

**PROJECT 174033:
GRAPH THEORY AND MATHEMATICAL PROGRAMMING
WITH APPLICATIONS TO CHEMISTRY AND COMPUTER
SCIENCE**

Publications in 2013

MONOGRAPHS AND CHAPTERS IN MONOGRAPHS

1. K. Vušković,
The world of hereditary graph classes viewed through Truemper configurations,
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Society Lecture Note Series* 409, edited by S.R. Blackburn, S. Gerke and M. Wildon,
Cambridge University Press (2013), 265-325.

JOURNAL PAPERS

Subproject 1: Spectral graph theory

1. M. Anđelić, C. M. da Fonseca, T. Koledin, Z. Stanić,
Sharp spectral inequalities for connected bipartite graphs with maximal Q-index,
Ars Mathematica Contemporanea, 6 (2013), 171-185.
2. T. Koledin, Z. Stanić,
Regular bipartite graphs with three distinct non-negative eigenvalues,
Linear Algebra and its Applications, 438 (2013), 3336-3349.
3. T. Koledin, Z. Stanić,
Regular graphs whose second largest eigenvalue is at most 1,
Novi Sad Journal of Mathematics, 43(3) (2013), 145-153.
4. Z. Stanić
Graphs with small spectral gap,
Electronic Journal of Linear Algebra, 26 (2013), 417-432.
5. T. Koledin, Z. Stanić
Regular graphs with small second largest eigenvalue,
Applicable Analysis and Discrete Mathematics, 7 (2013), 235-249.
6. T. Koledin, Z. Stanić
Some spectral inequalities for triangle-free regular graphs,

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7. T. Koledin, Z. Stanić

Reflexive bipartite regular graphs

Linear Algebra and its Applications, DOI: 10.1016/j.laa.2013.07.020

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8. Z. Stanić

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9. M. Anđelić, D. Cardoso, S.K. Simić,

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Czech. Math. Journal 63(2013), 73-90.

10. I. Sciriha, S.K. Simić,

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in: Recent Results in Designs and Graphs: A tribute to Lucia Gionfriddo, *Quaderni di Matematica* 28 (2013), 401-418, Editors: M. Buratti, C. Lindner, F. Mazzocca, N.

Melone, Published by Aracne Editrice, Rome, 2013. DOI: 10.4399/978885486150323

11. P. Hic, M. Pokorny, D. Stevanović,

Remarks on Q-integral complete multipartite graphs,

Linear Algebra Appl. 439 (2013), 2029-2037

12. D. Stevanović, M. Milošević, P. Hic, M. Pokorny,

Proof of a conjecture on distance energy of complete multipartite graphs,

MATCH Commun. Math. Comput. Chem. 70 (2013), 157-162

13. L. Feng, G. Yu, A. Ilić, D. Stevanović,

The signless Laplacian spectral radius of graphs on surfaces,

Linear Multilinear Algebra 61 (2013), 573-581

14. T. M. Aleksić, M. Petrović,

Cacti Whose Spread is Maximal,

Graphs and Combinatorics, 2013, DOI: 10.1007/s00373-013-1373-1.

15. M. Anđelić, A. Erić, C.M. da Fonseca,

Nonsingular acyclic matrices with full number of P-vertices,

Linear Multilinear Algebra 61(1), (2013), 49-57.

16. D. Cvetković, I. Jovanović,

Network alignment using self-returning walks,

Bull. Acad. Serbe Sci. Arts, Cl. Sci. Math. Natur., Sci. Math. 38, (2013), 45-63.

Subproject 2: Chemical graph theory

1. N. Ramos-Berdullas, S. Radenković, P. Bultinck, M. Mandado, Aromaticity of Closed-Shell Charged Polybenzenoid Hydrocarbons, *Journal of Physical Chemistry A* **117** (2013), 4679–4687.
2. I. Gutman, S. Radenković, M. Antić, J. Đurđević, A test of Clar aromatic sextet theory, *Journal of Serbian Chemical Society* **78** (2013), 1539–1546.
3. S. Radenković, M. Antić, J. Đurđević, S. Jeremić, Electronic structure study of the biradical pleiadene-like molecules, *Monatshefte für Chemie* – in press (DOI: 10.1007/s00706-013-1114-4)
4. S. Gojak-Salimović, I. Gutman, J. Đurđević, M. Janošević, Cyclic Conjugation in Benzo-annulated Ovalenes, *Bulletin of the Chemists and Technologists of Bosnia and Herzegovina*, 40 (2013), 17-20
5. S. Marković, J. Đurđević, M. Vukosavljević, Z. Petrović, Mechanistic Insight into Alkylation of the Ethyl Acetoacetate Anion with Different Ethyl Halides, *Russian Journal of Physical Chemistry A*, 87 (2013), 2207-2213
6. K. Xu, M. Liu, K. C. Das, I. Gutman, B. Furtula, A survey on graphs extremal with respect to distance-based topological indices, *MATCH Communications in Mathematical and Computer Chemistry* 71 (2014), 461–508.
7. I. Gutman, B. Furtula, J. Tošović, M. Essalih M. El Marraki, On terminal Wiener indices of kenograms and plerograms, *Iranian Journal of Mathematical Chemistry* **4** (2013), 77–89.
8. I. Gutman, B. Furtula, M. B. Ahmadi, S. A. Hosseini, P. S. Nowbandegani, M. Zarrinderakht, The ABC index conundrum, *Filomat* **27** (2013), 1075–1083.
9. B. Furtula, I. Gutman, Comparing energy and Randić energy, *Macedonian Journal of Chemistry and Chemical Engineering* **32** (2013), 117–123.
10. B. Furtula, Odd-vertex-degree trees maximizing Wiener index, *Kragujevac Journal of Mathematics* **37** (2013), 129–134.

11. I. Gutman, M. Essalih, M. E. Marraki, B. Furtula,
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12. B. Furtula, I. Gutman, M. Dehmer,
On structure-sensitivity of degree-based topological indices,
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13. B. Furtula, I. Gutman, H. Lin,
More trees with all degrees odd having extremal Wiener index,
MATCH Communications in Mathematical and Computer Chemistry **70** (2013), 293–296.
14. H. Shabani, A. R. Ashrafi, I. Gutman, B. Furtula,
On extensions of Wiener index,
MATCH Communications in Mathematical and Computer Chemistry **69** (2013) 589–596.
15. B. Liu, Lj. Pavlović, J. Liu, T. Divnić, M. Stojanović,
On the conjecture of Aouchiche and Hansen about the Randić index,
Discrete Mathematics, Vol. 313, Issue 3 (2013), 225-235.
16. T. Divnić, Lj. Pavlović,
Proof of the first part of the conjecture of Aouchiche and Hansen about the Randić index,
Discrete Applied Mathematics, Vol.161, Issues 7-8,(May 2013), 953-960.
17. T. Divnić, M. Milivojević, Lj. Pavlović,
Extremal graphs for the geometric-arithmetic index with given minimum degree,
Discrete Applied Mathematics, Vol. 162 (2014), 386-390.
18. Z. Vukičević-Kovijanić, D. Stevanović,
Bicyclic graphs with extremal values of PI index,
Discrete Appl. Math. 161 (2013), 395-403
19. A. Vasilyev, D. Stevanović,
MathChem: a Python package for calculating topological indices,
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Subproject 3: Mathematical programming

1. J. Kratica, Đ. Dugošija, A. Savić,
A new mixed integer linear programming model for the multi level uncapacitated facility location problem,
Applied Mathematical Modelling, (2013) DOI:10.1016/j.apm.2013.10.012

2. J. Kratica,
An electromagnetism-like metaheuristic for the uncapacitated multiple allocation p-hub median problem,
Computers & Industrial Engineering, 66 (2013), 1015–1024.
3. M. Čangalović, J. Kratica, V. Kovačević-Vujčić, M. Stojanović,
Minimal doubly resolving sets of prism graphs,
Optimization, 62(8) (2013) , 1037-1043.
4. A. Savić, J. Kratica, V. Filipović,
A new nonlinear model for the two-dimensional rectangle packing problem,
Publications de l'Institut Mathématique, Nouvelle serie, tome 93 (107) (2013) , 95-107.
5. V. Korać, J. Kratica, A. Savić,
An improved genetic algorithm for the multi level uncapacitated facility location problem,
International Journal of Computers, Communications & Control, 8(6) (2013) , 845-853.
6. J. Kratica,
An electromagnetism-like method for the maximum set splitting problem,
Yugoslav Journal of Operations Research, 23(1) (2013) , 31-41.
7. T. Davidović, T. Jakšić, D. Ramljak, M. Šelmić, D. Teodorović,
MPI Parallelization Strategies for Bee Colony Optimization,
Optimization, 62(8), (2013), 1113-1142.
8. V. Maraš, J. Lazić, T. Davidović, N. Mladenović,
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Subproject 4: Structural graph theory and algorithms

1. M.V.G. da Silva, K. Vušković,
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Journal of Combinatorial Theory B 103 (2013), 144-183.
2. M. Radovanović, K. Vušković,
A class of three-colorable triangle-free graphs,
Journal of Graph Theory 72 (4) (2013), 430-439.
3. P. Aboulker, M. Radovanović, N. Trotignon, T. Trunck, K. Vušković,
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Journal of Graph Theory DOI:10.1002/jgt.21728

Subproject 5: Graph spectra in computer science

1. D. Stevanović,
Comment on Subgraph centrality in complex networks,
Phys. Rev. E 88 (2013), 026801
2. D. Stevanović,
Remarks on dynamic load balancing of integer loads and integral graphs,
Appl. Math. Comput. 226 (2014), 38-43
3. M-G. Yoon, D. Cvetković, P. Rowlinson, Z. Stanić
Controllability of multi-agent dynamical systems with a broadcasting control signal
Asian Journal of Control, DOI: 10.1002/asjc.793
URL: <http://dx.doi.org/10.1002/asjc.793>

Papers in conference proceedings

1. P. Maksimović, T. Davidović,
Parameter Calibration in the Bee Colony Optimization Algorithm,
in Proc. 11th *Balkan Conf. on Operational Research*, BALCOR 2013,
Beograd-Zlatibor, Sept. 07-11 (2013), 255-264.
2. M. Čangalović, N. Nikolić, I. Grujičić,
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3. Z. Dražić, M. Čangalović, V. Kovačević-Vujčić,
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in Proc. 11th *Balkan Conf. on Operational Research*, BALCOR 2013,
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4. S. Antić, L. Đorđević, M. Čangalović, K. Kostić,
A Metaheuristic Approach to Solving a Multiproduct EOQ-Based Inventory Problem
with Storage Space Constraints,
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Papers accepted for publication

1. T. G. Crainic, T. Davidović, D. Ramljak,
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in: M. Despotović-Zrakić, V. Milutinović, A. Belić (eds.),

2. T. Jakšić Krüger, T. Davidović, D. Teodorović, M. Šelmić,
The Bee Colony Optimization algorithm and its Convergence,
Int. J. of Bio-Inspired Computation, Special Issue on: "Theoretical Analysis and
Benchmarking of Nature-Inspired Algorithms".

3. I. Jovanović, Z. Stanić
Spectral distances of graphs based on their different matrix representations,
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4. M. Anđelić, D. M. Cardoso,
Spectral characterization of families of split graphs,
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5. I. Gutman, B. Furtula, Ş. B. Bozkurt,
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