

## Preface

Research in Graph Theory and Algorithms on Graphs has increased considerably in recent years. One can say that studies on graphs are mainly motivated by their structures. Amongst the many structures of a graph, cliques correspond to one of the most studied with many problems of interest.

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) and Mexico(2008).

This volume contains some of the works presented in the 4th Latin-American Workshop on Cliques in Graphs, which was held in Itaipava, Rio de Janeiro, Brazil, November 16–19, 2010. The workshop concentrated a sizeable portion of the Latin-American community of combinatorics and graph theory. Besides Latin America, there were special invited guests from other parts of the world, France and Germany. There were 4 invited speakers and 32 contributed talks.

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We also would like to thank all individuals and organizations who cooperated with this event, in particular, UFRJ, UFF, UERJ and UFAM. Thanks are also due to the referees for their prompt and thorough work.

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.

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## Invited Speakers

- On independent vertex sets and variants of matchings  
*Andreas Brandstädt*  
Universität Rostock, Germany
- Partitions of direct products of complete graphs into independent dominating sets  
*Mario Valencia-Pabon*  
Laboratoire d'Informatique de Paris-Nord, France
- Orientations of graphs  
*Zoltan Szigeti*  
Laboratoire G-SCOP, Grenoble INP, France
- New results on Dually Chordal Graphs  
*Marisa Gutierrez*  
Universidad Nacional de La Plata, Argentina

## Contributed Talks

- Biclique transversal and biclique independent set  
**M. Groshaus**, *J. C. Terragno*  
Universidad de Buenos Aires, Argentina
- Improved Algorithms for minimum clique-transversal problem  
*J. Arregui*, **M. Lin**, *F. Soullignac*, *J. Szwarcfiter*  
Universidad de Buenos Aires, Argentina
- Algorithmic aspects of Steiner convexity and enumeration of Steiner trees  
*M. C. Dourado*, **R. A. Oliveira**, *F. Protti*  
Universidade Federal do Rio de Janeiro, Brazil
- Alliances and graph convexity  
*M. C. Dourado*, **L. Faria**, *D. Rautenbach*, *M. A. Pizaña*, *J. L. Szwarcfiter*  
Universidade do Estado do Rio de Janeiro, Brazil
- Convex covers of graphs  
**D. Artigas**, *S. Dantas*, *M. C. Dourado*, *J. L. Szwarcfiter*  
Universidade Federal Fluminense, Brazil
- Biclique-coloring  
*M. Groshaus*, *F. Soullignac*, **P. Terlisky**  
Universidad de Buenos Aires
- Clique-perfectness of complements of line graphs  
*F. Bonomo*, *G. Durán*, **M. D. Safe**, *A. K. Wagler*  
Universidad de Buenos Aires, Argentina
- There is a path model that realizes the leafage in path graphs  
*M. Gutierrez*, **S. T. Tondato**  
Universidad Nacional de La Plata, Argentina

- An evidence for Lovász conjecture about Hamiltonian paths and cycles  
**A. da C. Ribeiro**, C. M. H. de Figueiredo, L. A. B. Kowada  
Universidade Federal do Rio de Janeiro, Brazil
- A necessary condition for EPT graphs  
*M. Gutierrez, L. Alcón, M. P. Mazzoleni*  
Universidad Nacional de La Plata, Argentina
- Results on determining the minimum number of lengths in interval models  
*M. R. Cerioli, F. de S. Oliveira, J. L. Szwarcfiter*  
Universidade Federal do Rio de Janeiro, Brazil
- New results on total coloring of Snarks  
**D. Sasaki**, S. Dantas, C. M. H. de Figueiredo  
Universidade Federal do Rio de Janeiro, Brazil
- Adjacent vertex-distinguishing total coloring of indifference graphs  
**V. Pedrotti**, C. P. de Mello  
Universidade de Campinas, Brazil
- On  $L(2, 1)$ -coloring split permutation graphs  
*M. R. Cerioli, D. F. D. Posner*  
Universidade Federal do Rio de Janeiro, Brazil
- A note on class 2 split graphs  
*C. P. de Mello, S. M. Almeida, A. Morgana*  
Universidade Federal do Mato Grosso do Sul, Brazil
- On recognizing split clique graphs  
**L. Alcón**, L. Faria, C.M.H. de Figueiredo, M. Gutierrez  
Universidad Nacional de La Plata, Argentina
- Contributions to the cluster editing problem  
**L. de O. Bastos**, L.S. Ochi, F. Protti  
Universidade Federal Fluminense, Brazil
- Gene clusters as intersections of powers of paths  
**V. Costa**, S. Dantas, D. Sankoff, X. Xu  
Universidade Federal do Rio de Janeiro, Brazil
- Finding the  $p_3$  hull number of a chordal graph  
**C. C. Centeno**, M. C. Dourado, L. D. Penso, D. Rautenbach, J. L. Szwarcfiter  
Universidade Federal do Rio de Janeiro, Brazil
- The Caratheodory number for the  $P_3$  convexity  
*R. M. Barbosa, E. M. M. Coelho, M. C. Dourado, J. L. Szwarcfiter*  
Universidade Federal de Goiás, Brazil
- Decompositions by maxclique separators  
*M. R. Cerioli, H. Nobrega, P. Viana*  
Universidade Federal do Rio de Janeiro, Brazil

- Branch and bound algorithms for the maximum clique problem  
**R. Carmo**, *A. Züge*  
Universidade Federal do Paraná, Brazil
- Graph Colorings and Scheduling Problem  
*M. C. Dourado, J. L. Szwarcfiter*, **R. de F. Rodrigues**  
Universidade Federal do Amazonas, Brazil
- Matchings in Cartesian product of graphs and its applications to inter-connection networks  
**A. R de Almeida**, *F. Protti, L. Markenzon*  
Universidade Federal do Rio de Janeiro, Brazil
- Extending the applicability of rank-divergence  
*F. Larrión, M. A. Pizaña, R. Villarroel-Flores*  
Universidad Autónoma Metropolitana, Mexico
- The images of the clique operator and its square are different  
**P. de Caria**  
Universidad Nacional de La Plata
- On weighted clique graphs  
**F. Bonomo**, *J. L. Szwarcfiter*  
Universidad de Buenos Aires, Argentina
- Parameterized tractability of cost problems for  $X$ -of- $Y$  graphs  
*F. Protti, M. D. da Silva, U. dos S. Souza*  
Universidade Federal do Rio de Janeiro, Brazil
- Short covering codes and sum-free sets  
**E. L. Monte Carmelo**, *C.F. X. de M. Neto*  
Universidade Estadual de Maringá, Brazil
- Upper bounds and exact values on transposition distance in permutations.  
**L. F. I. Cunha**, *L. A. B. Kowada*  
Universidade Federal Fluminense, Brazil
- Spectral properties of  $KK_n^j$  graphs  
*M. A. A. de Freitas, N. M. M. de Abreu, R. R. Del-Vecchio*  
Universidade Federal Fluminense, Brazil
- An improvement on point location queries in a set of fat obstacles and on motion planning amidst fat obstacles  
**H. B. de M. Filho**, *G. D. da Fonseca, C. M. H. de Figueiredo*  
Universidade Federal do Rio de Janeiro, Brazil
- Problem Session  
**L. Faria**  
Universidade do Estado do Rio de Janeiro, Brazil