relations.

Besides Latin America, in this edition there were special invited speakers from Australia and England. There were 5 plenary talks and 47 lectures. Some of these works gave rise to papers that have been included in this volume.

We want to thank the Steering Committee for trusting us the organization of this edition of the workshop, the Program Committee for their help in organizing the sessions, the invited speakers for their enthusiastic participation, and all the authors for their contributions.

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Finally, we would like to thank the Editor-in-Chief of *Matemática Contemporânea*, for opening this important forum to the participants of the Latin-American Workshop.

November 2015

Celina M. H. de Figueiredo
Claudson Bornstein
Erika M. M. Coelho
Márcia R. Cappelle

Invited Speakers

- Cliques in Parameterized Hardness
Michael R. Fellows
Charles Darwin University, Australia
- On the b-continuity of graphs
Márcia R. Cerioli
Universidade Federal do Rio de Janeiro, Brazil
- Cliques, Coloring and Satisfiability: from structure to algorithms
Vadim Lozin
University of Warwick, England
- A characterization of PM-compact bipartite and near-bipartite graphs
Cláudio Lucchesi
Universidade Federal do Mato Grosso do Sul, Brazil
- Editing to Cliques: A Survey of FPT Results and Recent Applications in Analyzing Large Datasets
Frances Rosamond
Charles Darwin University, Australia

Contributed Talks

- Partitioning Distance Hereditary Graphs into stable sets and cliques
J. Thompson, L. Nogueira, F. Protti, R. Bravo
Universidade Federal Fluminense, Brazil
- Disimplicial arcs, transitive vertices, and disimplicial eliminations
M. Eguía, F. J. Soulignac
CONICET and Universidad Nacional de Quilmes, Argentina
- Experimental Analysis of Exact Algorithms for the Maximum Clique Problem
C. S. dos Anjos, A. P. Züge, R. Carmo
Universidade Federal do Paraná, Brazil
- Reversible Processes on Graphs
M. C. Dourado, C. V. G. C. Lima, J. L. Szwarcfiter

Universidade Federal do Rio de Janeiro, Brazil

- On the complexity of the Cluster Deletion problem for several graph classes
F. Bonomo, G. Durán, M. Valencia-Pabon
CONICET and Univerdidad de Buenos Aires, Argentina.
- Approximative algorithms for the maxcut of chordal graphs
L. Faria, R. Sucupira, S. Klein
Universidade do Estado do Rio de Janeiro, Brazil
- Distance coloring problems, spatial properties and feasibility conditions
B. R. Dias, R. de Freitas, J. L. Szwarcfiter
Universidade Federal do Amazonas, Brazil
- Choosability for restricted list coloring problems
R. de Freitas, S. Santos, M. Salvatierra
Universidade Federal do Amazonas, Brazil
- Acyclic edge coloring of the complete bipartite graph $K_{2p,2p}$
N. Astromujoff, M. Matamala
Universidad de Chile, Chile
- Forbidden subgraph characterization of star directed path graphs that are not rooted directed path graphs
M. Gutierrez, S. Tondato
Universidad Nacional de La Plata, Argentina
- On the class $[h, 2, 2]$ local
L. Alcón, M. Gutierrez, M. P. Mazzoleni
CONICET and Universidad Nacional de La Plata, Argentina
- On Restricted Multi-break Rearrangement and Sorting Separable Permutations
L. F. I. Cunha, R. de A. Hausen, L. A. B. Kowada, C. M. H. de Figueiredo
Universidade Federal do Rio de Janeiro, Brazil
- Periphery and convexity of a graph
D. Artigas, S. Dantas, M. C. Dourado, J. L. Szwarcfiter
Universidade Federal Fluminense, Brazil
- On the l -neighborhood convexity

C. C. Centeno, E. M. M. Coelho, M. C. Dourado, J. L. Szwarcfiter
Pontifícia Universidade Católica de Goiás, Brazil

- A tight upper bound for the Helly number of the geodetic convexity on bipartite graphs
M. C. Dourado, A. R. da Silva
Universidade Federal do Rio de Janeiro, Brazil
- On the diameter of the Cayley Graph $H_{1,p}$
A. C. Ribeiro, D. Castonguay, L. A. B. Kowada, C. M. H. de Figueiredo
Universidade Federal de Goiás, Brazil
- Grafos de Permutação Redutíveis Canônicos: caracterização, reconhecimento e aplicações a marcas d'água digitais
L. M. de S. Bento, D. R. Boccardo, R. C. S. Machado, V. G. P. de Sá, J. L. Szwarcfiter
INMETRO and Universidade Federal do Rio de Janeiro, Brazil
- Sistemas modulares de dígitos verificadores ótimos
N. P. de Souza, P. E. D. Pinto, L. Faria
Universidade do Estado do Rio de Janeiro, Brazil
- Maximum Clique via MaxSat and Back Again
A. P. Züge, R. Carmo
Universidade Federal do Paraná, Brazil
- Clique and neighborhood characterizations of strongly chordal graphs
P. De Caria, T. McKee
CONICET and Universidad Nacional de La Plata, Argentina
- AVD-total-colouring of some families of snarks
A. G. Luiz, C. N. Campos, C. P. de Mello
University of Campinas, Brazil
- The Total Coloring of the 3rd and 4th Powers of Cycles
S. M. Almeida, J. T. Belotti, M. M. Omai, J. F. H. Brim
Federal Technological University of Paraná, Brazil
- Complexity of the oriented coloring in planar, cubic oriented graphs
H. Coelho, L. Faria, S. Gravier, S. Klein
Universidade Federal de Goiás, Brazil

- Total coloring of snarks is NP-complete
V. F. dos Santos, D. Sasaki
Universidade do Estado do Rio de Janeiro, Brazil
- Complexity between Domination, Independent, Connected, and Paired Domination Numbers
S. Dantas, J. D. Alvarado, D. Rautenbach
Universidade Federal Fluminense, Brazil
- Aliança Global Ofensiva em Alguns Produtos Lexicográficos em Grafos
R. M. Barbosa, M. C. Dourado, L. R. S. da Silva
Instituto Federal Goiano, Brazil
- The Burning of the Snarks
S. Dantas, V. Costa, D. Rautenbach
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- Timber Game with Caterpillars
A. Furtado, S. Dantas, C. M. H. de Figueiredo, S. Gravier
Universidade Federal do Rio de Janeiro, Brazil
- O problema da partição em cliques dominantes
H. V. Sousa, C. N. Campos
University of Campinas, Brazil
- Sobre posets representables mediante contención de caminos en un árbol
L. Alcón, N. Gudiño, M. Gutierrez
CONICET and Universidad Nacional de La Plata, Argentina
- Kneser Graphs are Close to Being Hamiltonian
F. de C. Mesquita, L. R. Bueno, R. de A. Hausen
Universidade Federal do ABC, Brazil
- Hamiltonian Cycles in 4-Connected 4-Regular Claw-free Graphs
J. L. B. Pucohuaranga, L. R. Bueno, D. M. Martin, S. Dantas
Universidade Federal do ABC, Brazil
- Laplacian energy of special families of threshold graphs
R. R. Del-Vecchio, C. T. M. Vinagre, G. B. Pereira
Universidade Federal Fluminense, Brazil

- Adjacent Strong Edge-Coloring of Split-indiference Graphs
A. de M. Vilas-Bôas, C. P. de Mello
University of Campinas, Brazil
- Maximal Independent sets in cylindrical grid graphs
R. M. Barbosa, M. R. Cappelle
Universidade Federal de Goiás, Brazil
- On the generalized Helly property of hypergraphs and maximal cliques and bicliques
M. C. Dourado, L. N. Grippo, M. D. Safe
Universidad Nacional de General Sarmiento, Argentina
- The Clique Problem parameterized by the degeneracy of a graph
J. Novacoski, R. Carmo
Universidade Federal do Paraná, Brazil
- Vizinhanca Mínima no Hiper cubo
M. da S. Sampaio Júnior, P. E. D. Pinto, L. Faria
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- Enumeration of chordless cycles
D. Castonguay, E. S. Dias, W. A. R. Jradi, H. Longo
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- Algoritmos certificadores e vericadores: testemunhas ausentes e provas computacionais
A. R. A. F. Marinho, V. G. P. de Sá
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- Solving the k-in-a-tree problem for chordal graphs
V. F. dos Santos, M. V. G. da Silva, J. L. Szwarcfiter
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- Minimal 4 x 4 M-obstruction cographs
R. S. F. Bravo, L. T. Nogueira, F. Protti, J. Leite
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- Remarks on Complementary Prisms
M. A. Duarte, L. Penso, D. Rautenbach, U. dos S. Souza
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- Diameter of a Symmetric Icosahedral Fullerene Graph
D. S. Nicodemos, L. Faria, S. Klein
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- New results on the geodeticity of the contour of a graph
D. Artigas, S. Dantas, A. L. S. Oliveira, T. M. D. Silva
Universidade Federal Fluminense, Brazil
- O número de Helly Geodético em convexidades
M. T. C. Junior, M. C. Dourado, J. L. Szwarcfiter
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- The problem of recognizing unit PI graphs
L. Faria, L. Martins, F. Oliveira
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