

Curriculum Vitae

Dr Jasmina Dimitrić Maković, Full Professor

University of Belgrade, Faculty of Physical Chemistry

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Education

- 1989–BSc in Physical chemistry at the University of Belgrade, Faculty of Natural Sciences and Mathematics, Department of Physical Chemistry.
- 1997–MSc in Physical chemistry at the University of Belgrade, Faculty of Physical Chemistry.
- 2001–Ph.D. in Physical chemistry at the University of Belgrade, Faculty of Physical Chemistry.

Employment

- 1992–2001–A teaching assistant at the University of Belgrade, Faculty of Physical Chemistry.
- 2002–2009–Assistant professor at the University of Belgrade, Faculty of Physical Chemistry.
- 2009–2014–Associate professor at the University of Belgrade, Faculty of Physical Chemistry.
- 2014–present–Full professor at the University of Belgrade, Faculty of Physical Chemistry.

Teaching

- Molecular spectroscopy, 3rd year of undergraduate studies.
- Basics of Photochemistry, 4th year of undergraduate studies.
- Applied Photochemistry, doctoral studies.
- Instrumental Analysis, 4th year of undergraduate studies.
- New Physicochemical Methods (Vibrational spectroscopy: the application of SERS and SERRS Raman techniques, biosensors based on the surface plasmon resonance), doctoral studies.
- Redox processes in biological systems: physicochemical aspects, doctoral studies.
- Photochemistry of biomacromolecules–doctoral studies at the University of Belgrade.

University textbooks

- **Jasmina Dimitrić Marković:** *Praktični aspekti odabranih poglavlja molekulske spektrohemijske*, Fakultet za fizičku hemiju Univerziteta u Beogradu 2008. (in Serbian, 300 pages) (*Practical aspects of the selected chapters of molecular spectrochemistry*, Faculty of Physical Chemistry University of Belgrade, 2008).
- **Jasmina Dimitrić Marković:** *Fotohemija*, Fakultet za fizičku hemiju Univerziteta u Beogradu 2015. (in Serbian, 270 pages) (*Photochemistry*, Faculty of Physical Chemistry University of Belgrade, 2015).
- **Jasmina Dimitrić Marković:** *Praktikum iz molekulske spektrohemijske*, Fakultet za fizičku hemiju Univerziteta u Beogradu 2017. (in Serbian, 250 pages) (*Laboratory manual in molecular spectrochemistry*, Faculty of Physical Chemistry University of Belgrade, 2017).

Mentoring

- Mentored twenty two undergraduate students in the field of Molecular Spectroscopy and Photochemistry.
- Mentored sixteen master students in the field of Molecular Spectroscopy and Photochemistry.
- Mentored three Ph.D. theses in the field of Molecular Spectroscopy.

Research interests

- Antioxidants and oxidative stress in biological systems. Investigation of antioxidant/pro-oxidant activity of naturally occurring, or synthetically modified, biologically relevant molecules. The assessment of the antiradical activity by different spectroscopic assays (DPPH, ABTS, FRAP, ORAC, HORAC) and advanced spectroscopic (EPR) and electrochemical (cyclic voltammetry, polarography) techniques.
- Application of complementary theoretical approaches in investigating the thermodynamically and kinetically most probable mechanisms of antioxidative action, establishing quantitative structure-activity (QSAR) models.
- Synthesis, experimental (X-ray crystallography, UV-Vis, MS, FT-IR, Raman, NMR), and theoretical structural characterization of new ligands and their transition metal complexes with potential biological activity. Complexation reactions as a mean of modulating and improving the biological and pharmacological responses of compounds.
- Experimental (fluorimetric) and theoretical (molecular docking and molecular dynamic) study of the inhibitory potential of compounds towards major transport proteins and proteins with a pivotal role in the metabolic transformations. Testing of conformational and dynamic changes in proteins resulting from binding of fluorophores to the protein matrix, fluorescence quenching, and testing of the mechanism of energy transfer (*FRET*, *Förster resonance energy transfer*).
- Biological screening of compounds against various cell lines, and pathogens; cancerostatic and cytotoxic properties of new compounds and their metal complexes.

Scientific projects

National projects financed by the Ministry of Science of the Republic of Serbia

- 1996–2000; Project number 02E17, *Spectroscopy of physicochemical processes and states, structures and energetics of the systems* (Project participant).
- 2000–2005; Project number 1928, *Spectroscopy of atoms, molecules, and supramolecular structures* (Project participant).
- 2006–2010; Project number 142025, *Physical chemistry of the dynamic states and structures of the nonequilibrium systems – from monotonous to oscillatory evolution and chaos* (Project participant).
- 2011–2020; Project number 172015, *Dynamics of nonlinear physicochemical and biochemical systems with modeling and prediction of their behavior in nonequilibrium conditions* (Project participant).

International projects

- Bilateral cooperation project between the Republic of Serbia and the Republic of Croatia entitled “*Investigations of the structure-activity relationships in polyphenols*” (January 1, 2011 to December 31, 2012) (Project participant).
- Bilateral cooperation project between the Republic of Serbia and the Republic of France entitled “*Development of Theoretical Methodologies for Polyphenol Antioxidant Evaluation: Towards real-world application*” (January 1, 2013 to December 31, 2015) (Project participant).
- Serbian Science and Diaspora Collaboration Program: Knowledge Exchange Vouchers, *Development of novel tumor-selective coumarin derivatives and complexes* (2021–2023; Science Fund of the Republic of Serbia) (Principal investigator).
- DAAD Internationalisation of universities of applied sciences (HAW/FH), “*International HoME*” (established between Merseburg University of Applied Sciences, the Department of Engineering, and Natural Sciences, and the University of Belgrade, Faculty of Physical Chemistry) (Coordinator representing the Faculty of Physical Chemistry, University of Belgrade) (2021–2023); <https://www.daad.de/en/information-services-for-higher-education-institutions/further-information-on-daad-programmes/uasinternational/>
- Bilateral cooperation project between the Republic of Serbia and Germany entitled “*Design of novel organotin (IV) compounds as potential anticancer agents: New challenges in drug delivery*” (January 1, 2023 to December 31, 2024) (financed by Ministry of Science, Technological Development and Innovation of the Republic of Serbia and the German Academic Exchange Service-DAAD) (Project participant).

University and faculty service

- President of the Academic Council of Sciences and Mathematics at the University of Belgrade (2022-2025).
- Vice president of the Academic Council of Sciences and Mathematics at the University of Belgrade (2019–2022).

- The representative of the Faculty of Physical Chemistry in the Faculty Groups at the University of Belgrade (member of the Academic Council of Sciences and Mathematics) (2017–2020).
- Deputy chairman of the Faculty Council (2019-2021)
- Member of the Faculty Council
- Head of the Chair of Molecular spectroscopy, physical chemistry of plasma and quantum chemistry (2014–).
- Member of the PhD Committee at the Faculty of Physical Chemistry (2018–).
- Representative of the Faculty of Physical Chemistry at the Andrejević Foundation.

Professional society memberships

- Serbian Chemical Society
- Society of Physical Chemists of Serbia
- Scientific Society of Serbia (acceptance upon selection) (vice secretary of the Department of natural sciences); <http://nds.edu.rs/odeljenje-prirodno-matematickih-nauka/>

Visitings abroad

- *BASF, Laboratory for instrumental analysis, Bundesrepublik Deutschland* (supervisor Prof. Dr Helmut Günzler) (May-August 1988).
- *BASF, Laboratory for instrumental analysis, Bundesrepublik Deutschland* (supervisor Prof. Dr Helmut Günzler) (November 1989- May 1990).
- *Department of Chemistry „Ugo Schiff“, University of Florence, Italy* (supervisor Prof. Dr Giuletta Smulevich) (postdoctoral fellowship; May-August 2005).
- Visiting professor at *Faculty of Pharmacy and Medicine of Sapienza University of Rome, Department of Physiology „Vittorio Erspamer“, Italy* (delivered a series of 8 lectures on the subject: *Evaluation of oxidative stress in biological systems: physicochemical aspects* (April 2018, Erasmus Teaching mobility programme).
- Visiting professor at *Karolinska Institutet, Department of Clinical Neuroscience (CNS), Stockholm, Sweden* (June 2018, Erasmus Teaching mobility programme).
- Visiting professor at *Faculty of Pharmacy and Medicine of Sapienza University of Rome, Department of Biochemical Sciences "Alessandro Rossi Fanelli", Italy* (delivered two lectures to master's students in the fields of *Pharmaceutical Chemistry* and *Technology and Pharmaceutical Biotechnology*, on the subject of the influence of free radicals and oxidative stress in biological systems) (Erasmus Teaching mobility program) (May 2023).
- Visit to the *Department of Engineering and Natural Sciences, University of Applied Sciences Merseburg, Germany*, within the project "*Development of novel tumor-selective coumarin derivatives and complexes (TumorSelCoup)*" (Project number 6388843), financed by the Science Fund of the Republic of Serbia within the call of the Serbian Science and Diaspora Collaboration Program: Knowledge Exchange Vouchers (June 2023).

Cooperation at national and international level

- Institute of Information Technology, University of Kragujevac, Republic of Serbia
- Research and Development Center for Bioengineering-BIOIRC, Kragujevac, Republic of Serbia
- Faculty of Science, University of Kragujevac, Republic of Serbia
- Institute for medical research, National institute of Republic of Serbia
- Institute for Molecular Genetics and Genetic Engineering, University of Belgrade, Republic of Serbia
- Institute for Multidisciplinary Research, University of Belgrade, Republic of Serbia
- State University of Novi Pazar, Republic of Serbia
- Faculty of Agriculture, University of Belgrade, Republic of Serbia

- University of Applied Sciences Merseburg, Germany
- Karolinska Institutet, Stockholm, Sweden
- Sapienza, University of Rome, Italy
- Faculty of Agriculture, University of Osijek, Republic of Croatia
- Ruđer Bošković Institute, Zagreb, Republic of Croatia

Review activity

- Peer reviewer for *Journal of Agricultural and Food Chemistry* since 2001.
- Invited peer reviewer for a great number of international journals (*Dalton Transactions, RCS Advances, Food Chemistry, Journal of Molecular Modeling, Spectrochimica Acta A, Journal of Inorganic Biochemistry, Journal of Food and Nutrition Research, Molecules, Phytochemistry, International Journal of Molecular Science, Monatshefte fur Chemie, New Journal of Chemistry, Journal of Serbian Chemical Society, Hemijska industrija, ...*).
- Reviewer of the experimental manual under the title: "*Instrumental methods - experimental manual with examples*" by: Vesna Kuntić, Slavica Blagojević, Mara Aleksić, Aleksandra Janošević Ležaić, Leposava Pavun and Svetlana Mičić.

Other activities

- Member of the International Organizing Committee of the Conference: "*Fundamental and Applied Aspects of Physical Chemistry*" organized by the Society of Physical Chemists of Serbia, 2012, 2014, 2016, 2018, 2021, 2022.
- Member of the International Scientific Committee of *1st International Conference on Chemo and BioInformatics*, Kragujevac, 2021 Serbia (ISBN 978-86-82172-01-7)
- Founding Section Editor-in-Chief of Special Issue of Antioxidants: "*Modulators of Oxidative Stress: Chemical and Pharmacological Aspects 2021*"
https://www.mdpi.com/journal/antioxidants/special_issues/Oxidative_Stress_Modulators
- Guest Editor of the Special Issue of Biomolecules: "*Recent Advances in Anti-tumor Metal Complexes and Drug Delivery Systems*". (2023)

https://www.mdpi.com/journal/biomolecules/special_issues/Q2G8645091

- Member of the International Scientific Committee of *2nd International Conference on Chemo and BioInformatics*, Kragujevac, 2023, Serbia (ISBN 978-86-82172-02-4)

Languages

- English, full professional proficiency.
- Italian, intermediate.
- German, ZDF Certificate (*Zertifikat Deutsch als Fremdsprache, Goethe Institute, Belgrad*), Mittelstufe 2.

Selected publications

(citations 2778; i10-index-64; h-index-31)

- Jelena Vasić, Dušan Dimić, Marko Antonijević, Edina H. Avdović, Dejan Milenković, Đura Nakarada, **Jasmina Dimitrić Marković**, Maja Molnar, Melita Lončarić, Drago Bešlo, Zoran Marković, The Electronic Effects of 3-Methoxycarbonylcoumarin Substituents on Spectral, Antioxidant, and Protein Binding Properties, *International Journal of Molecular Sciences*, 24, 11820, 2023. (M21)
- Violeta Jevtović, Asma K. Alshamari, Dejan Milenković, **Jasmina Dimitrić Marković**, Zoran Marković, Dušan Dimić, The Effect of Metal Ions (Fe, Co, Ni, and Cu) on the Molecular-Structural, Protein Binding, and Cytotoxic Properties of Metal Pyridoxal-Thiosemicarbazone Complexes, *International Journal of Molecular Sciences*, 24, 11910, 2023. (M21)
- Violeta Jevtović, Munirah Sulaiman Othman Alhar, Dejan Milenković, Zoran Marković, **Jasmina Dimitrić Marković**, Dušan Dimić, Synthesis, structural characterization, cytotoxicity, and protein/DNA binding properties of pyridoxylidene-aminoguanidine-metal (Fe, Co, Zn, Cu) complexes, *International Journal of Molecular Sciences*, 24, 14745, 2023.
- Thomas Eichhorn, Franz Kolbe, Stefan Mišić, Dušan Dimić, Ibrahim Morgan, Mohamad Saoud, Dejan Milenković, Zoran Marković, Tobias Rüffer, **Jasmina Dimitrić Marković**, Goran N. Kaluderović, Synthesis, Crystallographic Structure, Theoretical Analysis, Molecular Docking Studies, and Biological Activity Evaluation of Binuclear Ru(II)-1-Naphthylhydrazine Complex, *International Journal of Molecular Sciences*, 24, 689, 2023. (M21)
- Žiko Milanović, Dušan Dimić, Erik Klein, Milan Žižić, Edina Avdović, Drago Bešlo, **Jasmina Dimitrić Marković**, Zoran Marković, Degradation Mechanisms of 4,7-dihydroxycoumarin derivatives in Advanced Oxidation Processes: Experimental and Kinetic DFT study, *International Journal of Environmental Research and Public Health*, 20(3), 2046, 2023. (M21)
- Dušan S. Dimić, Goran N. Kaludjerović, Edina H. Avdović, Dejan A. Milenković, Marko N. Živanović, Ivan Potočnak, Erika Samol'ová, Synthesis, Milena S. Dimitrijević, Luciano Saso, Zoran S. Marković, **Jasmina M. Dimitrić Marković**, Crystallographic, Quantum Chemical, Antitumor, and Molecular Docking/Dynamic Studies of 4-Hydroxycoumarin-Neurotransmitter Derivatives, *International Journal of Molecular Sciences*, 23(2), 1001, 2022. (M21)
- Dušan S. Dimić, Dejan A. Milenković, Edina H. Avdović, Đura J. Nakarada, **Jasmina M. Dimitrić Marković**, Zoran S. Marković, Advanced oxidation processes of coumarins by

hydroperoxyl radical: An experimental and theoretical study, and ecotoxicology assessment, *Chemical Engineering Journal*, 424, 130331, 2021. (M21A)

- Ana Amić, **Jasmina M. Dimitrić Marković**, Zoran Marković, Dejan Milenković, Žiko Milanović, Marko Antonijević, Denisa Mastil'ák Cagardová, Jaime Rodríguez-Guerra Pedregal, Theoretical Study of Radical Inactivation, LOX Inhibition, and Iron Chelation: The Role of Ferulic Acid in Skin Protection against UVA Induced Oxidative Stress, *Antioxidants*, 10, 1303, 2021. (M21A)
- Marko R. Antonijević, Dušica M. Simijonović, Edina H. Avdović, Andrija Cirić, Zorica D. Petrović, **Jasmina Dimitrić Marković**, Višnja Stepanić, Zoran S. Marković, Green One-Pot Synthesis of Coumarin-Hydroxybenzohydrazide Hybrids and Their Antioxidant Potency, *Antioxidants*, 10, 1106, 2021. (M21A)
- Edina H. Avdović, Isidora P. Petrović, Milena J. Stevanović, Luciano Saso, **Jasmina M. Dimitrić Marković**, Nenad D. Filipovic, Miroslav Ž. Živić, Tijana N. Cvetić Antić, Milan V. Žižić, Nataša V. Todorović, Milena Vukić, Srećko R. Trifunović, Zoran S. Marković, Synthesis and Biological Screening of New 4-Hydroxycoumarin Derivatives and Their Palladium(II) Complexes, *Oxidative Medicine and Cellular Longevity*, Volume 2021, Article ID 8849568, (M21), <https://doi.org/10.1155/2021/8849568>
- Ana Amić, Dejan Milenković, Zoran S. Marković, Denisa Cagardová, Jaime Rodríguez-Guerra Pedregal, **Jasmina Dimitrić Marković**, Impact of the phenolic O–H vs C-ring C–H bond cleavage on the antioxidant potency of dihydrokaempferol, *New J. Chem.*, 45, 7977-7986, 2021. (M22)
- Zoran Marković, Žiko B. Milanović, Dušan S. Dimić, Olivera R. Klisurić, Ivana D. Radojević, Dragana S. Šeklić, Marko N. Živanović, **Jasmina Dimitrić Marković**, Milanka Radulović, Edina H. Avdović, Synthesis, structural characterization, biological activity and molecular docking study of 4,7-dihydroxycoumarin modified by aminophenols derivatives. *Comptes Rendus Chimie*, 24(2), 215-232, 2021. (M22)
- Aleksandar Lončar, Luka Negrojević, **Jasmina Dimitrić-Marković**, Dušan Dimić, The reactivity of neurotransmitters and their metabolites towards various nitrogen-centered radicals: Experimental, theoretical, and biotoxicity evaluation, *Computational Biology and Chemistry*, 95, 107573, 2021. (M22)
- Žiko B. Milanović, Dušan S. Dimić, Edina H. Avdović, Dejan A. Milenković, **Jasmina Dimitrić Marković**, Olivera R. Klisurić, Srećko R. Trifunović, Zoran S. Marković, Synthesis and comprehensive spectroscopic (X-ray, NMR, FTIR, UV–Vis), quantum chemical and molecular docking investigation of 3-acetyl-4-hydroxy-2-oxo-2 H -chromen-7-yl acetate, *Journal of Molecular Structure* 1225, 129256, 2021. (M22)
- Dejan A. Milenković, Dušan S. Dimić, Edina H. Avdović, Ana D. Amić, **Jasmina M. Dimitrić Marković**, Zoran S. Marković, Advanced oxidation process of coumarins by hydroxyl radical: towards the new mechanism leading to less toxic products, *Chemical Engineering Journal*, 395, 124971, 2020. (M21A)
- Ana Amić, Zoran Marković, **Jasmina M. Dimitrić Marković**, Dejan Milenković, Višnja Stepanić, Antioxidative potential of ferulic acid phenoxyl radical, *Phytochemistry* 170, 112218, 2020. (M21)
- Dušan Dimić, Žiko Milanović, Goran Jovanović, Dragana Sretenović, Dejan Milenković, Zoran Marković, **Jasmina Dimitrić Marković**, Comparative Antiradical Activity and Molecular

Docking/Dynamics Analysis of Octopamine and Norepinephrine: the Role of OH Groups, *Computational Biology and Chemistry*, 84, 107170, 2020. (M22)

- Edina H. Avdović, Dušan S. Dimić, **Jasmina M. Dimitrić Marković**, Nenad Vuković, Milanka Đ. Radulović, Marko N. Živanović, Nenad D. Filipović, Jelena R. Đorović, Srećko R. Trifunović, Zoran S. Marković, Spectroscopic and theoretical investigation of the potential anti-tumor and anti-microbial agent, 3-(1-((2-hydroxyphenyl)amino)ethylidene)chroman-2,4-dione, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 2206, 421-429, 2019. (M21)
- Dušan S. Dimić, Zoran S. Marković, Luciano Saso, Edina H. Avdović, Jelena R. Đorović, Isidora P. Petrović, Danijela D. Stanisavljević, Milena J. Stevanović, Ivan Potočňák, Erika Samolová, Srećko R. Trifunović, **Jasmina M. Dimitrić Marković**, Synthesis and Characterization of 3-(1-((3,4-Dihydroxyphenethyl) amino)ethylidene)-chroman-2,4-dione as a Potential Antitumor Agent, *Oxidative Medicine and Cellular Longevity*, Volume 2019, Article ID 2069250. (M21) <https://doi.org/10.1155/2019/2069250>
- Ana Amić, Zoran Marković, Erik Klein, **Jasmina M. Dimitrić Marković**, Dejan Milenković, Theoretical study of the thermodynamics of the mechanisms underlying antiradical activity of cinnamic acid derivatives, *Food Chem*, 246, 481-489, 2018. (M21A)
- Dušan Dimić, Dejan Milenković, Jelica Ilić, Biljana Šmit, Ana Amić, Zoran Marković, **Jasmina M. Dimitrić Marković**, Experimental and theoretical elucidation of structural and antioxidant properties of vanillylmandelic acid and its carboxylate anion, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 198, 61-70, 2018. (M21)
- Edina H. Avdović, Dejan Milenković, **Jasmina M. Dimitrić Marković**, Jelena Đorović, Nenad Vuković, Milena D. Vukić, Verica V. Jevtić, Srećko R. Trifunović, Ivan Potočňák, Zoran Marković, Synthesis, spectroscopic characterization (FT-IR, FT-Raman, and NMR), quantum chemical studies and molecular docking of 3-(1-(phenylamino)ethylidene)-chroman-2,4-dione, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 195, 31-40, 2018. (M21)
- **Jasmina M. Dimitrić Marković**, Boris Pejín, Dejan Milenković, Dragan Amić, Nebojša Begović, Miloš Mojović, Zoran S. Marković, Antiradical activity of delphinidin, pelargonidin and malvin towards hydroxyl and nitric oxide radicals: the energy requirements calculations as a prediction of the possible antiradical mechanisms, *Food Chem*, 218, 440-446, 2017. (M21A)
- Jelena Tošović, Svetlana Marković, **Jasmina M. Dimitrić Marković**, Miloš Mojović, Dejan Milenković, Antioxidative mechanisms in chlorogenic acid, *Food Chem*, 237, 390-398, 2017 (M21A)
- **Jasmina M. Dimitrić Marković**, Dejan Milenković, Dragan Amić, Miloš Mojović, Igor Pašti Zoran S. Marković, The preferred radical scavenging mechanisms of fisetin and baicalein towards oxygen-centred radicals in polar, protic and aprotic, solvents, *RSC Advances*, 4, 32228-32236, 2014. (M21)