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

Publications in 2016.

MONOGRAPHS AND CHAPTERS IN MONOGRAPHS

1. Gutman, I., Furtula, B., Zogi , E., Glogi , E., Resolvent energy, in: I. Gutman, X. Li (Eds.), *Energies of Graphs Theory and Applications*, Univ. Kragujevac, Kragujevac, 2016, pp. 277ó290.

2. Stevanovi , D., Wagner, S., Laplacian-Energy-Like Invariant: Laplacian Coefficients, Extremal Graphs and Bounds, in Energies of Graphsô Theory and Applications (I. Gutman, X. Li eds.), *Mathematical Chemistry Monographs*, Vol. 17, University of Kragujevac, Kragujevac, 2016, pp. 81ó110.

3. Gutman, I., Radenkovi , S., Paradise Lost ó -Electron Conjugation in Homologs and Derivatives of Perylene, in the book: R. Chauvin, C. Lepetit, B. Silvi, E. Alikhani (Eds), *Applications of Topological Methods in Molecular Chemistry,* Springer, 2016, pp. 297-320.

JOURNAL PAPERS

Subproject 1: Spectral graph theory

1. Simi , S. K., Stani , Z. Polynomial reconstruction of signed graphs, *Linear Algebra and its Applications*, **501** (2016), 390-408.

2. Mihailovi , B., Ra–ajski, M., Stani , Z., Reflexive cacti: A survey, *Applicable Analysis and Discrete Mathematics*, **10**, (2016), 552ó568.

3. Slobodan K. Simi , Zoran Stani , Polynomial reconstruction of signed graphs whose least eigenvalue is close to -2, *Electronic Journal of Linear Algebra*, 31 (2016), 740-753.

4. Das, K. C., Gutman, I., Furtula, B., On spectral radius and energy of extended adjacency matrix of graphs, *Applied Mathematics and Computation* **296** (2017) 116ó123.

5. Gutman, I., Furtula, B., Das, K. C., On some degree-and-distance-based graph invariants of trees, *Applied Mathematics and Computation* **289** (2016) 1ó6.

6. Borovi anin, B., Furtula, B., On extremal Zagreb indices of trees with given domination number, *Applied Mathematics and Computation* **279** (2016) 208ó218.

7. Milivojevi , M., Pavlovi , Lj., The Variation Of The Randi Index With Regard To Minimum And Maximum Degree, *Discrete Applied Mathematics*, (http://dx.doi.org/10.1016/j.dam.2016.09.010), DOI: 10.1016/j.dam.2016.09.010.

8. Stevanovi , D., On ±1 eigenvectors of graphs, *Ars Math. Contemp*. **11**, (2016), 415ó423.

9. Balti , V., Stevanovi , D., Counting even and odd restricted permutations, *Ars. Math. Contemp.* **10** (2016), 9ó18.

10. Jovanovi I.M., Non-negative spectrum of a digraph, *Ars Mathematica Contemporanea*, **12**(1) (2017) 167-182.

11. Cvetkovi , D., Jovanovi I.M., Constructing graphs with given spectrum and the spectral radius at most 2, *Linear Algebra and its Appl.*, DOI: 10.1016/j.laa.2016.11.020

12. Al-Azemi, A., Andjeli , M., Simi , S.K., Eigenvalue location for chain graphs, *Linear Algebra Appl.*, **505** (2016), 194-210.

13. Belardo, F, Li Marzi, E.M., Simi , S.K., Signed line graphs with least eigenvalue -2: The star complement technique, *Discrete Applied Math*. **207** (2016), 29-38.

14. Belardo, F., Sciriha, I., Simi , S.K., On eigenspaces of some compound graphs, *Linear Algebra Appl.*, **509** (2016), 19-39.

15. Simi , S.K. fiivkovi , D., Andjeli , M., da Fonseca, C.M., Reflexive line graphs of trees, *J. Algebraic Comb.*, **43**(2) (2016), 447-464.

16. Koledin, T., Stani , Z. Connected signed graphs of fixed order, size, and number of negative edges with maximal index, Linear Multilinear Algebra, (2016), DOI:10.1080/03081087.2016.1265480

Subproject 2: Chemical graph theory

1. Furtula, B., Gutman, I., Katani , V., Threeócenter Harary index and its applications, *Iranian Journal of Mathematical Chemistry* **7** (2016) 61ó68.

2. Furtula, B., Gutman, I., Das, K. C., On atomóbond connectivity molecule structure descriptors, *Journal of the Serbian Chemical Society* **81** (2016) 271ó276.

3. Gutman, I., Furtula, B., Zogi , E., Glogi , E., Resolvent energy of graphs, *MATCH Communications in Mathematical and in Computer Chemistry* **75** (2016) 279ó290.

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5. Gutman, I., Radenkovi , S., or evi , S., Milovanovi , I. fi., Milovanovi , E. I., Total - electron and HOMO energy, *Chemical Physics Letters* **649** (2016) 148-150.

6. Gli–i , B. ., Savi , N. D., War ajtis, B., Djokic, L., Ilic-Tomic, T., Anti , ., Radenkovi , S., Nikodinovic-Runic, J., Rychlewska, U., uran, M. I., Synthesis, structural characterization and biological evaluation of dinuclear gold(III) complexes with aromatic nitrogen-containing ligands: antimicrobial activity in relation to the complex nuclearity, *Medicinal Chemical Communication*s **7** (2016) 1356 ó 1366.

7. Radenkovi , S., Gutman, I., Rufli , S., Zdravkovi , S., Strain in strain-free benzenoid hydrocarbons: The case of chrysene and triphenylene, *Revue Roumaine de Chimie*, **61** (2016) 261-267.

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Subproject 3: Mathematical programming

1. Kordi , S., Davidovi , T., Kova , N., Dragovi , B., Combinatorial Approach to Exactly Solving Discrete and Hybrid Berth Allocation Problem, *Applied Mathematical Modelling*, **40**(21-22), (2016) 8952-8973. DOI:10.1016/j.apm.2016.05.004

2. Jak–i Kruger, T., Davidovi , T., Teodorovi , D., ᵀ꒯lmi , M., The Bee Colony Optimization Algorithm and its Convergence, *Int. J. Bio-Inspired Computation*, **8**(5), pp. 340-354, 2016.
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3. Cvetkovi , D., Three examples of a ground-breaking impact of the variable neighborhood search on investigations in graph theory, *Bull. Acad. Serbe Sci. Arts, Cl. Sci. Math. Natur., Sci. Math.,* **149**(2016), No. 41, 87-88.

4. Anti S., Djordjevic L., angalovi M., Lisec A., A metaheuristic approach to solving a multiproduct EOQ-based inventory problem with storage space constraints, *Optimization Letters*, DOI: 10.1007| s11590-016-1009-5

5. Drafli Z., angalovi M., Kova evi Vuj i V., A metaheuristic approach to the dominating tree problem, *Optimization Letters*, DOI: 10.1007| s11590-016-1017-5

6. Maksimovi Z., Kratica J., Savi A., Two metaheuristics for solving the connected multidimensional maximum bisection problem, *Soft Computing*, 2016. doi:10.1007/s00500-016-2203-1

7. Kratica J., Kova evi -Vuj i V., angalovi M., The strong metric dimension of some generalized Petersen graphs, *Applicable Analysis and Discrete Mathematics*, 2016. DOI:10.2298/AADM161110032K.

Subproject 4: Structural graph theory and algorithms

1. Huang, H., Radenovic, S., Aleksic Lampert, T., Remarks on common fixed point results for cyclic contractions in ordered b-metric spaces, *Journal of Computational Analysis and Applications*, **22**(3) (2017), 538-545.

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3. Abbas, M., Nazir, T., Aleksi Lampert, T., Radenovi , S., Common fixed points of set-valued F-contraction mappings on domain of sets endowed with directed graph, *Computational and Applied Mathematics*, pp 1-16, DOI: 10.1007/s40314-016-0314-z (2016).

4. Trotignon, N., Vu–kovi , K., On triangle-free graphs hat do not contain a subdivision of the complete graph on four vertices as an induced subgraph, *Journal of Graph Theory*. doi:10.1002/jgt.22023

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Subproject 5: Graph spectra in computer science

1. Cvetkovi D., Davidovi T., Jovanovi I.M., Some new models for multiprocessor interconnection networks, YUJOR, DOI:10.2298/YJOR160315020C

Conference papers

1. Jakȿiȩ Kruger, T., Davidoviȩ, T., Sensitivity Analysis of the Bee Colony Optimization Algorithm, Proc. 7th *International Conference on Bioinspired Optimization Methods and their Applications*, BIOMA 2016, Bled, Slovenia, May 18-20, 2016, pp. 65-78.

2. Cvetkoviȩ D., angaloviȩ M., Draffiȩ Z., Kova eviȩ -Vuj iȩ V., Some new complexity indices for the traveling salesman problem, Proc. 43rd *Symposium on Operations Research*, SYM-OP-IS 2016, Tara, Sept. 20-23, 2016, pp. 283-286.

3. Jakȿiȩ Kruger, T., Davidoviȩ, T., Analyis of the Bee Colony Optimization Method on 3-Sat Problem, Proc. 43rd *Symposium on Operations Research*, SYM-OP-IS 2016, Tara, Sept. 20-23, 2016, pp. 297-231.

4. Jovanoviȩ, J., Davidoviȩ, T., A New Formulation for Minimum Cost Hybrid Berth Allocation Problem, Proc. 43rd *Symposium on Operations Research*, SYM-OP-IS 2016, Tara, Sept. 20-23, 2016, pp. 349-352.

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7. Antiȩ, M., Radenkoviȩ, S., The ȯAnthracene problemȯ: Reactivity-based aromaticity study of benzo-annelated anthracenes, MATH/CHEM/COMP - The 28th *International Course & Conference on the Interfacesamong Mathematics*, *Chemistry and Computer Sciences*, 2016, Dubrovnik, Croatia, Abstact pp. 29

8. Boroviȩanin B., On the maximum and minimum Zagreb indices of some classes of trees, *Spectra of graphs and Applications*, SGA 2016, Belgrade, Serbia, May 18-20, 2016, Book of Abstracts p.15.

9. Boroviȩanin B., On extremal vertex-degree-based topological indices of trees with given parameters, *7th European Congress of Mathematics*, Berlin, Technische Universit t Berlin, Germany, July 18-22, 2016, Book of Abstracts p. 691.

10. ur eviȩ Nikoliȩ, J.,Aromaticity of five-membered ring in aromatic polycyclic hydrocarbons. A difficult case for NICS, MAGIC 2016 - *The 2nd Workshop on Magnetically Induced Currents in Molecules*, 2016, Fisciano, University of Salerno, Italy.

11. Kova eviȩ -Vuj iȩ V., Cvetkoviȩ D., angaloviȩ M., Draffiȩ Z., A survey on complexity indices for the traveling salesman problem, KOI 2016 - 16th *International Conference on Operational Research,* Osijek, Croatia, Sept. 27-29, 2016, Book of Abstracts p. 25.

12. Radenkoviȩ, S., Antiȩ, M, Saviȩ, N. D., Gliȿiȩ, B. ., Djuran, M. I., The nature of Au-N bond and aromaticity of N-heterocycles coordinated to Au(III) ion, 53rd *Meeting of the Serbian Chemical Society*, 2016, Kragujevac, Serbia, Abstract pp. 67.

13. Saviȩ, N. D., Gliȿiȩ, B. ., Antiȩ, M., Radenkoviȩ, S., Djuran, M. I., Synthesis and characterization of gold(III) complexes with tricyclic aromatic nitrogen-containing heterocycles, 53rd *Meeting of the Serbian Chemical Society*, 2016, Kragujevac, Serbia, Abstract pp. 55.

14. Radenkovi , S., Ring currents in nonplanar benzenoid hydrocarbons, MAGIC 2016 - The 2nd *Workshop on Magnetically Induced Currents in Molecules*, 2016, Fisciano, University of Salerno, Italy.

15. Jovanovi I.M., Cvetkovi D., Davidovi T., Examples of multiprocessor interconnection networks related to some graph types and operations*,* Int. *Scientific conference on ICT and E-business related research* SINTEZA 2016, Singidunum University, Belgrade, Serbia, April 22-23, 2016, Abstract is printed in Book of proceedings p.602.

16. Jovanovi I.M., Cvetkovi D., Constucting graphs with given spectrum and the spectral radius at most 2*, Spectra of graphs and applications*, SGA 2016, a conference in honor of Drago– Cvetkovi for his 75th birthday, Belgrade, Serbia, May 18-20, 2016, Book of Abstracts p.26.

17. Jovanovi I.M., Counting the number of closed walks in a graph, CroCoDays - 1st *Croatian Combinatorial Days*, Zagreb, September 29-30, 2016, Book of Abstracts p.12.

18. M. Ba–i and B. Arsi . Clustering algorithms comparison and recommended data structures. 5th International Scientific Conference, Analysis, Topology, Algebra: Theory and Applications (ATA2016), Serbia, July 6-9, 2016, Abstract pp. 7.

19. B. Arsi , M. Ba–i , P. Spalevi , M. Ili , M. Veinovi . Facebook profiles clustering. 6th International Conference on Information Society and Technology (ICIST 2016), Serbia, 28 February - 2 March, 2016, pp. 154-158.