

Dušan Dimić, Ph.D., Assistant Professor

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Education

- 2014 - 2018 Ph.D. Studies at the University of Belgrade – Faculty of Physical Chemistry. Ph.D. Thesis in the field of the theoretical and experimental investigation of the antiradical activity of neurotransmitters and their metabolites. Theoretical methods include DFT, Natural Bond Orbital Analysis (NBO) and Quantum Theory of Atoms in Molecules (QTAIM). Experimental methods include IR and Raman spectroscopy, UV-Vis, EPR, NMR, cyclic voltammetry and spectrofluorimetry. GPA: 9.80/10
- 2013 – 2014 Master Studies at the University of Belgrade – Faculty of Physical Chemistry, the area of expertise – spectrochemistry. Master Thesis “Theoretical analysis of arylhydrazone as potential molecular switches“ GPA: 10/10.
- 2009 – 2013 Undergraduate Studies at the University of Belgrade – Faculty of Physical Chemistry. Undergraduate Thesis “Influence of the microwave heating on the hydrogel dehydration kinetics.“ GPA: 10/10.

Work Experience

- 2020 – Asstant Professor at the University of Belgrade – Faculty of Physical Chemistry. Courses Taught: Introduction to Laboratory work (1st year), Introduction to Forensic Science, Physico-chemical analysis in Forensic Science
- 2015 – 2020 Teaching Assistant at the University of Belgrade – Faculty of Physical Chemistry. Courses Taught: Molecular Spectrochemistry (3rd year), Basics of Photochemistry (4th year), Introduction to Laboratory work (1st year), Forensic Physical Chemistry (4th year), Physical Chemistry 1 for students studying chemistry (2nd year).
- 2013 – 2014 Research Assistant at the University of Belgrade – Faculty of Physical Chemistry. The project financed by the Ministry of Education, Science and Technological Development, “Structure and Dynamics of the molecular systems in ground and excited molecular states.“

Study Abroad Programs, Internships, and Exchanges

- Jun-Sept 2019 Post-doctoral researcher in the group of prof. Henrik Druid from the Karolinska Institute in the field of forensic physical chemistry. During this period the University of Uppsala, University of Linköping and National Laboratory for Forensic Toxicology were visited.
- Jun-Sept 2017 Erasmus Plus project between the Karolinska Insitute and the University of Belgrade. Work at the Department for clinical neuroscience under the supervision of prof. Lars Terenus and prof. Vladana Vukojevic. During the same program, the experimental work was also done at Stockholm University under the supervision of prof. Astrid Gräslund.

Feb. 2015	<i>Winter School on core level spectroscopies, COST Action MP1306: Modern Tool for Spectroscopy on Advanced Materials</i>
2014 – 2015	On-line mentoring program between students from Serbia and successful scientists from Serbia. The collaboration with the prof. Dragoslav Vidovic (Nanyang Technological Institute, Singapore) led to several publications.
Jul-Okt. 2014	Summer Internship at The Research Institute for Theoretical and Applied Physical Chemistry, La Plata, Argentina, under the supervision of prof. Andrew Mercader.
Jun-Avg. 2012	Summer Internship at the Weizmann Institute of Science, Rehovot, Israel, in the archaeological chemistry group, under the supervision of prof. Steve Weiner.
2010 – 2011	Exchange student at the University of Minnesota, Minneapolis, MN, USA, through the program financed by the American government.

Scholarships and rewards

2013	Special rewards of the Serbian Chemical Society and Society of Physical Chemists of Serbia for the best students
2013	The first prize for the socially active students studying natural and technical sciences “SUPERSTE” Erste bank
2012-2013	Fund “Dositeja”, Ministry of Youth and Sports of the Republic of Serbia
2013	Scholarship for the participation in the Forum Alpbach, Austria
2012	Participation in the program “Welcome to Germany” for socially active students, financed by the European movement in Serbia and Bavarian University for Middle, East and South Europe (BAYHOST)

Extracurricular activities and other relevant experiences

2018	Member of the Organizing Committee of the 14th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, Serbia.
2016	Member of the Organizing Committee of the 13th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, Serbia.
2013 -	Lecturer at Petnica Science Center, for the programs covering chemistry, biology, and archaeology.
2013 -	Member of the Organisation Committee for the promotion of science, popularisation of physical chemistry and work with young scientists.

Memberships

- Serbian Chemical Society
- Society of Physical Chemists of Serbia

Reviews

- Food Chemistry (2)
- Journal of Molecular Modeling (3)
- Natural Product Research (1)
- Journal of Molecular Structure (13)
- International Journal of Quantum Chemistry (1)
- RSC Advances (1)

- Computational Biology and Chemistry (1)

Skills and Competencies

- Computer programs: Gaussian, AIMAll, Multiwfn, VEDA, MS Office, Origin.
- Languages: Serbian (native) and English (C1).
- Teamwork, leadership skills, work with young scientists and students, science communicator.
- Half-marathon, cross-fit, swimming

Published Articles

1. D. Milenković, D. Dimić, E. Avdović, A. Amić, J. Dimitrić-Marković, Z. Marković, Advanced oxidation process of coumarins by hydroxyl radical: Towards the new mechanism leading to less toxic products, *Chem. Eng. J.*, 395, 124971, 2020. DOI: 10.1016/j.cej.2020.124971
2. D. Milenković, E. Avdović, D. Dimić, S. Sudha, D. Ramarajan, Ž. Milanović, S. Trifunović, Z. Marković, Vibrational, NBO, AIM and Hirshfeld surface analyses and molecular docking study of m-toluidine-coumarin derivative and its corresponding palladium(II) complex, *J. Mol. Struc.*, 1209, 127935, 2020. DOI: 10.1016/j.molstruc.2020.127935
3. D. Dimić, Ž. Milanović, G. Jovanović, D. Sretenović, D. Milenković, Z. Marković, J. Dimitrić Marković, Comparative antiradical activity and molecular Docking/Dynamics analysis of octopamine and norepinephrine: the role of OH groups, *Comput. Biol. Chem.*, 84, 107170, 2020. DOI: 10.1016/j.compbiolchem.2019.107170
4. M. Petković, J. Leopold, I. Popović, D. Dimić, J. Ilić, M. Nenadović, Z. Rakočević, J. Schiller, Performances of ionic liquid matrices with butyl ammonium counterion for matrix-assisted laser desorption/ionization mass spectrometric detection and analysis of sucralfate, *J. Carbohydr. Chem.*, 39:1, 1-23, 2019. DOI: 10.1080/07328303.2019.1669633
5. D. Dimić, D. Milenković, Z. Marković, J. Dimitrić Marković, "The reactivity of dopamine precursors and metabolites towards ABTS•-: An experimental and theoretical study", *J. Serb. Chem. Soc.*, 2019, DOI: 10.2298/JSC190430050D
6. Đ. Nakarada, B. Pejin, D. Dimić, A. Ivanović-Šašić, Z. Mojović, M. Mojović, "Electrochemical and spectroscopic study of L-dopa interaction with avarol", *React. Kinet. Mech. Cat.*, 2019, 127 (1), pp: 219-229, DOI:10.1007/s11144-019-01575-z
7. D. Milenković, J. Dimitrić-Marković, D. Dimić, S. Jeremić, D. Amić, M. Stanojević-Pirković, Z. Marković, "Structural characterization of kaempferol: a spectroscopic and computational study", *Maced. J. Chem. Chem. En.*, 38 (1), pp: 49-62, DOI: 10.20450/mjce.2019.1333
8. D. Dimić, Z. Marković, L. Saso, E. Avdović, J. Đorović, I. Petrović, D. Stanisavljević, M. Stevanović, I. Potočňák, Erika Samolňová, S. Trifunović, J. Dimitrić-Marković, "Synthesis and Characterization of 3-(1-((3,4-Dihydroxyphenethyl)amino)ethylidene)-chroman-2,4-dione as a Potential Antitumor Agent", *Oxid. Med. Cell Longev.*, 2019, 2069250, DOI: 10.1155/2019/2069250
9. E. Avdović, D. Dimić, J. Dimitrić Marković, N. Vuković, M. Radulović, M. Živanović, N. Filipović, J. Đorović, S. Trifunović, Z. Marković, "Spectroscopic and theoretical investigation of the potential anti-tumor and anti-microbial agent, 3-(1-((2-hydroxyphenyl)amino)ethylidene)chroman-2,4-dione", *Spectrochim. Acta A*, 2019, 206, pp: 421-429, DOI: 10.1016/j.saa.2018.08.034
10. D. Dimić, "The importance of specific solvent-solute interactions for studying UV-vis spectra of light-responsive molecular switches", *C. R. Chim.*, 21 (2018) 1001-1010, DOI: 10.1016/j.crci.2018.09.007

11. D. Dimić, D. Milenković, J. Ilić, B. Šmit, A. Amić, Z. Marković, J. Dimitrić Marković, “Experimental and theoretical elucidation of structural and antioxidant properties of vanillylmandelic acid and its carboxylate anion“, *Spectrochim. Acta A*, 2018, 198, pp: 61-70, DOI: 10.1016/j.saa.2018.02.063
12. D. Dimić, D. Milenković, J. Dimitrić Marković, Z. Marković, “Thermodynamic and kinetic analysis of the reaction between biological catecholamines and chlorinated methylperoxy radicals“, *Molecular Physics*, 2018, 116 (9), pp: 1166-1178, DOI: 10.1080/00268976.2017.1414967
13. D. Milenković, E. H. Avdović, D. Dimić, Z. Bajin, B. Ristić, N. Vuković, S. Trifunović, Z. Marković, “Reactivity of the coumarine derivative towards cartilage proteins: combined NBO, QTAIM, and molecular docking study“, *Monatsh Chem*, 2018, 149, pp: 159-166, DOI: 10.1007/s00706-017-2051-4
14. D. Dimić, D. Milenković, J. Dimitrić Marković, Z. Marković, “Antiradical activity of catecholamines and metabolites of dopamine: theoretical and experimental study“, *Phys. Chem. Chem. Phys.*, 2017, 19, pp: 12970-12980, DOI: 10.1039/c7cp01716b
15. D. Dimić, D. Milenković, Z. Marković, J. Dimitrić Marković, “Structural and Spectral Analysis of 3-methoxytyramine, an important metabolite of dopamine“, *J. Mol. Struct.*, 2017, 1134, pp: 226-236, DOI: 10.1016/j.molstruc.2016.12.082
16. D. Dimić, M. Petković, “Control of a Photoswitching Chelator by Metal Ions: DFT, NBO, and QTAIM Analysis“, *Int. J. Quantum Chem.*, 2016, 116 (1), pp: 27-34, DOI: 10.1002/qua.25018
17. C. Gurnani, N. Đorđević, S. Muthaiah, D. Dimić, R. Ganguly, M. Petković, D. Vidović, “Extending the chemistry of carbonates: P-N bond cleavage via an S_N2'-like mechanism“, *Chem. Commun*, 2015, 51, pp: 10762-10764, DOI: 10.1039/C5CC03194J
18. D. Dimić, A. G. Mercader, E. A. Castro, “Chalcone derivatives cytotoxicity activity against MCF-7 human breast cancer cells QSAR study“, *Chemom. Intell. Lab. Syst.*, 2015, 146, pp: 378-384, DOI: 10.1016/j.chemlab.2015.06.011
19. N. Đorđević, M. Q. Y. Tay, S. Muthaiah, R. Ganguly, D. Dimić, D. Vidović, “C-F Bond Activation by Transient Phosphenium Dications“, *Inorg. Chem.*, 2015, 54 (9), pp: 4180-4182, DOI: 10.1021/ic5031125.

Conferences

1. Avdović, D. Stojković, M. Živanović, D. Milenković, D. Dimić, Z. Marković, „Synthesis and biological activity of new coumarin derivative“, XXI Mendeleev Congress on general and applied chemistry, Saint Petersburg, 9-13.9.2019., Book of Abstracts, Volume 5, p: 108.
2. Z. Marković, Ž. Milanović, D. Dimić, J. Dimitrić-Marković, M. Stanojević-Pirković, „The interaction of protonated octopamine and norepinephrine with β 1-adrenergic receptor: Molecular docking and dynamical simulation“, 8th International Conference on Computational Engineering, Belgrade, 4-6.9.2019., Proceedings, p: 72.
3. D. Dimić, Đ. Nakarada, M. Mojović, Z. Marković, J. Dimitrić-Marković, „An experimental and theoretical study of the reactivity of selected catecholamines and their precursors towards ascorbyl radical“, 8th International Conference on Computational Engineering, Belgrade, 4-6.9.2019., Proceedings, p: 74.
4. J. Đorović, S. Jeremić, Z. Marković, D. Dimić, M. Stanojević-Pirković, “Assesment of the potential of 1,2,4-trihydroxyanthone to inhibit p-glycoprotein“, The 7th International Congress of Serbian Society of Mechanics, Sremski Karlovci, 22-26.7.2019, Proceedings, 154-155.

5. D. Milenković, D. Dimić, J. Dimitrić-Marković, Z. Marković, "The mechanistic study of the hydrogen atom abstraction between octopamine/norepinephrine and DPPH", The 7th International Congress of Serbian Society of Mechanics, Sremski Karlovci, 22-26.7.2019, Proceedings, 150-152.
6. Z. Marković, E. Avdović, D. Milenković, D. Dimić, S. Jeremić, J. Đorović, Ž. Milanović, "Ispitivanje protein-ligand interakcija humane tirozil-DNK fosfodiesteraze 1 i 3-(1-(2-hidroksifenil)amino)etiliden)hroman-2,4-diona", XXIV Savetovanje o Biotehnologiji, Čačak, 15-16.3.2019., Zbornik radova, 815-819.
7. A. Radović, D. Dimić, Đ. Nakarada, J. Dimitrić Marković, "Antioxidant and pro-oxidant properties of catecholamines and their metabolites towards hydroxyl radical", in: Šesta konferencija mladih hemičara Srbije, Beograd, 27.10.2018., Book of Abstracts, 9
8. D. Sretenović, D. Dimić, J. Dimitrić-Marković, "Theoretical and spectral analysis of 6-hydroxydopamine", in: Šesta konferencija mladih hemičara Srbije, Beograd, 27.10.2018., Book of Abstracts, 111.
9. E. Avdović, J. Đorović, D. Milenković, Ž. Milanović, D. Dimić, J. Dimitrić Marković, Lj. Joksović, A. Amić, "Antioksidativna aktivnost odabranih triazola", Drugi Kongres Biologa Srbije: osnovna i primenjena istraživanja, metodika nastave, Kladovo, 25-30.09.2018., Knjiga sažetaka, 24.
10. J. Ilić, D. Dimić, J. Dimitrić-Marković, "Structural Analysis of Antiradical Activities of Catecholamines" 17th Young Researchers' Conference, Belgrade, 5-7.12.2018., Book of Abstracts, p.: 8.
11. D. Dimić, E. Avdović, S. Trifunović, I. Potočnak, J. Dimitrić Marković, Z. Marković, "Synthesis and crystallographic structure of novel coumarine derivative with dopamine", 14th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 24-28.09.2018, Book of Proceedings, pp: 113-116.
12. A. Radović, D. Dimić, Đ. Nakarada, J. Dimitrić Marković, "EPR and theoretical investigation of hydroxy radical scavenging of selected catecholamines", 14th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 24-28.09.2018, Book of Proceedings, pp: 479-482.
13. D. Sretenović, G. Jovanović, D. Milenković, E. Avdović, J. Đorović, D. Dimić, J. Dimitrić Marković, "The effect of additional OH group on the antiradical activity in dopamine/6-Ohdopamine and octopamine/norepinephrine pairs", 14th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 24-28.09.2018, Book of Proceedings, pp: 575-578.
14. D. Dimić, D. Milenković, Z. Marković, J. Dimitrić Marković, "Theoretical Study of the Antioxidant Activity of Dopamine and its Metabolites in Water", 13th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 26-30.09.2016., Book of Proceedings, p.: 431-434.
15. D. Dimić, D. Milenković, Z. Marković, J. Dimitrić Marković, "Conformational and Vibrational Analysis of 3-Metoxytyramine", 13th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 26-30.09.2016., Book of Proceedings, p.: 143-146.
16. D. Milenković, Z. Marković, S. Jeremić, D. Dimić, J. Dimitrić Marković, "Vibrational Spectroscopic Analysis of Kaempferol: a Combined Experimental and Theoretical Study", 13th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 26-30.09.2016., Book of Proceedings, p.: 131-134.
17. D. Dimić, "Explicit Solvent Effect as a Parameter Influencing the Electronic Transitions of the Novel Molecular Switches", EwinS 2016: EUSpec Winter School on core level spectroscopies, Ajdovscina, 1.2.-11.2.2016., Book of Abstracts, p.: 57-58.

18. D. Dimić, M. Petković, "Stability and vibrational spectra of different complexes of Cu and Fe ions with (E)-N'-[1-(2-hidroxyphenyl)ethyliden]isonicotinoylhydrazide", 12th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 22-26.09.2014., Book of Proceedings, p.: 1033-1036.
19. D. Dimić, M. Petković, "Theoretical analysis of Cu⁺ and Fe²⁺ complexes of (E)-N'-[1-(2-hidroxyphenyl)ethyliden]isonicotinoylhydrazide", 12th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 22-26.09.2014., Book of Proceedings, p.: 176-179.
20. D. Dimić, B. Adnađević, J. Jovanović, "Kinetics of osmotic drying of alginate beads", 11th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, 24-28.9.2012., Book of Proceedings, p.: 197-199.
21. D. Dimić, M. Petković, "Photoisomerisation mechanism of novel molecular switches – a Theoretical Investigation", 13th Young Researchers' Conference, Belgrade, 10-12.12.2014., Book of Abstracts, p.: 22.
22. D. Dimić, D. Milenković, Z. Marković, J. Dimitrić Marković, "The mechanistic approach in the antiradical activity investigation of dopamine, epinephrine and norepinephrine towards DDPH", Četvrta konferencija Mladih hemičara Srbije, Beograd, 5.11.2016., Book of Abstracts, p.:97.
23. D. Dimić, D. Milenković, Z. Marković, J. Dimitrić Marković, "Theoretical and Experimental Investigation of the Antiradical Activity of the Selected Neurotransmitters and their Precursor L-DOPA", Konferencija Srpskog društva za računsku mehaniku, Kragujevac, 19.9.2016..
24. D. Dimić, M. Petković, "Investigation of the influence of solvent molecules on the electronic transitions of the molecular switch HAPI", Treća konferencija Mladih hemičara Srbije, Beograd, 24.10.2015., Book of Abstract, p.: 91.
25. D. Dimić, M. Petković, "Theoretical analysis of (E and Z)-N'-[1-(2-hidroxyphenyl)ethyliden]isonicotinoylhydrazide) solvation", Druga konferencija Mladih hemičara Srbije, Niš, 5-7.06.2014., Book of Abstracts, p.: 148.
26. D. Dimić, B. Adnađević, J. Jovanović, "Kinetics of osmotic drying of alginate beads", Prva konferencija Mladih hemičara Srbije, Beograd, 19-20.10.2012., Book of Abstracts, p.: 91.