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

**Publications in 2017.**

## MONOGRAPHS AND CHAPTERS IN MONOGRAPHS

1. Stani , Z., *Regular graphs. A Spectral Approach*, Series: De Gruyter Series in Discrete Mathematics and Applications, De Gruyter, Berlin, 2017.
2. Brualdi, R.A., Carmona, A., van den Driessche, P., Kirkland, S., Stevanovi , D., A Combinatorial Matrix Theory, in (A.M. Encinas, M. Mitjana, eds.), *Advanced courses in Mathematics*, CRM Barcelona, Birkhauser, Basel, Springer, 2018.
3. Kova , N., Stanimirovi , Z., Davidovi , T., Metaheuristic Approaches for the Minimum Cost Hybrid Berth Allocation Problem, In Konstantopoulos, C. and Pantziou, G. (eds.) *Modelling, Computing and Data Handling Methodologies for Maritime Transport*, Springer, pp. 1-47, 2017.
4. Borovi anin B., Das K.C., Furtula B., Gutman I., Zagreb Indices: Bounds and Extremal Graphs, in eds. I. Gutman, B. Furtula, K. C. Das, E. Milovanovi , I. Milovanovi , *Bounds in Chemical Graph Theory-Basics, Mathematical Chemistry Monographs*, No. 19, pp. 67-153, 2017.

## JOURNAL PAPERS

**Subproject 1: Spectral graph theory**

1. Andjeli , M., Koledin, T., Stani , Z., Distance spectrum and energy of graphs with small diameter, *Appl. Anal. Discrete Math.*, 11 (2017), 108-122.
2. Al-Azemi, A., Andjeli , M., Koledin, T., Stani , Z. Distance-regular graphs with small number of distinct distance eigenvalues, *Linear Algebra Appl.*, 531 (2017), 83-97.
3. Jovovi , I., Koledin, T., Stani , Z., Trees with small spectral gap, *Ars Math. Contemp.*, 14 (2018) 97-107.
4. Koledin, T., Stani , Z., Connected signed graphs of fixed order, size, and number of negative edges with maximal index, *Linear Multilinear Algebra*, 65 (2017), 2187-2198.
   DOI: 10.1080/03081087.2016.1265480.
5. Cardoso, D. M., Carvalho, P., Rama, P., Simi , S. K., Stani , Z. Lexicographic polynomials of graphs and their spectra, *Appl. Anal. Discrete Math.*, 11 (2017), 258-272.
6. Stani , Z., Perturbations in a signed graph and its index, *Discuss. Math. Graph Theory*, to appear, (2017).
   http://www.discuss.wmie.uz.zgora.pl/gt/
7. Mihailovi , B., Ra–ajski, M., Some graph mappings that preserve the sign of $\lambda_2$-$r$, *Applicable Analysis and Discrete Mathematics*, 11(1), (2017), 148-165.

8. Lepovi , M., Some results on overgraphs of a strongly regular graph, *Vietnam J. Math.*, https://doi.org/10.1007s10013-017-0261-z, in print.

9. Cvetkovi  D., Spectral theory of Smith graphs, *Bull. Acad. Serbe Sci. Arts, Cl. Sci. Math. Natur., Sci. Math.*, 150(2017), No. 42, 19-40.

10. Gutman, I., Das, K. C., Furtula, B., Milovanovi , E., Milovanovi , I., Generalizations of Szökefalvi Nagy and Chebyshev inequalities with applications in spectral graph theory, *Applied Mathematics and Computation* 313 (2017) 235ó244.

11. Milovanovi , I. Z., Milovanovi , E. I., Gutman, I., Furtula, B., Some inequalities for the forgotten topological index, *International Journal of Applied Graph Theory* 1 (2017) 1ó15.

12. 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.

13. Jovanovi , I., Closed Walks and Graphlets, Utilitas Mathematica, 105 (2017) 219-236.

**Subproject 2: Chemical graph theory**

1. Jeremi , S., Radenkovi , S., Filipovi , M., Anti , M., Ami , A., Markovi , Z., Importance of hydrogen bonding and aromaticity indices in QSAR modeling of the antioxidative capacity of selected (poly)phenolic antioxidants, *Journal of Molecular Graphics and Modelling* 72 (2017) 240ó245.

2. Radenkovi , S., Gutman, I., Zdravkovi , S., Anti , M., Strain in strain-free benzenoid hydrocarbons: The case of fibonacenes, *Chemical Papers* 71 (2017) 1491ó1495.

3. Radenkovi , S., Anti , M.,  or evi , S., Braïda, B.,  -electron content of rings in polycyclic conjugated compounds ó A valence bond based measure of local aromaticity, *Computational and Theoretical Chemistry* 1116 (2017) 163ó173.

4. Pavic, A., Gli–i , B., Vojnovic, S., War ajtis, B., Savi , N., Anti , M., Radenkovi , S., Janji , G., Nikodinovic-Runic, J., Rychlewska, U., Djuran, M., Mononuclear gold(III) complexes with phenanthroline ligands as efficient inhibitors of angiogenesis: A comparative study with auranofin and sunitinib, *Journal of Inorganic Biochemistry* 174 (2017) 156ó168.

5. Radenkovi , S., Anti , M., Savi , N., Gli–i , B., The nature of Auô N bond in gold(III) complexes with aromatic nitrogen-containing heterocycles. The influence of Au(III) ion on the ligand aromaticity, *New Journal of Chemistry*, 41 (2017) 12407-12415.

6. Anti , M., Furtula, B., Radenkovi , S., Aromaticity of  nonplanar fully benzenoid hydrocarbons, *Journal of  Physical Chemistry A* 121 (2017) 3616-3626.

7. Gutman, I., Radenkovi , S.,  or evi , S., Milovanovi , I. fi., Milovanovi , E. I., Extending the McClelland formula for total  -electron energy, *Journal of Mathematical Chemistry* 55 (2017) 1934ó1940.

8. Radenkovi , S., Danovich, D., Shaik, S., Hiberty, P. C., Braïda, B., The Nature of Bonding in Metal-Metal Singly Bonded coinage metal dimers: Cu2, Ag2 and Au2, *Computational and Theoretical Chemistry* **1116** (2017) 195-201.

9. Vuki evi , D., Sedlar, J., Stevanovi , D., Comparing Zagreb indices for almost all graphs, *MATCH Commun. Math. Comput. Chem.* 78 (2017), 323-336.

10. Furtula, B., Gutman, I., Borderenergetic graphs of order 12, *Iranian Journal of Mathematical Chemistry*, 8 (2017), 339-343.

11. Gutman, I., Furtula, B., Das, K. C., Extended energy and its dependence on molecular structure, *Canadian Journal of Chemistry* 95 (2017) 526ó529.

12. Borovi anin B., Das K.C., Furtula B., Gutman I., Bounds for Zagreb indices, *MATCH Communications in Mathematical and in Computer Chemistry* 78(1) (2017) 17-100.

## Subproject 3: Mathematical programming

1. Mati D., Kratica J., Maksimovi Z., Solving the minimum edge-dilation $k$-center problem by genetic algorithms, *Computers & Industrial Engineering*, Vol. 113, pp. 282ó293, 2017.
2. Maksimovi Z., Kratica J., Savi A., Two metaheuristics for solving the connected multidimensional maximum bisection problem, *Soft Computing*, Vol. 21, No. 21, pp. 6453-6469, 2017.
3. Kratica J., Kova evi -Vuj i V., angalovi M., The strong metric dimension of some generalized Petersen graphs, Applicable Analysis and Discrete Mathematics, Vol. 11, No. 1, pp. 1-10, 2017.
4. Mati D., Kratica J., Filipovi V., Variable Neighborhood Search for solving Bandwidth Coloring Problem, *Computer Science and Information Systems*, Vol. 14, No. 2, pp. 309-327, 2017.
5. Milivojevi , M., Pavlovi , Lj., The Variation of the Randi Index with Regard to Minimum and Maximum Degree, *Discrete Applied Mathematics*, Vol. 217, Part 2,(2017), 286-293.
6. Cvetkovi D., angalovi M., Drafli Z., Kova evi -Vuj i V., Complexity indices for the traveling salesman problem based on short edge subgraphs, *CEJOR*, to appear.
7. Anoki , A., Stanimirovi , Z., Davidovi , T., Staki , ., Variable Neighborhood Search for optimizing the transportation of agricultural raw materials, VNS 2016, *Electronic Notes in Discrete Mathematics*, 58, pp. 135-142, 2017.
8. Anoki , A., Stanimirovi , Z., Davidovi , T., Staki , ., Variable neighborhood search based approaches to a vehicle scheduling problem in agriculture, accepted for *International Transactions in Operational Research*, 2017.
   DOI: 10.1111/itor.12480
9. Alfandari, L. Davidovi , T., Furini, F., Ljubi , I., Mara , V., Martin, S., Tighter MIP Models for Barge Container Ship Routing, *OMEGA: International Journal of Management Science*, 2017.
   DOI: 10.1016/j.omega.2017.12.002

## Subproject 4: Structural graph theory and algorithms

1. Boncompagni, V., Penev, I., Vu kovi , K., Clique cutsets beyond chordal graphs, LAGOS 2017, *Electronic Notes in Discrete Mathematics* 62 (2017) 81-86.
2. Trotignon, N., Vu kovi , K., On triangle-free graphs that do not contain a subdivision of the complete graph on four vertices as an induced subgraph, Journal of Graph Theory 84 (2017) 233-248.
3. Thomassé, S., Trotignon, N., Vu kovi , K., A polynomial Turing-kernel for weighted independent set in bull-free graphs, *Algorithmica* 77 (2017) 619-641.
4. Adler, I., Le, K., Müller, H., Radovanovi , M., Trotignon, N., Vu kovi , K., On rank-width of (diamond, even hole)-free graphs, *Discrete Mathematics and Theoretical Computer Science* 19 (1) (2017) (12 pages).

5. Cameron, K., Huang, S., da Silva, M.V.G., Vu–kovi , Structure and algorithms for (cap, even hole)-free graphs, to appear in *Discrete Mathematics*, available online
   https://doi.org/10.1016/j.disc.2017.09.013.
6. Diot, E., Radovanovi , M., Trotignon,  N., Vu–kovi , K., The (theta, wheel)-free graphs, Part I: only-prism and only-pyramid graphs, to appear in *Journal of Combinatorial Theory B.*

## Other journal papers

1. Male–evi , B., Ra–ajski, M., Lutovac, T., Refinements and generalizations of some inequalities of Shafer-Fink's type for the inverse sine function, *Journal of Inequalities and Applications*, (2017), 2017:275. https://doi.org/10.1186/s13660-017-1554-1.
2. Stevanovi , S., Systematic comparative illustration of primary school building regulations in Serbia and Slovenia, *European Scientific Journal*, 13(22), (2017) 267-281.
3. Stevanovi , S., Urban planning indicators in sustainable building assessment methods, *Journal of Engineering Research*, accepted, 2017.
4. Ili , A., Milo–evi , M., The parameters of Fibonacci and Lucas cubes, *Ars Mathematica Contemporanea*, 12(1), (2017), 25 - 29.

## Conference papers

1. Davidovi , T., Parallelization of Metaheuristic Methods, (in Serbian), *Proc. 44th Symposium on Operations Research*, SYM-OP-IS 2017, Zlatibor, Sept. 25-28, 2017, pp. 140-145.
2. Gli–ovi , N., Davidovi , T., Ra–kovi , M., Clustering when Missing Data by Using the Variable Neighborhood Search, (in Serbian), *Proc. 44th Symposium on Operations Research*, SYM-OP-IS 2017, Zlatibor, Sept. 25-28, 2017, pp. 158-163.
3. Cvetkovi D.,  angalovi M., Drafli  Z., Kova evi -Vuj i  V., Composite complexity indices for the traveling salesman problem, *Proc. 44th Symposium on Operations Research*, SYM-OP-IS 2017, Zlatibor, Sept. 25-28, 2017, pp. 241-246.
4. Savi  A., Maksimovi Z., Bogdanovi  M., Kratica J., Convex and week convex domination for Hamming graphs, (in Serbian), *Proc. 44th Symposium on Operations Research*, SYM-OP-IS 2017, Zlatibor, Sept. 25-28, 2017, pp. 237-240.
5. Gli–ovi , N., Davidovi , T., Bojovi , N., Kneflevi , N., Statistical and Mathematical Methods for Clustering Postal Incomplete Data, (in Serbian), *Proc. 35th Symposium on Novel Technologies in Postal and Telecommunication Traffic*, Belgrade, Dec. 05-06, 2017, pp.23-30.
6. Anoki , A., Stanimirovi , Z., Staki ,  ., Davidovi , T., Vehicle Scheduling Problem for optimizing the transportation of agricultural raw materials, (in Serbian), *Proc. 7th Symposium "Mathematics and Applications",* Belgrade, Nov. 04-05, 2016, pp. 49-60, Faculty of Mathematics, University of Belgrade, 2017.