НАУЧНОМ ВЕЋУ
УНИВЕРЗИТЕТА У БЕОГРАДУ–
ИНСТИТУТА ЗА МУЛТИДИСЦИПЛИНАРНА ИСТРАЖИВАЊА

Одлуком Научног већа Универзитета у Београду – Института за мултидисциплинарна истраживања, донетој на десетој седници одржаној електронским путем 02.10.2024. године, именовани смо за чланове Комисије за оцену испуњености услова др Милене Дојчиновић, истраживача сарадника, за стицање научног звања научни сарадник.

На основу приложене документације и анализе научноистраживачког рада кандидаткиње др Милене Дојчиновић подносимо Научном већу Универзитета у Београду – Института за мултидисциплинарна истраживања следећи

ИЗВЕШТАЈ

1. Биографија

Др Милена Дојчиновић рођена је 16.08.1994. године у Београду, у општини Савски венац. Завршила је основну школу „Љупче Николић“ у Алексинцу 2009. године. Завршила је Прву београдску гимназију 2013. године. Основне академске студије на Факултету за физичку хемију Универзитета у Београду уписала је 2013. године а завршила 2017. године са просеком 9,03. Одбранила је дипломски рад на тему „Физичкохемијска карактеризација преисторијске керамике-Кличевачки идол“ са оценом 10 чиме је стекла звање дипломираног хемичара. Мастер студије је уписала и завршила на Факултету за физичку хемију Универзитета у Београду 2018. године са просечном оценом 9,5. Одбранила је мастер рад на тему „Физичкохемијска и електрохемијска својства цинк оксида синтетисаног сол-гел поступком“ са оценом 10 чиме је стекла звање мастер физикохемичар. Током основних и мастер студија учествовала је у међународној размени студената у IAESTE организацији, у раду Студентског парламента Факултета за физичку хемију као и у Савету Факултета за физичку хемију. Докторске студије на Факултету за физичку хемију Универзитета у Београду уписала је 11.10.2018. године. Одлуком Научног већа Универзитета у Београду – Институт за мултидисциплинарна истраживања изабрана је у звање истраживач приправник 18.10.2018. године. Запослила се на Институту за мултидисциплинарна истраживања Универзитета у Београду 01.11.2018. године. До краја пројектног финансирања 2019. године радила је на пројектима „Развој литијум-јонских батерија“ и „Синтеза и карактеризација 0-3D наноматеријала“ финансираних од стране Министарства просвете, науке и технолошког развоја Републике Србије. Ангажована је и као истраживач у Центру изузетних вредности за зелене технологије Универзитета у Београду–Института за мултидисциплинарна истраживања (руководилац центра је др Зорица Бранковић). Истраживачки рад кандидата обухвата иновативне методе синтезе металних оксида, њихову карактеризацију и примену у температурским сензорима,

сензорима релативне влажности ваздуха, фотокатализи, складиштењу електричне енергије и друго. Учествовала је на међународним научним конференцијама излажући резултате својих истраживања. У звање истраживач сарадник изабрана је 23.11.2021. године.

Докторску дисертацију под називом: „Синтеза, карактеризација и примена $NiMn_2O_4$ у суперкондензаторима и сензорима температуре и влаге" одбранила је 27.09.2024. године на Факултету за Физичку хемију Универзитета у Београду чиме је завршила докторске академске студије са просеком 9,20 и стекла титулу доктор наука – физичкохемијске науке.

2. Библиографија

Досадашња библиографија др Милена Дојчиновић обухвата **42** библиографске јединице са укупно 113,97 М поена и укупним импакт фактором (IF) који износи 61,203. Кандидаткиња је до сада објавила тринаест научних радова у међународним часописима од којих су **3** рада објављена у међународним часописима изузетних вредности (**M21a**), **7** радова објављено је у врхунским међународним часописима (**M21**) и **3** рада објављена су у истакнутим међународним часописима (**M22**). Кандидаткиња има **5** саопштења са међународних скупова штампаних у целини (**M33**), **24** саопштења са међународних скупова штампаних у изводу (**M34**) и одбрањену докторску дисертацију (**M70**).

Радови публиковани у међународним часописима изузетних вредности категорије – M21a (2*10+1*5,56=25,56 М поена)

1. Dojcinovic, M. P., Vasiljevic, Z., Pavlovic, V. P., Barišic, D., Pajic, D., Tadic, N. B., Nikolic, M. V. Mixed Mg-Co spinel ferrites: Structure, morphology, magnetic and photocatalytic properties. *J Alloys Compd* 855, 157429–157429, 2021. https://doi.org/10.1016/j.jallcom.2020.157429. **IF_{2021}=6,371, Metallurgy & Metallurgical Engineering 5/79**

2. Rizzotto, F., Vasiljevic, Z. Z., Stanojevic, G., Dojcinovic, M. P., Jankovic-Castvan, I., Vujancevic, J., Tadic, N. B., Brankovic, G., Magniez, A., Vidic, J., Nikolic, M. V. Antioxidant and cell-friendly Fe_2TiO_5 nanoparticles for food packaging application. *Food Chemistry* 390, 133198–133198, 2022. https://doi.org/10.1016/j.foodchem.2022.133198. **IF_{2021}= 9,231, Food Science & Technology 8/144**

Према правилнику, после нормирања поена са више од 7 аутора, =5,56 М поена

3. Vasiljevic, Z. Z., Vunduk J., Dojcinovic, M. P., Mickovic, G., Tadic, N. B., Vidic, J., Nikolic, M.V. ZnO and Fe_2TiO_5 nanoparticles obtained by green synthesis as active components of alginate food packaging films *Food Packag Shelf Life* 43, 101280, 2024. https://doi.org/10.1016/j.fpsl.2024.101280. **IF_{2023}= 8,5, Food Science&Technology 8/141.**

Радови публиковани у врхунским међународним часописима категорије – М21 (1*5,72+6*8=53,72 М поена)

4. Vasiljevic, Z. Z., Dojcinovic, M. P., Vujancevic, J., Jankovic-Castvan, I., Ognjanovic, M., Tadic, N., Stojadinovic, S., Brankovic, G., Nikolic, M. V. Photocatalytic degradation of methylene blue under natural sunlight using iron titanate nanoparticles prepared by a modified sol-gel method. *R Soc Open Sci* 7(9), 200708–200708, 2020. https://doi.org/10.1098/rsos.200708. **IF$_{2018}$=2,693, Multidisciplinary Sciences 20/69**

Према правилнику, после нормирања поена са више од 7 аутора, =5,72 М поена.

5. Nikolic, M. V., Krstic, J., Labus, N., Lukovic, M., Dojcinovic, M. P., Radovanovic, M., Tadic, N. B. Structural, morphological and textural properties of iron manganite ($FeMnO_3$) thick films applied for humidity sensing, *Mater Sci Eng. B: Solid-State Mater Adv Technol* 257, 114547–114547, 2020. https://doi.org/10.1016/j.mseb.2020.114547. **IF$_{2019}$=4,706, Materials Science, Multidisciplinary 78/314**

6. Nikolic, M. V., Dojcinovic, M. P., Vasiljevic, Z. Z., Lukovic, M. D., Labus, N. Nanocomposite Zn_2SnO_4/SnO_2 thick films as a humidity sensing material, *IEEE Sens J* 20(14), 7509–7516, 2020. https://doi.org/10.1109/JSEN.2020.2983135. **IF$_{2021}$=4,325, Engineering, Electrical & Electronic 83/277**

7. Dojcinovic, M. P., Vasiljevic, Z., Krstic, J. B., Vujancevic, J. D., Markovic, S., Tadic, N. B., Nikolic, M. V. Electrospun nickel manganite ($NiMn_2O_4$) nanocrystalline fibers for humidity and temperature sensing. *Sensors* 21(13), 4357–4357, 2021. https://doi.org/10.3390/s21134357. **IF$_{2021}$=3,576 Chemistry, Analytical 26/87**

8. Dojcinovic, M. P., Vasiljevic, Z., Kovac, J., Tadic, N. B., Nikolic, M. V. Nickel manganite-sodium alginate nano-biocomposite for temperature sensing. *Chemosensors* 9(9), 241–241, 2021. https://doi.org/10.3390/chemosensors9090241. **IF$_{2021}$=4,229 Chemistry, Analytical 25/87**

9. Dojcinovic, M. P., Vasiljevic, Z. Z., Rakocevic, L., Pavlovic, V. P., Ammar-Merah, S., Vujancevic, J. D., Nikolic, M. V. Humidity and temperature sensing of mixed nickel–magnesium spinel ferrites. *Chemosensors* 11(1), 34–34, 2023. https://doi.org/10.3390/chemosensors11010034. **IF$_{2023}$=3,7 Chemistry, Analytical22/86**

10. Dojcinovic, M. P., Stojkovic Simatovic, I., Nikolic, M. V. Supercapacitor electrodes: is nickel foam the right substrate for active materials? *Materials* 17, 1292, 2024. https://doi.org/10.3390/ma17061292. **IF$_{2023}$=3,1 Metallurgy&Metallurical Engineering19/80**

Радови публиковани у истакнутим међународним часописима категорије – М22 (1*3,57+1*3,12+1*5=11,69)

11. Vasiljevic, Z. Z., Dojcinovic, M. P., Krstic, J. B., Ribic, V., Tadic, N. B., Ognjanovic, M., Auger, S., Vidic, J., Nikolic, M. V. Synthesis and antibacterial activity of iron manganite ($FeMnO_3$) particles against the environmental bacterium *Bacillus subtilis*. *RSC Adv*, 10(23), 13879–13888, 2020. https://doi.org/10.1039/D0RA01809K. **IF$_{2021}$=4,036 Chemistry, Mulitidisciplinary 75/180**

Према правилнику, после нормирања поена са више од 7 аутора, =3,57 М поена.

12. Vasiljevic, Z. Z., Dojcinovic, M. P., Vujancevic, J. D., Spreitzer, M., Kovac, J., Bartolic, D., Markovic, S., Jankovic-Častvan, I., Tadic, N. B., Nikolic, M. V. Exploring the impact of calcination parameters on the crystal structure, morphology, and optical properties of electrospun Fe_2TiO_5 nanofibers *RSC Adv* 11(51), 32358–32368, 2021. https://doi.org/10.1039/D1RA05748K. **IF_{2021}=4,036 Chemistry, Mulitidisciplinary 75/180**

Према правилнику, после нормирања поена са више од 7 аутора, =3,12 М поена.

13. Nikolic, M. V., Ammar, S., Ilic, N., Singh, C., Dojcinovic, M. P., Jotania, R. B. Ferroelectric, magnetic and dielectric properties of $SrCo_{0.2}Zn_{0.2}Fe_{11.6}O_{18.8}$ hexaferrite obtained by "one-pot" green sol-gel synthesis utilizing citrus reticulata peel extract. *Crystals* 13(10), 1452–1452, 2023. https://doi.org/10.3390/cryst13101452. **IF_{2022}=2,7 Crystallography 9/26**

Саопштење са међународног скупа штампаног у целини – М33 (5*1=5 поена)

14. Nikolic, M. V., Dojcinovic, M. P., Vasiljevic, Z. Z., Lukovic, M. D., Labus, N. Nanocomposite Zn_2SnO_4/SnO_2 thick films as a humidity sensing material. IEEE International Conference on Flexible and Printable Sensors and Systems (IEEE FLEPS 2019) 2019. https://doi.org/10.1109/FLEPS.2019.8792304

15. Nikolic, M. V., Lukovic, M., Dojcinovic, M. P., Vasiljevic, Z., Labus, N. J. Application of iron manganite thick films for humidity sensing. 42nd International Spring Seminar on Electronics Technology (IEEE ISSE 2019), 2019. https://doi.org/10.1109/ISSE.2019.8810291

16. Nikolic, M. V., Vasiljevic, Z. Z., Dojcinovic, M. P., Vujancevic, J. and Radovanovic, M. Impact of microstructure on humidity influence on complex impedance of iron manganite. 43rd International Spring Seminar on Electronics Technology (IEEE ISSE 2020), 2020, https://doi.org/10.1109/ISSE49702.2020.9120967

17. Nikolic, M. V., Vasiljevic, Z.Z., Dojcinovic, M. P., Tadic, N. B., Radovanovic M., and Stojanovic, G. M. Nanocrystalline nickel manganite synthesis by sol-gel combustion for flexible temperature sensors. IEEE International Conference on Flexible and Printable Sensors and Systems (IEEE FLEPS 2020), Manchester, UK, 2020, pp. 1-4, https://doi.org/10.1109/FLEPS49123.2020.9239569

18. Nikolic, M. V., Vasiljevic, Z. Z., Dojcinovic, M. P. NTC thermistor ferrite composite for temperature sensing with reduced humidity influence. 47th International Spring Seminar on Electronics Technology (IEEE ISSE 2024), 2024. https://doi.org/10.1109/ISSE61612.2024.10604149.

Саопштење са међународног скупа штампано у изводу – М34 (24*0,5=12 поена)

1. Dojcinovic, M. P., Markovic, S., Stojadinovic, S., Rac, V., Jankovic Castvan, I., Stojkovic Simatovic, I. Synthesis and characterisation of ZnO synthesized by glycine-nitrate combustion process. Publication: Program and the Book of Abstracts. Publisher: Institute of Technical Sciences of SASA. Conference: 17th Young Researchers' Conference Materials Sciences and Engineering (17YRC), Belgrade, Serbia, December 5-7, 2018.

2. Nikolic, M. V., Lukovic, M. D., Vasiljevic, Z. Z., Dojcinovic, M. P., Labus, N. Humidity sensing potential of iron manganite ($FeMnO_3$). Publication: Abstracts. Conference: International

Workshop on Woman in Ceramic Science (WoCeram2019), Budapest, Hungary, April 7-9, 2019.

3. Dojcinovic, M. P., Stojkovic Simatovic, I., Markovic, S., Jankovic Castvan, I., Bajuk Bogdanovic, D., Stojadinovic, S., Rac, V., Nikolic, M. V. Structural, photocatalytic and photoelectrochemical characteristics of ZnO nanoparticles synthesized by a glycine-nitrate process. Publication: Abstracts. Conference: International Workshop on Woman in Ceramic Science (WoCeram2019), Budapest, Hungary, April 7-9, 2019.

4. Vasiljevic, Z. Z., Dojcinovic, M. P., Vujancevic, J., Tadic, N. B., Nikolic, M. V. Nanocrystalline iron-manganite ($FeMnO_3$) applied for humidity sensing. Publication: Programme and the Book of Abstracts. Publisher: Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia. Conference: 5th Conference of the Serbian Society for Ceramic Materials (5CSCS-2019), Belgrade, Serbia, June 11-13 2019.

5. Vasiljevic, Z. Z., Dojcinovic, M. P., Pavlovic, V. P., Vujancevic, J., Markovic, S., Tadic, N. B., Nikolic, M. V. Influence of Co^{2+} ions on photocatalytic properties of $MgFe_2O_4$ ferrites. Publication: Programme and the Book of Abstracts. Publisher: Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia. Conference: 5th Conference of the Serbian Society for Ceramic Materials (5CSCS-2019), Belgrade, Serbia, June 11-13, 2019.

6. Nikolic, M. V., Lukovic, M. D., Dojcinovic, M. P., Vasiljevic, Z. Z. Nanocrystalline SnO_2-Zn_2SnO_4 composite thick films applied as humidity sensors. Publication: Programme and the Book of Abstracts. Publisher: Institute for Multidisciplinary Research, University of Belgrade. Conference: 5th Conference of the Serbian Society for Ceramic Materials (5CSCS-2019), Belgrade, Serbia, June 11-13, 2019.

7. Vasiljevic, Z. Z., Dojcinovic, M. P., Pavlovic, V. P., Vujancevic, J., Tadic, N. B., Nikolic, M. V. Structure, Structure, morphology and photocatalytic properties of $Co_xMg_{1-x}Fe_2O_4$ ($0<x<1$). Publication: Programme and the Book of Abstracts. Publisher: Materials Research Society of Serbia, Belgrade, Serbia. Conference: 21st YUCOMAT 2019 & Eleventh World Round Table Conference on Sintering WRTCS 2019, Herceg Novi, Montenegro, September 2-6, 2019.

8. Vasiljevic, Z. Z., Dojcinovic, M. P., Vujancevic, J., Tadic, N. B., Nikolic, M. V. The effect of pH on visible-light photocatalytic properties of pseudobrookite nanoparticles. Publication: Programme and the Book of Abstracts. Publisher: Materials Research Society of Serbia, Belgrade, Serbia. Conference: 21st Annual Conference YUCOMAT 2019 & Eleventh World Round Table Conference on Sintering WRTCS 2019, Herceg Novi, Montenegro, September 2-6, 2019.

9. Vasiljevic, Z. Z., Dojcinovic, M. P., Jankovic Castvan, I., Vujancevic, J., Tadic, N. B., Nikolic, M. V. Structure and photocatalytic properties of sol-gel synthesized pseudobrookite. Publication: Programme and Book of Abstracts. Publisher: Faculty of Technology, University of Novi Sad, Novi Sad, Serbia. Conference: 13th Conference for Young Scientists in Ceramics (CYSC-2019), Novi Sad, Serbia, October 16-19, 2019.

10. Dojcinovic, M. P., Vasiljevic, Z. Z., Vujancevic, J., Pavlovic, V. P., Markovic, S., Tadic, N. B., Nikolic, M. V. Visible light photocatalytic activity of nanocrystalline $Co_xMg_{1-x}Fe_2O_4$ ($x=0$-1). Publication: Programme and Book of Abstracts. Publisher: Faculty of Technology,

University of Novi Sad, Novi Sad, Serbia. Conference: 13th Conference for Young Scientists in Ceramics (CYSC-2019), Novi Sad, Serbia, October 16-19, 2019.

11. Vasiljevic, Z. Z., Dojcinovic, M. P., Jankovic Castvan, I., Vujancevic, J., Tadic, N. B., Nikolic, M. V. Photocatalytic degradation of methylene blue and oxytetracycline via sol-gel synthesized pseudobrookite. Publication: Program and the Book of Abstracts. Publisher: Institute of Technical Sciences of SASA, Belgrade, Serbia, Conference: 18th Young Researchers' Conference Materials Sciences and Engineering (18YRC), Belgrade, Serbia, December 4-6, 2019.

12. Dojcinovic, M. P., Vasiljevic, Z. Z., Tadic, N. B., Pavlovic, V. P., Barišic, D., Pajic, D., Nikolic, M. V. Finding optimal conditions and investigating the structure & morphology of cobalt/magnesium ferrite based cubic spinels ($Co_xMg_{1-x}Fe_2O_4$) as photocatalysts. Publication: Program and the Book of Abstracts. Publisher: Institute of Technical Sciences of SASA, Belgrade, Serbia. Conference: 18th Young Researchers' Conference Materials Sciences and Engineering (18YRC) Belgrade, Serbia. December 4-6, 2019.

13. Dojcinovic, M. P., Vasiljevic, Z. Z., Tadic, N. B., Krstic, J. B., Markovic, S., Spreitzer, M., Kovac, J., Nikolic, M. V. Synthesis, structure and electrochemical performance of $NiMn_2O_4$. Publication: Programme and Book of Abstracts. Publisher: Faculty of Technology, University of novi Sad, Novi Sad, Serbia. Conference: 14th ECerS Conference for Young Scientists in Ceramics (CYSC-2021), in Novi Sad, Serbia, October 20-23, 2021.

14. Vasiljevic, Z. Z., Dojcinovic, M. P., Vujancevic, J., Spreitzer, M., Kovac, J., Jankovic-Caštvan, I., Bartolic, D., Markovic, S., Tadic, N., Nikolic, M. V. Influence of calcination temperature on the structure, morphology and optical properties of electrospun pseudobrookite nanofibers. Publication: Programme and Book of Abstracts. Publisher: Faculty of Technology, Novi Sad, Serbia. Conference: 14th ECerS Conference for Young Scientists in Ceramics (CYSC-2021), Novi Sad, Serbia, October 20-23, 2021.

15. Dojcinovic, M. P., Vasiljevic, Z. Z., Pavlovic, V. P., Vujancevic, J., Tadic, N., Nikolic, M. V. Mixed Ni-Mg spinel ferrites used as materials for charge storage electrodes. Publication: Program and Book of Abstracts. Publisher: University of Belgrade, Faculty of Physical Chemistry, Belgrade, Serbia. Conference: Contemporary Batteries and Supercapacitors International Symposium (COIN 2022), Junc 1-2, Belgrade, Serbia, 2022.

16. Ilic, N., Dojcinovic, M. P., Vijatovic Petrovic, M., Bobic, J., Dzunuzovic, A., Radojkovic, A. Nature of photocatalysis in $BiFeO_3$ suspensions – heterogeneous, homogeneous or dye-sensitized? Publication: Programme and the Book of Abstracts. Publisher: Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia. Conference: 6th Conference of the Serbian Society for Ceramic Materials (6CSCS), June 28-29, Belgrade, Serbia, 2022.

17. Dojcinovic, M. P., Vasiljevic, Z. Z., Tadic, N. B., Krstic, J., Nikolic, M. V. Alginate-derived activated carbon hybridized with $NiMn_2O_4$ for use in supercapacitors. Publication: Abstract Book, Publisher: Agencja Reklamowa EURO GRAPHIC, Conference: Ceramics in Europe, Krakow, Poland, 10-14 July, 2022.

18. Dojcinovic, M. P., Vasiljevic, Z. Z., Tadic, N. B., Spreitzer, M., Rakocevic, L., Nikolic, M. V. Nickel manganite-carbonized alginate composite for use as energy storage electrodes. Publication: Program and Book of Abstracts, Publisher: Serbian Academy of Sciences and Arts,

Belgrade, Serbia. Conference: 2nd International Conference on Electron Micorscopy of Nanostructures (ELMINA 2022), August 22-26, Belgrade, Serbia, 2022.

19. Vasiljevic, Z. Z., Vunduk, J., Dojcinovic, M. P., Bartolic, D., Ognjanovic, M., Miškovic, G., Nikolic, M. V. Green biosynthesis of ZnO nanoparticles using agro-waste and their antibacterial and antioxidant activity. Publication: Abstract Book. Publisher: University of Novi Sad, Faculty of Technology, Novi Sad, Serbia, Conference: 2nd International Conference on Advanced Production and Processing (ICAPP 2022), October 20-22, Novi Sad, Serbia, 2022.

20. Vasiljevic, Z. Z., Dojcinovic, M. P., Ilic, N., Vujancevic, J., Nikolic, M. V. Investigating NTC thermistor, ferroelectric and electric properties of Fe_2TiO_5. Publication: Programme and the Book of Abstracts. Publisher: Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia. Conference: 7th Conference of the Serbian Society for Ceramic Materials (7CSCS-2023), June 14-16, Belgrade, Serbia, 2023.

21. Vasiljevic, Z. Z., Vunduk, J., Dojcinovic, M. P., Bartolic, D., Ognjanovic, M., Tadic, N., Miškovic, G., Nikolic, M. V. Biosynthesis of ZnO nanoparticles using agro-waste with antibacterial and antioxidant activity. Publication: Program and the Book of Abstracts. Publisher: Serbian Ceramic Society, Belgrade, Serbia. Conference: Advanced Ceramics and Application XI (ACA XI), September 18-20, Belgrade, Serbia, 2023.

22. Dojcinovic, M. P., Vasiljevic, Z., Rakocevic, L., Pavlovic, V. P., Ammar-Merah, S., Vujancevic, J., Nikolic, M. V. Magnesium substitution with nickel and its influence on the sensing properties of $MgFe_2O_4$. Publication: Programme and Book of Abstracts. Publisher: Faculty of Technology, University of Novi Sad, Novi Sad, Serbia. Conference: 15th EcerS Conference for Young Scientists in Ceramics (CYSC-2023), October 11-14, Belgrade, Serbia, 2023.

23. Dojcinovic, M. P., Stojkovic Simatovic, I., Vasiljevic, Z. Z., Nikolic, M. V. Hybrid supercapacitors with nickel manganite as a cathode and sodium alginate-derived carbon as an anode material. Publication: Book of Abstracts. Publisher: Serbian Chemical Society, Belgrade, Serbia. Conference: 9th Regional Symposium on Electrochemistry-South-East Europe (RSE SEE 9), June 3-7, Novi Sad, Serbia, 2024.

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Одбрањена докторска дисертација-М70 (1x6=6)

Dojčinović Milena, Sinteza, karakterizacija i primena $NiMn_2O_4$ u superkondenzatorima i senzorima temperature i vlage. Doktorska disertacija, Fakultet za fizičku hemiju, Univerzitet u Beogradu, 2024. http://rimsi.imsi.bg.ac.rs/handle/123456789/3301

3. Анализа научних радова

Научно-истраживачки рад др Милене Дојчиновић обухвата синтезу, карактеризацију и испитивање примене металних оксида у различитим технолошким поступцима и решењима.

Кандидаткиња се током свог научног рада бавила различитим врстама синтезе као што је синтеза у чврстом стању, сол-гел синтеза и поступак електропредења. Кандидаткиња је овладала различитим методама сол-гел синтезе. У **раду број 1** кандидаткиња је користила сол-гел глицин-нитратну синтезу за добијање мешаних магнезијум-кобалт спинелних ферита. У **раду број 8**, **16** и **17** кандидаткиња је сол-гел глицин-нитратном синтезом са сагоревањем синтетисала никл-манганит за примену у сензорима температуре. На сличан начин синтетисан је и гвожђе-манганит **у раду број 11**. У **раду број 10** извршена је сол-гел синтеза са сагоревањем са лимунском киселином као горивом за добијање мешаних никл-магнезијум спинелних ферита. Сол-гел синтезом синтетисан је гвожђе-титанат који је испитан у **раду број 2** и **раду број 4**. Од прекурсора коришћени су гвожђе(III)-нонахидрат, титанијум изопропоксид, оксална киселина као хелатно средство и лимунска киселина као сурфактант. Цинк-оксид синтетисан је са екстрактом коре мандарине као редукционим и хелатним средством док је гвожђе-титанат синтетисан сол-гел синтезом са екстрактом коре лимуна и оксалном киселином као хелатним агенсом у **раду број 3**. Зеленом сол-гел синтезом са екстрактом коре мандарине синтетисан је и стронцијум-ферит допиран различитим количинама кобалта и цинка и резултати су описани у **раду број 13**. Синтезом у чврстом стању добијен је гвожђе-манганит и резултати рада описани су у **раду број 5** и **раду број 15**. Композит цинк-станат/калај-оксид синтетисан је синтезом у чврстом стању и карактеристике овог материјала описане су у **раду број 6** и **раду број 14**. Овом врстом синтезе добијен је и композит манган-ферит/манган(III)-оксид описан у **раду број 18**. Поступком електропредења са калцинацијом добијају се нановлакна или микровлакна са великим односом површине и запремине што је пожељно у многим уређајима где се примењују наночестице. На овај начин добијена су нановлакна никл-манганита (резултати су описани у **раду број 7**) и гвожђе-титаната (резултати су описани у **раду број 12**).

У свим наведеним радовима извршена је детаљна карактеризација синтетисаних прахова методама рендгенске дифракције на праху, електронске микроскопије, раманске и инфрацрвене спектроскопије, фотоелектронске спектроскопије и друго. Овим методама испитују се морфолошке, структурне, текстуралне, магнетне особине и друго. Радови у којима је детаљно испитивана структура и морфологија синтетисаних материјала су **рад број 12** (гвожђе-титанат синтетисан поступком електропредења) и **рад број 13** (стронцијум ферит допиран различитим количинама кобалта и цинка).

Фотокатализа је поступак који се може користити за прераду отпадних вода. Заснива се на интеракцији наночестица металних полупроводних оксида као што су цинк-оксид, титанијум-оксид и други, са једне стране, и са светлошћу која може бити вештачког или природног порекла, са друге стране, приликом које долази до декомпозиције и минерализације полутаната. Фотокаталитичка активност мешаних магнезијум-кобалт спинелних ферита за разградњу метиленско плавог је испитана у **раду број 1** док је фотокаталитичка активност гвожђе-титаната за разградњу метиленско плавог под светлошћу сунца испитана у **раду број 4**.

Метални оксиди као што је никл-манганит користе се у сензорима температуре због своје негативне температурске карактеристике, што значи да са повећавањем температуре у овим материјалима долази до пада електричног отпора или импедансе. Испитивање сензорских карактеристика никл-манганита синтетисаног методом електропредења испитано је у **раду број 7**. Са друге стране, никл-манганит синтетисан глицин-нитратним поступком и укомбинован са натријум-алгинатом ради формирања биофилма за примену у флексибилним сензорима испитан је у **раду број 8** и **раду број 17**. Сензорска карактеристика мешаних никл-магнезијум спинелних ферита испитана је у **раду број 9**.

Метални оксиди могу се користити као осетљиви материјали за мерење промене амбијенталне релативне влажности ваздуха. Принцип рада ових уређаја је да приликом повећања релативне влажности ваздуха долази до адсорпције молекула воде у материјалима чиме се повећава њихова електрична проводљивост или капацитивност. Мерењем промена ових физичких параметара долази се до података о промени релативне влажности ваздуха. Одговор и осетљивост на промену релативне влажности ваздуха гвожђе-манганита синтетисаног синтезом у чврстом стању испитане су у **раду број 5** и **раду број 15** док је сензорска карактеристика гвожђе-манганита синтетисаног сол-гел поступком тј. глицин-нитратном синтезом са сагоревањем испитана у **раду број 16**. У **раду број 6** и **раду број 14**, испитивани материјал био је композит цинк-станат/калај-оксид добијен синтезом у чврстом стању. Одговор на промену релативне влажности ваздуха испитан је и за мешане никл-магнезијум спинелне ферите у **раду број 9**. Никл-манганит је, поред осетљивости на промену температуре, показао и осетљивост на промену релативне влажности ваздуха, и ово својство је испитано у **раду број 17**. Са друге стране, композит манган-ферит/манган оксид синтетисан синтезом у чврстом стању показао је осетљивост на промену температуре али не и на промену релативне влажности ваздуха, што је описано у **раду број 18**.

Неки од синтетисаних материјала испитани су као компоненте активног и биодеградабилног паковања хране због својих антибактеријских и/или антиоксидативних својстава. У **раду број 2** испитана су антибактеријска и антиоксидативна својства гвожђе-титаната и дошло се до закључка да овај материјал показује изузетну антиоксидативну активност. Алгинатни филм са инкорпорираним честицама гвожђе-титаната омогућио је дужи рок трајања јагодама. У **раду број 3** испитана су својства алгинатног биофилма са инкорпорираним честицама цинк-оксида са антибактеријским дејством и гвожђе-титаната са антибактеријским дејством. Оба материјала синтетисана су зеленом сол-гел синтезом са екстрактом коре лимуна као редукционим и стабилизујућим агенсом. Овај филм примењен је као облога за сезонско воће (јагоде) и закључено је да овај филм, у односу на филм самог алгината, продужава рок трајања јагода. Антибактеријска активност гвожђе-манганита синтетисаним сол-гел глицин-нитратним поступком са сагоревањем испитана је у **раду број 13**.

Никл-манганит се већ користи као термисторски елемент у сензорима температуре, а испитује се његова примена у сфери електрохемије, конкретно као катализатора за реакције издвајања кисеоника или водоника у електролизи воде као и у батеријама и суперкондензаторима. Електрохемијска карактеризација као и електрохемијска капацитивност никл манганита и мешаних никл-магнезијум спинелних ферита испитана је на различитим супстратима у **раду број 10**.

4. Цитираност објављених радова

Прегледном базе података SCOPUS на дан 03.10.2024. утврђен је број цитата кандидаткиње **др Милене Дојчиновић**. Радови су цитирани 375 пута, од тога 357 пута без аутоцитата, од чега су сви са SCI листе. Хиршов индекс кандидаткиње је 8. Прегледом радова утврдили смо да су сви цитати позитивни.

Списак радова који су цитирани, без аутоцитата, са радовима у којима су цитирани на дан 03.10.2024. године из SCOPUS базе:

Рад број 1

Dojcinovic, M. P., Vasiljevic, Z., Pavlovic, V. P., Barišic, D., Pajic, D., Tadic, N. B., Nikolic, M. V. Mixed Mg-Co spinel ferrites: Structure, morphology, magnetic and photocatalytic properties. *J Alloys Compd* 855, 157429–157429, 2021. https://doi.org/10.1016/j.jallcom.2020.157429

Рад има 89 цитата од чега је 1 аутоцитат.

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Рад број 2

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Рад број 10

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Рад број 13

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Рад број 15

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5. Квалитативни показатељи и оцена научног доприноса

Др Милена Дојчиновић је током свог научно-истраживачког рада показала изузетну самосталност, од постављања експеримената, обраде и анализе резултата, до писања и објављивања научних радова. Др Милена Дојчиновић има остварену сарадњу са бројним истраживачима како у земљи тако и у иностранству. Укупно је сарађивала са 34 коаутора. Научноистраживачке организације са којима је сарађивала су Универзитет у Београду – Факултет за физичку хемију, Универзитет у Београду – Физички факултет, Универзитет у Београду – Институт за нуклеарне науке Винча, Универзитет у Београду – Машински факултет, Институт за општу и физичку хемију, Институт техничких наука Српске Академије Наука и Уметности, ITODYS лабораторија Универзитета Париз-Сите у Паризу, Француска, и друге.

Први је аутор на: једном раду објављеном у међународном часопису изузетних вредности категорије М21а, затим на четири рада публикована у врхунским међународним часописима категорије М21, на 10 саопштења са међународних скупова штампаних у изводу (категорија М34) као и на одбрањеној докторској дисертацији (категорија М70).

До краја пројектног финансирања 2019. године радила је на пројектима „Развој литијум-јонских батерија“ и „Синтеза и карактеризација 0-3D наноматеријала“ финансираних од стране Министарства просвете, науке и технолошког развоја Републике Србије.

Кандидаткиња је истраживач Центра за зелене технологије, Универзитета у Београду – Института за мултидисциплинарна истраживања.

Кандидаткиња је била део организационог одбора међународних конференција YUCOMAT 2019. године у организацији Друштва за истраживање материјала Србије као и на конференцији Electron Microscopy of Nanostructures ELMINA 2022. и 2024. године у организацији Српске Академије Наука и Уметности и Универзитета у Београду – Технолошко-металуршког факултета.

6. Квантитативни показатељи успеха у научном раду

Квантитативни показатељи резултата научног рада др Милене Дојчиновић приказани су у табелама које следе:

Табела 1 Укупне вредности М коефицијената кандидата према категоријама прописаним у Правилнику за област природно-математичких и медицинских наука

Категорија радова	Прописани минимум за звање научни сарадник	Остварено
Укупно	16	113,97
M10+M20+M31+M32+M33+M41+M42	10	95,97
M11+M12+M21+M22+M23	6	90,97

Табела 2 Сумарни преглед резултата научно-истраживачког рада кандидата са квантитативним вредностима М коефицијената

Категорија резултата	Број остварених резултата	Појединачна вредност М коефицијената	Збир вредности М коефицијената	Нормирана вредност М коефицијената
M21a	3	10	30	25,56
M21	7	8	56	53,72
M22	3	5	15	11,69
M33	5	1	5	5
M34	24	0,5	12	12
M70	1	6	6	6
Укупно: М коефицијената			124	113,97

Табела 3 Укупне и просечне вредности фактора утицајности (импакт фактора)

Период	Укупан збир	Просечан по раду
За цео период	61,203	4,708

На основу приложене документације и анализе научно-истраживачког рада кандидаткиње, комисија доноси следећи

ЗАКЉУЧАК

Др Милена Дојчиновић публиковала је укупно 13 научних радова са импакт фактором, од којих су 3 рада објављена у међународним часописима изузетних вредности (категорије М21а), 7 у врхунским међународним часописима (категорије М21) и 3 у истакнутом међународном часопису (категорије М22). Први аутор је на једном раду објављеном у међународном часопису изузетних вредности категорије М21а и четира рада публикована у врхунским међународним часописима категорије М21. Укупни импакт фактор кандидаткиње износи 61,203 а просечно 4,706 по раду. Остварила је укупно 124 М коефицијената (нормирано 113,97 М) и број цитата је 375 од тога 357 пута без аутоцитата (цитати су очитани из SCOPUS базе на дан 03.10.2024.). Хиршов индекс кандидаткиње је 8.

Увидом у приложену документацију и анализом научног доприноса кандидаткиње **др Милене Дојчиновић**, по Критеријумима који су прописани Законом о науци и истраживањима и Правилником о стицању истраживачких и научних звања, које је прописало Министарство науке, технолошког развоја и иновација Републике Србије, комисија је утврдила да кандидаткиња испуњава све потребне услове да буде изабрана у научно звање **научни сарадник**.

Комисија предлаже Научном већу Универзитета у Београду – Института за мултидисциплинарна истраживања да прихвати овај извештај и предложи Министарству да **др Милена Дојчиновић** буде изабрана у научно звање **научни сарадник**.

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