CURRICULUM VITAE

Personal data:

Name and surname: Dušan Mladenović
Date and place of birth: 02.05.1992., Vranje, Republic of Serbia
Research title: Research associate
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Education:

2017 - 2024: PhD in Physical chemistry / Electrochemistry
Doctoral dissertation title: Mn_2O_3, TiO_2 and NiO based electrocatalysts with Ni and Pt for oxygen reduction and evolution reaction. University of Belgrade – Faculty of Physical Chemistry, Belgrade, Republic of Serbia.

2016 - 2017: Master of Physical chemistry / Biophysical chemistry
Thesis title: *Ex vivo* testing of antioxidant activity of liposomes with encapsulated vitamin C and incorporated vitamin E. University of Belgrade – Faculty of Physical Chemistry, Belgrade, Republic of Serbia.

2011 - 2016: BSc. in Physical chemistry
Graduate project in fuel cells development: Project title: Preparation and characterization of fuel cells catalytic layer based on silver in three-electrode electrochemical cell with the gas working electrode. University of Belgrade – Faculty of Physical Chemistry, Belgrade, Republic of Serbia.

2007 - 2011: Pharmaceutical technician.
Medical High School Vranje, Vranje, Republic of Serbia.

1999 - 2007: Elementary school „Jovan Jovanović Zmaj“, Vranje, Republic of Serbia

Work experience:

2024 – : Research associate, University of Belgrade – Faculty of Physical Chemistry, Belgrade, Republic of Serbia.

2020 – 2024: Research assistant, University of Belgrade – Faculty of Physical Chemistry, Belgrade, Republic of Serbia.

2017 – 2020: Junior research assistant, University of Belgrade – Faculty of Physical Chemistry, Belgrade, Republic of Serbia.

Main research:

Development and characterisation of electrocatalysts for energy storage and conversion.

Research projects:

2025 – : Role of macroautophagy in lipid nanoparticle mRNA delivery and adjuvanticity (REDIRECT). Funded by the Science Fund of the Republic of Serbia – PROMIS program 2024-2026.

2022 – 2024: Advanced Conducting Polymer-Based Materials for Electrochemical Energy Conversion and Storage, Sensors and Environmental Protection. Funded by the Science Fund of the Republic of Serbia – IDEAS program 2022-2024.

2022 – 2024: Development of state of health monitoring device for battery management systems in electric vehicles, a bilateral project between the Republic of Serbia and India.

2020 – 2021: Tailoring of biobased carbon materials and making its composite with metal oxides/sulfides for high performance supercapacitors, a bilateral project between the Republic of Serbia and Portugal.

2020 – 2022: High-capacity electrodes for aqueous rechargeable multivalent-ion batteries and supercapacitors: Next step towards a hybrid model. Funded by the Science Fund of the Republic of Serbia – PROMIS program 2020-2022.

2017 – 2020: National Project: Lithium-ion batteries and fuel cells: investigation and development, Project III45014. Founded by the Ministry of education, science and technological development of the Republic of Serbia.

Membership and service:

2020 - International Society of Electrochemistry (ISE)

Publications:

Articles

1. **D. Mladenović**, M. Samancı, D.M.F. Santos, A. Bayrakçeken, B. Šljukić, *Carbon aerogel and xerogel composites with polypyrrole as electrocatalysts for oxygen reduction reaction,* Surf. Interfaces. 60 (2025) 106071. https://doi.org/10.1016/J.SURFIN.2025.106071.

2. A. Mladenović, Y. Aykut, **D. Mladenović**, D.M.F. Santos, A. Bayrakçeken, G.S.P. Soylu, B. Šljukić, *Platinum on nitrogen-doped Mn_2O_3–NiO as a bifunctional electrocatalyst for air cathodes*, J. Phys. Chem. Solids 199 (2025) 112575. https://doi.org/10.1016/J.JPCS.2025.112575.

3. M. Gandara, B. Fortes Palley, L. Rakočević, **D. Mladenović**, A. Popović-Bijelić, B. Šljukić, E. S. Gonçalves, *Electrochemical Performance of Niobium MXenes with Lanthanum*, ACS Appl. Mater. Interfaces. 16 (39) (2024) 52277–52289. https://doi.org/10.1021/acsami.4c10354

4. M. Gandara, M. Nakagawa de Arruda, J. M. Kruszynski Assis, M. Martins, L. Rakočević, **D. Mladenović**, B. Šljukić, E. S. Gonçalves, *Nb-MXene as Promising Material for Electrocatalysis in Energy Conversion (OER/ORR) and Storage*, Appl. Mater. Today 40 (2024) 102356. https://doi.org/10.1016/j.apmt.2024.102356

5. M. Gandara, **D. Mladenović**, M.J.O. Martins, L. Rakočević, J.M.K. Assis, B. Šljukić, E.S. Gonçalves, *MAX Phase (Nb_4AlC_3) for electrocatalysis applications*, Small (2024) 2310576. https://doi.org/10.1002/SMLL.202310576

6. **D. Mladenović**, Y. Aykut, A. B. Yurtcan, G.S.P. Soylu, D.M.F. Santos, Š. Miljanić, B. Šljukić, *Optimizing oxygen electrode bifunctionality with platinum and nickel nanoparticle-decorated nitrogen-doped binary metal oxides*, Processes 12 (2024) 453. https://doi.org/10.3390/pr12030453

7. **D. Mladenović**, A. Mladenović, D.M.F. Santos, A.B. Yurtcan, Š. Miljanić, S. Mentus, B. Šljukić, *Transition metal oxides for bifunctional ORR/OER electrocatalysis in unitized regenerative fuel cells*, Journal of Electroanalytical Chemistry. 946 (2023) 117709. https://doi.org/10.1016/j.jelechem.2023.117709

8. **D. Mladenović**, E. Daş, D.M.F. Santos, A. Bayrakçeken Yurtcan, B. Šljukić, *Highly Efficient Oxygen Electrode Obtained by Sequential Deposition of Transition Metal-Platinum Alloys on Graphene Nanoplatelets*, Materials. 16 (2023) 3388. https://doi.org/10.3390/ma16093388

9. F. Gusmão, **D. Mladenović**, K. Radinović, D.M.F. Santos, B. Šljukić, *Polyoxometalates as electrocatalysts for electrochemical energy conversion and storage*, Energies, 15 (2022), 9021. https://doi.org/10.3390/en15239021

10. A. Paul, K. Radinović, S. Hazra, **D. Mladenović**, B. Šljukić, R. Ahmed Khan, M.F.C. Guedes da Silva, A.J.L. Pombeiro, *Electrocatalytic behavior of an amide functionalized Mn(II) coordination polymer on ORR, OER and HER*, Molecules, 27(21), (2022), 7323. https://doi.org/10.3390/molecules27217323

11. M.J. Vujković, **D. Mladenović**, M. Milović, T. Petrović, D. Bajuk-Bogdanović, B. Šljukić Paunković, S. Mentus, *Sodium-pillared vanadium oxides as next-gen materials: Does co-inserted water control the cyclic stability of vanadates in an aqueous electrolyte?* Electrochim. Acta. 425 (2022) 140603. https://doi.org/10.1016/j.electacta.2022.140603

12. K. Radinović, **D. Mladenović**, J. Milikić, M. Alsaiari, F.A. Harraz, D.M.F. Santos, B. Šljukić, *Tuning electrocatalytic activity of gold silver nanoparticles on reduced graphene oxide for oxygen reduction reaction*, J. Electrochem. Soc. 169 (2022) 054501. https://doi.org/10.1149/1945-7111/ac67b7

13. **D. Mladenović**, E. Daş, D.M.F. Santos, A.B. Yurtcan, Š. Miljanić, B. Šljukić, *Boosting oxygen electrode kinetics by addition of cost-effective transition metals (Ni, Fe, Cu) to platinum on graphene nanoplatelets*, J. Alloys Compd. 905, (2022) 164156. https://doi.org/10.1016/j.jallcom.2022.164156

14. **D. Mladenović**, D.M.F. Santos, G. Bozkurt, G.S.P. Soylu, A.B. Yurtcan, Š. Miljanić, B. Šljukić, *Tailoring metal-oxide-supported PtNi as bifunctional catalysts of superior activity and stability for unitised regenerative fuel cell applications*, Electrochem. Commun. 124 (2021) 106963. https://doi.org/10.1016/j.elecom.2021.106963

15. J. Milikić, A. Balčiūnaitė, Z. Sukackienė, **D. Mladenović**, D.M.F. Santos, L. Tamašauskaitė-Tamašiūnaitė, B. Šljukić, *Bimetallic co-based (CoM, M = Mo, Fe, Mn) coatings for high-efficiency water splitting*, Materials (Basel). 14 (2021) 1–15. https://doi.org/10.3390/ma14010092

16. **D. Mladenović**, M. Vujković, S. Mentus, D.M.F. Santos, R.P. Rocha, C.A. C. Sequeira, J.L. Figueiredo, B. Šljukić, *Carbon-Supported Mo_2C for Oxygen Reduction Reaction Electrocatalysis*, Nanomaterials. 10 (2020). https://doi.org/10.3390/nano10091805

Symposiums and meetings

1. **D. Mladenović**, Y. Aykut, A. B. Yurtcan, G. S. P. Soylu, D. M. F. Santos, Š. Miljanić, B. Šljukić, *Nitrogen-doped PtNi decorated binary metal oxides for ORR and OER*, Twenty-Second Young Researchers Conference – Materials Science and Engineering, Belgrade, Serbia, 4-6 December 2024, Book of Abstract pp. 52, ISBN 978-86-80321-39-4.

2. M. Gandara, B. Fortes Palley, L. Rakočević, **D. Mladenović**, B. Šljukić, E. S. Gonçalves, *Niobium MXenes with lanthanum: electrochemical performance in microsupercapacitors*, 25th Jubilee annual conference on material science Yucomat 2024 and 13th World Round Table conference on sintering XIII WRTCS 2024, Herceg Novi, Montenegro, 2-6 September 2024., Book of Abstracts pp. 112, ISBN 978-86-919111-9-5.

3. B. Šljukić, **D. Mladenović**, K. Gočanin, Y. Aykut, D. M. F. Santos, A. Bayrakçeken, *Catalytic performance of Pt-decorated nitrogen-doped Mn_2O_3-NiO for oxzgen reduction and evolution*, 9^{th} Regional Symposium on Electrochemistry – South-East Europe RSE-SEE 9, Novi Sad, Serbia, 3-7 June 2024., Book of Abstract pp. 94, ISBN 978-86-7132-085-6.

4. B. Šljukić, M. Gandara, **D. Mladenović**, E. S. Gonçalves, *MXene as emerging materials for electrochemical energy conversion and storage*, 9^{th} Regional Symposium on Electrochemistry – South-East Europe RSE-SEE 9, Novi Sad, Serbia, 3-7 June 2024., Book of Abstract pp. 24, ISBN 978-86-7132-085-6.

5. **D. Mladenović**, A. Mladenović, D.M.F. Santos, A. B. Yurtcan, Š. Miljanić, S. Mentus, B. Šljukić, *Bifunkcionalni elektrokatalizatori na bazi prelaznih metala za reakcije redukcije i evolucije kiseonika,* Savremena stremljenja u elektrohemiji u procesu prelaska na obnovljive izvore energije: Naučni skup posvećen 100-godišnjici rođenja inostranog člana SANU Dž. O'M. Bokrisa, Srpska Akademija Nauka i Umetnosti, 5 Jun 2023, Knjiga izvoda, pp. 15

6. M. Vujković, T. Petrović, **D. Mladenović**, M. Milović, D. Bajuk-Bogdanović, B. Šljukić-Paunković, S. Mentus, *Sodium-pillared vanadium oxide decorated with carbon particles as electrode material for more sustainable energy storage of the future,* Second International Conference ELMINA, Belgrade, Serbia, 22-26 August 2022, Institute of Technical Sciences of SASA, Book of Abstracts pp. 172, ISBN 978-86-7025-943-0.

7. **D. Mladenović**, G Backović, K.K. Upadhyay, M.F. Montemor, B. Šljukić, *FeCoS electrocatalysts for efficient oxygen evolution and water splitting*, 73rd Annual Meeting of the International Society of Electrochemistry, Online Meeting, 12 - 16 September 2022.

8. M.J. Vujković, **D. Mladenović**, M. Milović, T. Petrović, D. Bajuk-Bogdanović, B. Šljukić Paunković, S. Mentus, *Cyclic stability of sodium-pillared vanadium oxides-carbon composite in aqueous electrolytes,* Contemporary batteries and supercapacitors, COIN2022, Belgrade, Serbia, 1-2 June 2022, Book of abstracts, pp. 31, ISBN 978-86-82139-86-7.

9. **D. Mladenović**, E. Daş, D.M.F. Santos, A.B. Yurtcan, Š. Miljanić, B. Šljukić, *OER/ORR bifunctional electrocatalysts based on PtM (M=Ni,Fe,Cu) supported on graphene nanoplates*, First Workshop of the Laboratory for Physics of Materials and Emerging Technologies, LaPMET, Online meeting, Lisbon, Portugal, 23-24 September 2021, Book of abstracts, pp. 25.

10. **D. Mladenović**, E. Daş, D.M.F. Santos, A.B. Yurtcan, Š. Miljanić, B. Šljukić, *Simultaneously deposited PtM (M = Ni, Fe, Cu) on graphene nanoplatelet as bifunctional oxygen electrode catalysts*, 4th International Meeting on Materials Science for Energy Related Applications, 4IMMSERA, Belgrade, Serbia, 22-23 September 2021, Book of abstracts, pp. 40-41, ISBN 978-86-82139-82-9.

11. **D. Mladenović**, E. Daş, D.M.F. Santos, A.B. Yurtcan, B. Šljukić, *Design and characterization of PtM/graphene nanoplatelets (M=Ni, Fe, Cu) as bifunctional electrocatalysts for unitized regenerative fuel cells*, 72st Annual Meeting of the International Society of Electrochemistry, Hybrid meeting, Jeju Island, South Korea, 29 August - 03 September 2021.

12. K. Radinović, **D. Mladenović**, J. Milikić, D.M.F. Santos, B. Šljukić, *Catalytic Performance of AuAg/rGO Electrodes for Oxygen Reduction Reaction in Alkaline Medium*, 72st Annual

Meeting of the International Society of Electrochemistry, Hybrid meeting, Jeju Island, South Korea, 29 August - 03 September 2021.

13. **D. Mladenović**, M. Milović, B. Šljukić, S. Mentus, M. Vujković, *Sodium-vanadium oxide/carbon as next-gen anode material for alkaline-ion aqueous rechargeable batteries*, 72st Annual Meeting of the International Society of Electrochemistry, Hybrid meeting, Jeju Island, South Korea, 29 August - 03 September 2021.

14. **D. Mladenović**, D.M.F. Santos, G. Bozkurt, G.S.P. Soylu, A. B. Yurtcan, Š. Miljanić, B. Šljukić, *Mn_2O_3-based catalysts for regenerative fuel cell applications*, 71st Annual Meeting of the International Society of Electrochemistry, Online meeting, 31 August - 04 September 2020, Book of abstracts, pp. 434.

15. **D. Mladenović,** A. Pavićević, Đ. Nakarada, A. Vesković, A. Popović-Bjelić, M. Mojović, *Topical delivery of liposome encapsulated ascorbic acid – 2D EPR imaging study*, 21st Central European NMR Symposium & Bruker Users Meeting, 21st CEUM, Belgrade, Serbia, 4-5 September 2019, Book of abstracts, pp. 54-55, ISBN 978-86-7220-100-0

16. A. Vesković, J. Kostić, **D. Mladenović**, Đ. Nakarada, *Application of EPR spectroscopy for in vitro studies of PLGA particles degradation,* XII International Scientific Conference Contemporary Materials 2019, Banja Luka, Bosnia and Herzegovina, 1-3 September 2019, Proceedings, pp. 29-40, ISBN 978-99976-42-30-1

17. **D. Mladenović**, Ž. Mravik, Z. Jovanović, Š. Miljanić, *Testing of graphene oxide enriched with Nafion as a material for fuel cell membranes*, 3rd International Meeting on Materials Science for Energy Related Applications, 3IMMSERA, Belgrade, Serbia, 25-26 September 2018, Book of abstracts, pp. 106-107, ISBN 978-86-82139-72-0

18. **D. Mladenović**, I. Stoševski, Š. Miljanić, *Development of a gas-flow electrochemical half-cell to be used for an in-situ investigation of hydrogen fuel cell electrodes*, 3rd International Symposium on Materials for Energy Storage and Conversion 2018, mESC-is 2018, Belgrade, Serbia, 10-12 September 2018, Book of abstracts, pp. 99, ISBN 978-86-7306-140-5