

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

Publications in 2019.

MONOGRAPHS AND CHAPTERS IN MONOGRAPHS

1. Gutman I., Furtula B., *Energies of Graphs: Survey, Census, Bibliography*, Center for research SANU and University of Kragujevac, 2019.
2. Maležević B., Račajski M., Lutovac T., *Double-Sided Taylor's Approximations and Their Applications in Theory of Analytic Inequalities*, In: Andrica D., Rassias T. (eds) *Differential and Integral Inequalities*, Springer Optimization and Its Applications, vol 151. Springer, Cham., 2019.

JOURNAL PAPERS

Subproject 1: Spectral graph theory

1. Feng L., Lu L., Stevanović D., A short remark on graphs with two main eigenvalues, *Appl. Math. Comput.* (2019), 369 (2020) article 124858 DOI: 10.1016/j.amc.2019.124858.
2. Stevanović D., Milosavljević N., Vukićević D., A few examples and counterexamples in spectral graph theory, *Discuss. Math., Graph Theory* 40 (2020) 637-662. DOI: 10.7151/dmgt.2275.
3. Stevanović D., Hic P., Pokorný M., Seidel integral complete split graphs, *Math. Interdisc. Res.* 4 (2019), 137-150.
4. Paul D., Stevanović D., Eigenvector-based identification of bipartite subgraphs, *Discrete Appl. Math.* 269 (2019), 146-158,
5. Cvetković D., Todorčević V., Cospectrality graphs of Smith graphs, *Filomat*, 33:11(2019), 3269-3276.
6. Stanić Z., Bounding the largest eigenvalue of signed graphs, *Linear Algebra and its Applications* 573(2019), 80-89.
7. Stanić Z., Unions of a clique and a co-clique as star complements for non-main graph eigenvalues, *Electronic Journal of Linear Algebra* 35(2019), 90-99.
8. Stanić Z., Some bounds for the largest eigenvalue of a signed graph, *Bulletin Mathématique de la Société des Sciences Mathématiques de Roumanie*, 62(110), 2, (2019), 183-189.
9. Stanić Z., Integral regular net-balanced signed graphs with vertex degree at most four, *Ars Mathematica Contemporanea* 17(2019), 103-114.
10. Stanić Z., On strongly regular signed graphs, *Discrete Applied Mathematics* 271 (2019), 184-190.

11. AnĽeliĽ M., Koledin T., StaniĽ Z., A note on the eigenvalue free intervals of some classes of signed threshold graphs, *Special Matrices* 7 (2019), 218-225.
12. StaniĽ Z., Spectra of signed graphs with two eigenvalues, *Applied Mathematics and Computation*, 364 (2020), article 124627.
13. StaniĽ Z., Lower bounds for the least Laplacian eigenvalue of unbalanced blocks, *Linear Algebra and its Applications* 584 (2020), 145-152.
14. StaniĽ Z., Star complementary strongly regular decompositions of strongly regular graphs, *Linear and Multilinear Algebra* 2019 DOI: 10.1080/03081087.2019.1586821
15. Alazemi A., AnĽeliĽ M., Koledin T., StaniĽ Z., Eigenvalue free intervals of distance matrices of threshold and chain graphs, *Linear and Multilinear Algebra* 2019 DOI: 10.1080/03081087.2019.1701624
16. AnĽeliĽ M., Koledin T., StaniĽ Z., On regular signed graphs with three eigenvalues, *Discussiones Mathematicae Graph Theory*, 40 (2020) 405-416.
17. StaniĽ, Z: Controllability of certain real symmetric matrices with application to controllability of graphs, *Discrete Mathematics Letters*, 3 (2020), 9-13.
18. StaniĽ Z., Main eigenvalues of real symmetric matrices with application to signed graphs, *Czechoslovak Mathematical Journal*, accepted 2019.

Subproject 2: Chemical graph theory

1. Dickens T. K., Mallion R. B., RadenkoviĽ S., Assessing the extent of π -electron delocalization in naphtho-annelated fluoranthenes by means of topological ring-currents, *Journal of Physical Chemistry A* **123** (2019) 1445-1450.
2. ĽorĽeviĽ S., RadenkoviĽ S., Magnetically induced current density in triple-layered beryllium-boron clusters, *Physical Chemistry Chemical Physics*, **21** (2019) 7105-7114.
3. AntiĽ M., ĽorĽeviĽ S., Furtula B., RadenkoviĽ S., Magnetically induced current density in nonplanar fully benzenoid hydrocarbons, *Journal of Physical Chemistry A*, **124** (2020) 371-378.
4. RakiĽ M., Furtula B., A novel method for measuring the structure sensitivity of molecular descriptors, *Journal of Chemometrics* 33 (2019) #e3138. DOI: 10.1002/cem.3138
5. RedĽepoviĽ I., MarkoviĽ S., Furtula B., On structural dependence of enthalpy of formation of catacondensed benzenoid hydrocarbons, *MATCH Communications in Mathematical and in Computer Chemistry* 82 (2019) 663-678.
6. Furtula B., Gutman I., MatejiĽ M., MilovanoviĽ E., MilovanoviĽ I., Some new lower bounds for augmented Zagreb index, *Journal of Applied Mathematics and Computing* 61 (2019) 405-415. DOI: 10.1007/s12190-019-01258-x
7. Bok J., Furtula B., JedliĽkov N., Ľkrekovski R., On extremal graphs of weighted Szeged index, *MATCH Communications in Mathematical and in Computer Chemistry* 82 (2019) 93-109.
8. RedĽepoviĽ I., Furtula B., On relationships of eigenvalue-based topological molecular descriptors, *Acta Chimica Slovenica*, accepted 2019, DOI: 10.17344/acsi.2019.5520
9. RedĽepoviĽ I., MarkoviĽ S., Theoretical study on the heat of formation of some polycyclic aromatic hydrocarbons, *Chemical Papers*, 74 (2020) 829-836. DOI: 10.1007/s11696-019-00914-7

10. Marković S., Ćorlević S., Redžepović I., Milanović Ć., Simuliranje hemijskih spektara pomoću softvera za molekularno modeliranje, *Hemijski pregled*, 2019, 60(4) 90-95.
11. Marković S., Redžepović I., Furtula B., Dependence of the Enthalpy of Formation of Phenols on Molecular Structure – Semiempirical Study, *Polycyclic Aromatic Compounds*, accepted 2019, DOI: 10.1080/10406638.2019.1696379

Subproject 3: Mathematical programming

1. Cvetković D., Ćangalović M., Drafić Z., Kovačević-Vujić V., The traveling salesman problem: the spectral radius and the length of an optimal tour, *Bull. Acad. Serbe Sci. Arts, Cl. Sci. Math. Natur., Sci. Math.*, 151(2018), No. 43, 18-26.
2. Filipović V., Kartelj A., Kratica J., Edge metric dimension of some generalized Petersen graphs, *Results in Mathematics*, Vol. 74, No. 4, Article:182, 2019, DOI: 10.1007/s00025-019-1105-9
3. Kratica J., Kovačević-Vujić V., Ćangalović M., k-metric antidimension of some generalized Petersen graphs, *Filomat*, Vol. 33, No. 12, 2019.
<http://journal.pmf.ni.ac.rs/filomat/index.php/filomat/article/view/10255>
4. Kratica J., Matić D., Filipović V., Weakly convex and convex domination numbers for generalized Petersen and flower snark graphs, *Revista de la Unión Matemática Argentina*, in press 2019. <https://inmabb.criba.edu.ar/revuma/revuma.php?p=inpress>
5. Anokić A., Stanimirović Z., Stakić Ć., Davidović T., Metaheuristic approaches to a vehicle scheduling problem in sugar beet transportation, *Operational Research*, 2019. DOI: 10.1007/s12351-019-00495-z
6. Alfandari, L. Davidović T., Furini, F., Ljubić I., Maraš V., Martin, S., Tighter MIP Models for Barge Container Ship Routing, *OMEGA: International Journal of Management Science*, 82, pp. 38-54, 2019.
7. Anokić A., Stanimirović Z., Davidović T., Stakić Ć., Variable neighborhood search based approaches to a vehicle scheduling problem in agriculture, *International Transactions in Operational Research*, 27(1), pp. 26-56, 2020. DOI: 10.1111/itor.12480

Subproject 4: Structural graph theory and algorithms

1. Chudnovsky, M., Lo, I., Maffray, F., Trotignon, N., Vučković, K., Coloring Square-free Berge Graphs, *Journal of Combinatorial Theory B*, 135 (2019) 96-128.
2. Boncompagni, V., Radovanović, M., Vučković, K., The Structure of (theta, pyramid, 1-wheel, 3-wheel)-free Graphs, *Journal of Graph Theory*, 90 (4) (2019) 591-628.
3. Chudnovsky, M., Liu, C.-H., Schaudt, O., Spirkel, S., Trotignon, N., Vučković, K., Triangle-free Graphs that do not Contain an Induced Subdivision of K_4 are 3-colorable, *Journal of Graph Theory*, 92 (2) (2019) 67-95.
4. Boncompagni, V., Penev, I., Vučković, K., Clique-cutsets Beyond Chordal Graphs, *Journal of Graph Theory*, 91 (2019) 192-246.

5. Diot, E., Radovanović, M., Trotignon, N., Vučković, K., The (theta, wheel)-free Graphs, Part I: Only-prism and Only-pyramid Graphs, to appear in *Journal of Combinatorial Theory B*. DOI:10.1016/j.jctb.2017.12.004
6. Radovanović, M., Trotignon, N., Vučković, K., The (theta, wheel)-free graphs, Part II: structure theorem, to appear in *Journal of Combinatorial Theory B*. DOI:10.1016/j.jctb.2019.07.004
7. Radovanović, M., Trotignon, N., Vučković, K., The (theta, wheel)-free graphs, Part III: cliques, stable sets and coloring, to appear in *Journal of Combinatorial Theory B*. DOI:10.1016/j.jctb.2019.07.003

Other journal papers

1. Stevanović, S., Stevanović, D., Dehmer, M., On optimal and near-optimal shapes of external shading of windows in apartment buildings, *PLoS ONE* 14(2) (2019), e0212710. DOI: 10.1371/journal.pone.0212710
2. Stevanović, S., Stevanović, D., Proof without words: Sums of cubes, *Mathematics Magazine* 92 (2019), 271-272, DOI: 10.1080/0025570X.2019.1571376.
3. Miković, R., Arsić, B., Gligorić, Đ., Gašić, M., Petrović, D., Filipović, N., The Influence of Social Capital on Knowledge Management Maturity of Nonprofit Organizations—Predictive Modelling Based on a Multilevel Analysis. *IEEE Access*, 7, pp. 47929-47943, 2019.
4. Arsić, B., Ćokić-Petrović, M., Spalević, P., Milentijević, I., Ranđić, D., Ćivanović, M., SpecINT: A framework for data integration over cheminformatics and bioinformatics RDF repositories. *Semantic Web - Interoperability, Usability, Applicability*, Vol. 10, No. 4, pp. 795-813, 2019. DOI: 10.3233/SW-180327

Conference papers

1. Matijević, L., Davidović, T., Ilin, V., Pardalos, P.M.: General variable neighborhood search for asymmetric vehicle routing problem, In: *Proc. XLVI Symposium on Operations Research, SYM-OP-IS 2019*. pp. 185-190. Kladovo, Serbia, 2019
2. Cvetković, D., Jovanović, I., Todorčević, V., Further results on the cospectrality of Smith graphs, *SYM-OP-IS 2019*, 185-190.
3. Arsić, B., Obrenović, M., Anić, M., Tsuda, A., Filipović, N., Image segmentation of the pulmonary acinus imaged by synchrotron X-ray tomography. 19th annual IEEE International Conference on Bioinformatics and Bioengineering (BIBE), October 28-30, 2019, Athens, Greece.