

ИНСТИТУТ ТЕХНИЧКИХ НАУКА САНУ
БЕОГРАД
Кнез Михаилова 35/IV

НАУЧНОМ ВЕЋУ ИНСТИТУТА

Предмет: Захтев за покретање поступка за избор у научно звање

Молим да, у складу са Законом о научноистраживачкој делатности, Научно веће Института техничких наука САНУ покрене поступак мог избора у звање научни саветник.

У прилогу достављам:

1. Стручну биографију и библиографију.
2. Извештај о цитираности радова (Scopus и Web of Science).
3. Вредност индикатора и сведочанства о испуњавању квалитативних критеријума.
4. Одлуку о стицању претходног научног звања виши научни сарадник.

Предлажем чланове комисије за оцену испуњености услова за избор у звање научни саветник у следећем саставу:

1. Др Лидија Манчић, научни саветник Института техничких наука САНУ
2. Др Миодраг Митрић, научни саветник Института за нуклеарне науке Винча, Универзитет у Београду
3. Др Смиља Марковић, научни саветник Института техничких наука САНУ

У Београду,

01.10.2018.

Подносилац захтева



др Драгана Југовић
виши научни сарадник Института техничких наука САНУ

БИОГРАФИЈА

Др Драгана Југовић је рођена 1. 2. 1973. године у Београду. Основну школу и гимназију је завршила у Београду. Дипломирала је на Факултету за физичку хемију Универзитета у Београду 2002. године са темом *„Синтеза и електрохемијске особине LiMn_2O_4 као катоде Li-јон акумулатора”* и стекла звање дипломирани физикохемичар.

Магистрирала је на Факултету за физичку хемију Универзитета у Београду 2004. године, са темом *„Карактеризација катодних материјала $\text{LiMn}_{2-x}\text{M}_x\text{O}_4$ ($\text{M} = \text{Mn}, \text{Cr}, \text{Zn}$) синтетисаних ултразвучном спреј пиролизом”* и стекла звање магистар физикохемијских наука. Докторирала је на Факултету за физичку хемију Универзитета у Београду 2008. године, са темом *„Синтеза и карактеризација оксидних катодних материјала за литијумске изворе струје”* и промовисана у доктора физикохемијских наука.

Истраживачко звање истраживач-сарадник је стекла 2005. године. Научно звање научни сарадник је стекла 4. 3. 2009. године. Научно звање виши научни сарадник је стекла 26. 03. 2014. године. Процедура за избор у звање виши научни сарадник је покренута 11. 10. 2013. године по предлогу број 373/1 Института техничких наука САНУ.

Од 2002. године је запослена у Институту техничких наука САНУ, где је била ангажована на реализацији пројеката финансираних од стране Министарства за науку Републике Србије:

2002 - 2005 Пројекат ОИ 1431, под називом *„Молекуларно дизајнирање монолитних и композитних материјала“*, руководилац пројекта проф. др Драгољуб Ускоковић, научни саветник Института техничких наука САНУ.

2006 - 2010 Пројекат ОИ 142006, *„Синтеза функционалних материјала са контролисаном структуром на молекуларном и нано нивоу“*, руководилац проф. др Драгољуб Ускоковић, научни саветник Института техничких наука САНУ

Од 2011. је ангажована на пројекту интегралних и интердисциплинарних истраживања из области хемије ИИИ 45004 *„Молекуларно дизајнирање наночестица контролисаних морфолошких и физичко-хемијских карактеристика и функционалних материјала на њиховој основи“*, којег финансира Министарство просвете, науке и технолошког развоја Републике Србије, а руководилац Пројекта је проф. др Драгољуб

Ускоковић. У оквиру овог Пројекта др Југовић је руководилац теме „*Катодни материјали за литијум јонске акумулаторе*“.

2012 - 2013 руководила је пројектом билатералне сарадње између Републике Србије и Републике Словеније под називом „*Високо-енергијски ортосиликатни материјали за литијум јонске акумулаторе*“, евиденциони број 651-03-1251/2012-09/05. Овим пројектом је започета сарадња са Хемијским институтом из Љубљане која је настављена новим билатералним пројектом 2018-2019 „*Развој нових материјала за алкално-јонске батерије*“, на којем је кандидаткиња такође ангажована.

Била је ментор две докторске дисертације одбрањене 01.06.2016. и 31.03.2017. на Факултету за физичку хемију Универзитета у Београду и члан неколико комисија за избор у научна звања пред научним већима Института техничких наука САНУ, Института за нуклеарне науке Винча и Факултета за физичку хемију Универзитета у Београду.

Имала је више позива да одржи предавање од којих су, из финансијских разлога, два реализована на научним скуповима: *International Electric Mobility Conference and Exhibition for Electric Mobility*, одржаном у Љубљани и *Advanced Ceramics and Application VI, New frontiers in Multifunctional Material Science and Processing*, одржаном у Београду.

Учествује у организацији три међународна научна скупа: YUCOMAT чији је члан Организационог одбора од 2012. године, а од 2018. године председава Организационим одбором (<http://www.mrs-serbia.org.rs/index.php/organized-by>); *International Symposium on Materials for Energy Storage and Conversion (mESC-IS)* као члан организационог одбора 2017. године (<https://mesc-is2017.org/committees/>), а 2018. године као члан Програмског комитета (https://www.vin.bg.ac.rs/mesc2018/comitees_boards/); *Young Researchers' Conference Materials Sciences and Engineering* као потпредседник Научно-организационог одбора од 2011. године (<http://www.mrs-serbia.org.rs/index.php/scientific-and-organizing-committee>). Такође је председавала секцијама на научним скуповима из области науке о материјалима и електрохемије. Рецензент је међународних часописа изузетних вредности врхунских међународних часописа и домаћег часописа *Техника-Нови материјали* (<http://www.sits.org.rs/include/data/docs2069.pdf>).

Остварила је складну сарадњу са сарадницима Института Јожеф Штефан и Хемијског института из Љубљане у Словенији у истраживањима на својој проблематици коришћењем њихових технолошких ресурса.

Члан је неколико научних друштава: Друштва за истраживање материјала Србије, Српског керамичког друштва и Друштва физикохемичара.

До сада је објавила 28 научних радова, од којих је 24 на ISI листи. У међународним часописима изузетних вредности је објављено 8 радова, 9 у врхунским међународним часописима, 2 у истакнутим међународним часописима, 5 у међународним часописима и 4 у националним часописима. Након избора у звање виши научни сарадник објавила је 10 радова: 5 радова у међународним часописима изузетних вредности на којима је трипут први и кореспондирајући аутор и двапут други аутор; 2 рада у врхунским међународним часописима, на једном од њих је кореспондирајући аутор; 1 у међународном часопису и 2 у националном часопису. Коаутор је регистрованог патента на националном нивоу.

Према цитатним базама *Web of Science* и *Scopus* на дан 22.09.2018. укупна цитираност 24 објављена рада који су са ISI листе је 461: 406 хетероцитата, 29 аутоцитата и 26 коцитата, док је Хиршов индекс 9. Један од њених радова (Библиог. 1.1) се налазио на 8. месту *Sciencedirect top 25 list of most downloaded articles* и најцитиранији је рад из Србије у области *Energy* (*Scopus*, 22.09.2018.). По последњој категоризацији истраживача сврстана је у A2 категорију.

БИБЛИОГРАФИЈА

Монографска студија/поглавље у књизи M12 или рад у тематском зборнику међународног значаја (M14): 4

Dragana Jugović, *Synthesis and structural characterization of some cathode materials for lithium-ion batteries*, accepted to be published in the Selection of Papers of the V Advanced Ceramics and Applications Conference, publisher Springer by the end of 2018, Editors: prof. Vojislav V. Mitić, prof. Rainer Gadow, prof. William E. Lee.*

*Овај резултат није бодован приликом квантификације научноистраживачких резултата

1. Рад у међународном часопису изузетних вредности (M21a): 10

- 1.1 **Dragana Jugović**, Dragan Uskoković, A review of recent developments in the synthesis procedures of lithium iron phosphate powders, *J. Power Sources* 190, 2009, 538-544. IF: 3.477 (2008) Област: Energy & Fuels 4/67 (25 хетероцитата) <https://doi.org/10.1016/j.jpowsour.2009.01.074>
- 1.2 **Dragana Jugović**, Miodrag Mitrić, Maja Kuzmanović, Nikola Cvjetićanin, Srečo Škapin, Božidar Cekić, Valentin Ivanovski, Dragan Uskoković, Preparation of LiFePO₄/C composites by co-precipitation in molten stearic acid, *J. Power Sources* 196, 2011, 4613–4618. IF: 4.951 (2011) Област: Electrochemistry 2/27 (25 хетероцитата) <https://doi.org/10.1016/j.jpowsour.2011.01.072>
- 1.3 Miloš Milović, **Dragana Jugović**, Nikola Cvjetićanin, Dragan Uskoković, Aleksandar S. Milošević, Zoran S. Popović, Filip R. Vukajlović, Crystal structure analysis and first principle investigation of F doping in LiFePO₄, *Journal of Power Sources* 241, 2013, 70-79. IF: 5.211 (2013) Област: Electrochemistry 2/27 (18 хетероцитата) <https://doi.org/10.1016/j.jpowsour.2013.04.109>

Научни радови категорије M21a настали након избора у претходно звање виши научни сарадник

- 1.4 **Dragana Jugović**, Miloš Milović, Valentin N. Ivanovski, Max Avdeev, Robert Dominko, Bojan Jokić, Dragan Uskoković, Structural study of monoclinic $\text{Li}_2\text{FeSiO}_4$ by X-ray diffraction and Mössbauer spectroscopy, *Journal of Power Sources* 265, 2014, 75-80. IF: 6.217 (2014) Област: Electrochemistry 2/28 (5 хетероцитата) <https://doi.org/10.1016/j.jpowsour.2014.04.121>
- 1.5 Miloš Milović, **Dragana Jugović**, Miodrag Mitrić, Robert Dominko, Ivana Stojković-Simatović, Bojan Jokić, Dragan Uskoković, The use of methylcellulose for the synthesis of $\text{Li}_2\text{FeSiO}_4/\text{C}$ composites, *Cellulose* 23, 2016, 239-246. IF: 3.573 (2014) Област: Materials Science, Paper and Wood 1/21 (0 хетероцитата) <http://dx.doi.org/10.1007/s10570-015-0806-9>
- 1.6 **Dragana Jugović**, Miodrag Mitrić, Miloš Milović, Nikola Cvjetičanin, Bojan Jokić, Ana Umićević, Dragan Uskoković, The influence of fluorine doping on the structural and electrical properties of the LiFePO_4 powder, *Ceramics International* 43, 2017, 3224-3230. IF: 3.057 (2017) Област: Materials Science, Ceramics 2/27 (2 хетероцитата) <http://dx.doi.org/10.1016/j.ceramint.2016.11.149>
- 1.7 Milan Bratić, **Dragana Jugović**, Miodrag Mitrić, Nikola Cvjetičanin, Insertion of lithium ion in anatase TiO_2 nanotube arrays of different morphology, *Journal of Alloys and Compounds* 712, 2017, 90-96. IF: 3.779 (2017) Област: Metallurgy and Metallurgical Engineering 4/75 (1 хетероцитат) <https://doi.org/10.1016/j.jallcom.2017.04.065>
- 1.8 **Dragana Jugović**, Miloš Milović, Maja Popović, Vladan Kusigerski, Srečo Škapin, Zlatko Rakočević, Miodrag Mitrić, *Effects of fluorination on the structure, magnetic and electrochemical properties of the P2-type Na_xCoO_2 powder*, *Journal of Alloys and Compounds* 774, 2019, 30-37, IF: 3.779 (2017) Област: Metallurgy and Metallurgical Engineering 4/75 (0 хетероцитата) <https://doi.org/10.1016/j.jallcom.2018.09.372>

2. Рад у врхунском међународном часопису (M21): 8

- 2.1 Ivana Stojković, Azarnoush Hosseinmardi, **Dragana Jugović**, Miodrag Mitrić, Nikola Cvjetićanin, Rapid synthesis of $\text{LiCr}_{0.15}\text{Mn}_{1.85}\text{O}_4$ by glycine–nitrate method, *Solid State Ionics* 177, 2006, pp.847–850. IF: 2.190 (2006) Област: Physics, Condensed Matter 14/58 (5 хетероцитата) <https://doi.org/10.1016/j.ssi.2006.02.013>
- 2.2 **D. Jugović**, N. Cvjetićanin, V. Kusigerski, M. Mitrić, M. Miljković, D. Makovec, D. Uskoković, Structural and magnetic characterization of $\text{LiMn}_{1.825}\text{Cr}_{0.175}\text{O}_4$ spinel obtained by ultrasonic spray pyrolysis, *Mat. Res. Bull.* 42, 2007, 515-522. IF: 1.380 (2005) Област: Materials Science, Multidisciplinary 50/178 (7 хетероцитата) <https://doi.org/10.1016/j.materresbull.2006.06.018>
- 2.3 Vladan Kusigerski, Dragana Marković, Vojislav Spasojević, Nikola Cvjetićanin, Miodrag Mitrić, **Dragana Jugović**, Dragan Uskoković, Ground-state magnetism of chromium-substituted LiMn_2O_4 spinel, *J. Magn. Magn. Mater.* 320, 2008, 943-949. IF: 1.704 (2007) Област: Materials Science, Multidisciplinary 48/189 (2 хетероцитата) <https://doi.org/10.1016/j.jmmm.2007.09.011>
- 2.4 **Dragana Jugović**, Miodrag Mitrić, Nikola Cvjetićanin, Boštjan Jančar, Slavko Mentus, Dragan Uskoković, Synthesis and characterization of LiFePO_4 /C composite obtained by sonochemical method, *Solid State Ionics* 179, 2008, 415–419. IF: 2.425 (2008) Област: Physics, Condensed Matter 13/62 (37 хетероцитата) <https://doi.org/10.1016/j.ssi.2008.03.014>
- 2.5 **D. Jugović**, M. Mitrić, M. Kuzmanović, N. Cvjetićanin, S. Marković, S. Škapin, D. Uskoković, Rapid crystallization of LiFePO_4 particles by facile emulsion-mediated solvothermal synthesis, *Powder Technology* 219, 2012, 128-134. IF: 2.080 (2011) Област: Engineering, Chemical 36/133 (11 хетероцитата) <https://doi.org/10.1016/j.powtec.2011.12.028>
- 2.6 **Dragana Jugović**, Miodrag Mitrić, Miloš Milović, Bojan Jokić, Marija Vukomanović, Danilo Suvorov, Dragan Uskoković, Properties of quenched LiFePO_4/C powder obtained via cellulose matrix-assisted method, *Powder*

Technology 246, 2013, 539-544. IF: 2.269 (2013) Област: Engineering, Chemical 34/133 (6 хетероцитата)

<https://doi.org/10.1016/j.powtec.2013.06.021>

- 2.7 Milica Vujković, **Dragana Jugović**, Miodrag Mitrić, Ivana Stojković, Nikola Cvjetićanin, Slavko Mentus, The $\text{LiFe}_{(1-x)}\text{V}_x\text{PO}_4$ /C composite synthesized by gel-combustion method, with improved rate capability and cycle life in aerated aqueous solutions, *Electrochimica Acta* 109, 2013, 835– 842. IF: 4.086 (2013) Област: Electrochemistry 4/27 (12 хетероцитата)

<http://dx.doi.org/10.1016/j.electacta.2013.07.219>

Научни радови категорије M21 настали након избора у претходно звање виши научни сарадник

- 2.8 M. Kuzmanović, **D. Jugović**, M. Mitrić, B. Jokić, N. Cvjetićanin, D. Uskoković, The use of various dicarboxylic acids as a carbon source for the preparation of LiFePO_4/C composite, *Ceramics International* 41, 2015, 6753–6758. IF: 2.758 (2015) Област: Materials Science, Ceramics 3/27 (8 хетероцитата)

<http://dx.doi.org/10.1016/j.ceramint.2015.01.121>

- 2.9 Jadranka Milikić, Milica Vasić, Luís Amaral, Nikola Cvjetićanin, **Dragana Jugović**, Radmila Hercigonja, Biljana Šljukić, NiA and NiX zeolites as hydrogen and oxygen evolution reaction bifunctional electrocatalysts for water splitting in alkaline media, *Int. J. Hydrogen Energy* 43, 2018, 18977-18991. IF: 4.229 (2017) Област: Electrochemistry 8/28 (0 хетероцитата)

<https://doi.org/10.1016/j.ijhydene.2018.08.063>

3. Радови у истакнутом међународном часопису (M22): 5

- 3.1 **D. Jugović**, N. Cvjetićanin, V. Kusigerski and S. Mentus, Synthesis of LiMn_2O_4 by glycine-nitrate method, *J. Optoelectron. Adv. Mater.* 5, 2003, pp. 343-347. IF: 0.996 (2003) Област: Materials Science, Multidisciplinary 70/177 (2 хетероцитата) https://joam.inoe.ro/arhiva/pdf5_1/Jugovic.pdf

- 3.2 **D. Jugović**, M. Mitrić, N. Cvjetićanin, M. Miljković, V. Jokanović and D. Uskoković, Properties of LiMn_2O_4 Powders Obtained By Ultrasonic Spray Pyrolysis, *Materials Science Forum* 453-454, 2004, 387-392. IF: 0.613 (2002)
Област: Materials Science, Multidisciplinary 90/173 (1 хетероцитат)

4. Рад у међународном часопису (M23): 3

- 4.1 **D. Jugović**, N. Cvjetićanin, M. Mitrić, S. Mentus, and D. Uskoković, Comparison between Different LiFePO_4 Synthesis Routes, *Materials Science Forum* 555, 2007, 225-230. IF: 0.399 (2005) Област: Materials Science, Multidisciplinary 137/178 (3 хетероцитата)
- 4.2 J. P. Marković, **D. Jugović**, M. Mitrić, D. Makovec, S. K. Milonjić, D. P. Uskoković, Nanostructured ZrO_2 powder synthesized by ultrasonic spray pyrolysis, *Surf. Rev. Lett.* 14, 2007, 915-919. IF: 0.750 (2005) Област: Physics, Condensed Matter 40/60 (3 хетероцитата)
<https://doi.org/10.1142/S0218625X07010524>
- 4.3 Tanja Barudžija, Alexey A. Gusev, **Dragana Jugović**, Miroslav Dramićanin, Miodrag Zdujić, Čedomir Jovalekić, Miodrag Mitrić, Structural and magnetic properties of mechanochemically synthesized nanocrystalline titanium monoxide, *Hemijska industrija* 66(2), 2012, 181-186. IF: 0.463 (2012) Област: Engineering, Chemical 104/133 (5 хетероцитата)
[doi:10.2298/HEMIND111027090B](https://doi.org/10.2298/HEMIND111027090B)
- 4.4 Tanja Barudžija, Alexey A. Gusev, **Dragana Jugović**, Milena Marinović-Cincović, Miroslav Dramićanin, Miodrag Zdujić, Čedomir Jovalekić, Miodrag Mitrić, Structural and magnetic properties of mechanochemically synthesized nanosized yttrium titanate, *Hemijska industrija* 66(3), 2012, 309-315. IF: 0.463 (2012)
Област: Engineering, Chemical 104/133 (1 хетероцитат)
[doi:10.2298/HEMIND111103103B](https://doi.org/10.2298/HEMIND111103103B)

Научни рад категорије M23 настао након избора у претходно звање виши научни сарадник

- 4.5 N. L. Ignjatović, S. Marković, **D. Jugović**, D. P. Uskoković, Molecular designing of nanoparticles and functional materials, *J. Serb. Chem. Soc.* 82 (0), 2017, 1-20 IF 0.970 (2015) Област: Chemistry, Multidisciplinary 120/163 (0 хетероцитата) doi: 10.2298/JSC1612070011I

5. Предавање по позиву са међународног скупа штампано у изводу (M32): 1.5

- 5.1 **Dragana Jugović**, *Impact of synthesis techniques on the structure and performances of LiFePO₄ powders*, International Electric Mobility Conference and Exhibition for Electric Mobility, 27th - 28th of October 2011, Ljubljana, Slovenia <http://www.electromobility.si/index.php?id=1627>

Научни резултат категорије M32 настао након избора у претходно звање виши научни сарадник

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- 7.13 **D. Jugović**, M. Mitrić, M. Milović, B. Jokić, D. Uskoković, *Synthesis and characterization of LiFePO_4/C composite obtained by cellulose template*, Fourteenth Annual Conference - YUCOMAT 2012, Herceg Novi, Montenegro, September 3.-7. 2012, Program and the book of abstracts, p. 76, poster
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- 7.18 M. Vujković, **D. Jugović**, M. Mitrić, I. Stojković Simatović, N. Cvjetićanin, S. Mentus, *The incorporation of vanadium into olivine LiFePO_4/C : improvement of*

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- 7.25 **Dragana Jugović**, Ivica Bradarić, Čedomir Jovalekić, Tanja Barudžija, Vladan Kusigerski, Miodrag Mitrić, Structural and magnetic properties of mechanochemically synthesized $\text{LaFe}_{1-x}\text{Cr}_x\text{O}_3$ ($x = 0.5$ and 0.75), Eighteenth Annual Conference YUCOMAT 2016, Program and the Book of Abstracts, p.57, Herceg Novi, Montenegro, September 5 – 10, 2016. poster <http://www.mrs-serbia.org.rs/index.php/yucomat-2016/yucomat-2016-book-of-abstracts>
- 7.26 **Dragana Jugović** and Miodrag Mitrić, *Synthesis and structural characterization of some cathode materials for lithium-ion batteries*, Serbian Ceramic Society Conference Advanced Ceramics and Application V, New frontiers in Multifunctional Material Science and Processing, Belgrade, Serbia, 21.-23. September 2016, Program and The Book of Abstracts, p.46 OR5. oral <http://www.serbianceramicsociety.rs/doc/ACA-V-Program-and-book-of-abstracts.pdf>
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- 7.31 Vladimir Lukić, Dragana Čekerevac Mirković, **Dragana Jugović**, Aleksa Maričić, Influence of platinization of mechanically activated nuclear grade graphite powders on the hydrogen adsorption process, 3rd International Symposium on Materials for Energy Storage and Conversion - mESC-IS 2018, Belgrade, Serbia, September 10-12, 2018, Programme and the Book of Abstracts, p. 86.
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8. Рад у националном часопису (M53): 1

- 8.1 **D. Jugović**, O. Milošević, N. Cvjetićanin, M. Mitrić, M. Miljković, V. Jokanović, S. Mentus and D. Uskoković, Elektrohemijske osobine praha $LiMn_2O_4$ dobijenog različitim postupcima sinteze, *Tehnika - Novi materijali* 11 (6), 2002, 12-16.
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- 10.4 N. Cvjetićanin, **D. Jugović**, M. Mitrić, M. Miljković, S. Mentus, *Synthesis of $\text{LiMn}_{2-x}\text{Ni}_x\text{O}_4$ and $\text{LiCo}_{1-x}\text{Ni}_x\text{O}_2$ By Glycine-nitrate Method*, The fifth Yugoslav Materials Research Society Conference YUCOMAT 2003, Sept. 15-19 2003, The Book of Abstracts, pp. 54
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- 10.10 **D. Jugović**, M. Mitrić, N. Cvjetićanin, S. Mentus, and D. Uskoković, *Sinteza LiFePO_4 prahova metodom ultrazvučne sprej pirolize i sonohemijskim tretmanom*, Peti seminar mladih istraživača, Zbornik apstrakata, Beograd 25.-26. decembar 2006, I/1
- 10.11 **Dragana Jugović**, Miodrag Mitrić, Nikola Cvjetićanin, Slavko Mentus, Dragan Uskoković, *Structural properties of lithium intercalated compounds obtained through different ways of syntheses*, 45th Meeting of the Serbian Chemical Society, Novi Sad, January 25-26, 2007, Book of Abstracts, pp. 149.
- 10.12 Maja Kuzmanović, **Dragana Jugović**, Miodrag Mitrić, Nikola Cvjetićanin, Srečo Škapin, Dragan Uskoković, *Crystal growth of solvothermally obtained LiFePO_4 in dependence of synthesis conditions*, Ninth Young Researchers' Conference – Materials Science and Engineering, December 20.-22. 2010, Belgrade, Serbia, II/3

Научни резултати категорије М64 настали након избора у претходно звање виши научни сарадник

10.13M. Milović, **D. Jugović**, M. Mitrić, D. Uskoković, *Li₂FeSiO₄ kao katodni materijal za litijum-jonske baterije: sinteza, strukturne i elektrohemijske karakteristike/ Li₂FeSiO₄ as cathode material for lithium-ion batteries: synthesis, structural, and electrochemical characteristics*, XXV Konferencija Srpskog kristalografskog društva, Bajina Bašta, Srbija, 21-23 jun, 2018, Izvodi radova 34/35.*

<https://skd.org.rs/wp-content/uploads/2018/07/2018-Izvodi-radova-XXV-Konferencija-SKD-Bajina-Basta.pdf>

* Учешће на овој конференцији финасирано је стипендијом Међународне уније за кристалографију (IUCr).

Одбрањена докторска дисертација (М70): 6

„Синтеза и карактеризација оксидних катодних материјала за литијумске изворе струје”, Факултет за физичку хемију Универзитета у Београду, 2008.

11. Регистрован патент на националном нивоу након избора у претходно звање виши научни сарадник (М92): 12

11.1 Д. Ускоковић, **Д. Југовић**, М. Кузмановић, Поступак добијања композита литијум гвожђе фосфата (LiFePO₄) и угљеника методом преципитације у растопу стеаринске киселине, број патента 54805, Гласник интелектуалне својине број 5/2016, стр. 38.

http://www.zis.gov.rs/upload/documents/pdf_sr/pdf/glasnik/GIS_2016/GLASNIK-5-2016.pdf

12. Електронске публикације

Dragana Jugović, Dragan Uskoković, *Cathode materials for lithium-ion batteries in the Institute of Technical Sciences of SASA*, published 29. 1. 2016.

<http://www.match-a4m.eu/index.php/latest/news/139-serbia>,

13. Кристалографске картице

Резултати др Југовић о утацњеним структурама LiFePO_4 и $\text{Li}_2\text{FeSiO}_4$ су прихваћени и укључени у најзначајнију кристалографску базу ICDD (International Centre for Diffraction Data) као референтне кристалографске картице (обавештења о прихватању у базу су дата у прилогу).

Такође, кристалографске картице са решеним структурама др Југовић су објављене и у кристалографској бази ICSD (Inorganic Crystal Structure Database) за $\text{Li}_2\text{FeSiO}_4$ (референтна картица #237127), LiFePO_4 (референтна картица #160768) и флуором допирани LiFePO_4 (референтна картица #189057).

Врста и квантификација свих научноистраживачких резултата др Драгане Југовић

Категорија	Број	Вредност индикатора	Укупна вредност
M14	1	4	0*
M21a	8	10	80/78,33**
M21	9	8	72
M22	2	5	10
M23	5	3	15
M32	2	1,5	3
M33	11	1	11
M34	34	0,5	17
M53	4	1	4
M63	3	0,5	1,5
M64	13	0,2	2,6
M70	1	6	6
M92	1	12	12
Укупно			234,1/232,43**

*Рад је прихваћен за штампу, али нема doi број.

**Један рад M21a са 8 аутора нормиран на 7 аутора.

**Врста и квантификација научноистраживачких резултата др Драгане Југовић
насталих након избора у звање виши научни сарадник**

Категорија	Број	Вредност индикатора	Укупна вредност
M14	1	4	0*
M21a	5	10	50
M21	2	8	16
M23	1	3	3
M32	1	1,5	1,5
M33	2	1	2
M34	15	0,5	7,5
M53	2	1	2
M64	1	0,2	0,2
M92	1	12	12
Укупно			94,2

*Рад је прихваћен за штампу, али нема doi број.

Испуњење квантитативних захтева за стицање звања научни саветник

Потребан услов за природно-математичке и медицинске науке	Остварено
Укупно: ≥ 70	Укупно: 94,2
$M10+M20+M31+M32+M33+M41+M42+M90 \geq 50$	$M21+M23+M32+M33 +M92=$ 84,5
$M11+M12+M21+M22+M23 \geq 35$	$M21+M23 =$ 69

Извештај о цитираности радова др Драгане Југовић према индексним базама података *Web of Science* и *Scopus* на дан 22. 09. 2018.

Укупно **461** цитат, **406** хетероцитата

h-индекс = **9**

1. Dragana Jugović, Dragan Uskoković, A review of recent developments in the synthesis procedures of lithium iron phosphate powders, *J. Power Sources* 190, 2009, 538-544.

Цитиран у 257 радова, 252 хетероцитата

Хетероцитати

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- [3] R. Schmich, R. Wagner, G. Horpel, T. Placke, M. Winter, Performance and cost of materials for lithium-based rechargeable automotive batteries, *Nature Energy.* 3 (2018) 267–278. doi:10.1038/s41560-018-0107-2.
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ИНСТИТУТ ТЕХНИЧКИХ НАУКА САНУ
БЕОГРАД
Кнез Михаилова 35/IV

Потврда о руковођењу пројектним задатком у оквиру пројекта ИИИ 45004

Др Драгана Југовић, виши научни сарадник Института техничких наука САНУ је од 2011. године ангажована као руководилац теме „Катодни материјали за литијум јонске акумулаторе“ у оквиру пројекта интегралних и интердисциплинарних истраживања из области хемије ИИИ 45004 „Молекуларно дизајнирање наночестица контролисаних морфолошких и физичко-хемијских карактеристика и функционалних материјала на њиховој основи“, којег финансира Министарство просвете, науке и технолошког развоја Републике Србије.

Истраживања у оквиру ове теме су усмерена на испитивање структурних, микроструктурних, морфолошких и електрохемијских особина једињења литијума и гвожђа у форми полианјонских једињења (LiFePO_4 и $\text{Li}_2\text{FeSiO}_4$), као и на њихове модификације путем катјонског и анјонског допирања или стварањем композита са угљеником.

Остварени су значајни научноистраживачки резултати: 11 радова са SCI листе часописа (од тога: 6 радова М21а категорије, 4 рада М21 и 1 рад М23 категорије), 2 рада у националном часопису категорије М53, један регистрован патент на националном нивоу (М92), 2 одбрањене докторске дисертације на Факултету за физичку хемију Универзитета у Београду, 27 саопштења на међународним скуповима (3 саопштења М33 и 24 саопштења М34), 1 саопштење на националном скупу М64 и одржана су два предавања по позиву.

11 објављених радова има укупно 107 цитата и Хиршов фактор 7.

Др Драгана Југовић је својим ангажовањем подигла ниво истраживања у оквиру Пројекта и дала допринос у формирању младих научних кадрова.

У Београду,
27.09.2018.

Проф. др Драгољуб Ускоковић,
Руководилац пројекта ИИИ 45004

Наслов **Odobreni projekti sa Slovenijom**

Од Nada Milosevic <nada.milosevic@nauka.gov.rs>

За Nada Milosevic <nada.milosevic@nauka.gov.rs>

Датум 2012-03-19 12:21



-
- Protokol sa Sestog zasedanja.pdf (~2.1 MB)
 - Odobreni projekti.xls (~57 KB)
-

Poštovani,

Obaveštavamo Vas da je na zasedanju Mešovite komisije između Republike Srbije i Republike Slovenije, održanom 14. marta 2012. godine Vaš projekat stavljen na listu odobrenih projekata u okviru bilateralne saradnje sa Slovenijom.

U prilogu vam dostavljam potpisan Protokol sa Šestog zasedanja Mešovite komisije, kao i Tabelu odobrenih projekata sa opredeljenim sredstvima za realizaciju projekta.

Zahteve za refundaciju troškova putovanja, odnosno najave poseta slovenačkih istraživača, potpisane od rukovodioca projekta i direktora instituta /dekana fakulteta, dostavite na obrasce koje možete pronaći na sajtu Ministarstva <http://www.mpn.gov.rs/sajt/page.php?page=284>

Zahteve možete dostaviti na mail adresu (Subject: Bilateralna saradnja sa Slovenijom) ili dostavite na adresu:

Ministarstvo prosvete i nauke

Nada Milošević

Nemanjina 22-26

11000 Beograd

Želim vam uspešnu saradnju i čestitam vam

S postovanjem,

Nada Milošević

Kontakt telefon 011/3616 529

Datum: 23.05.2017.
Broj: 577/1

Na osnovu člana 192. Statuta Univerzitet u Beogradu – Fakulteta za fizičku hemiju, Nastavno-naučno veće Fakulteta, na IX vanrednoj elektronskoj sednici, održanoj 23.05.2017. godine, daje se

SAGLASNOST

nastavnicima i saradnicima:

- 1) dr Slavku Mentusu, redovnom profesoru u penziji Fakulteta za fizičku hemiju, redovnom članu SANU,
- 2) dr Ivani Stojković Simatović, docentu Fakulteta za fizičku hemiju,
- 3) dr Dragani Jugović, višem naučnom saradniku Instituta tehničkih nauka SANU,
- 4) dr Milošu Miloviću, naučnom saradniku Instituta tehničkih nauka SANU,
- 5) dr Miodragu Mitriću, naučnom savetniku INN "Vinča".

za učešće u bilateralnom projektu sa Slovenijom, pod nazivom **"Razvoj novih materijala za alkalno-jonske baterije"**, sa dr Milicom Vujković, naučnim saradnikom Fakulteta za fizičku hemiju, u svojstvu rukovodioca sa srpske strane.

Odluku dostaviti:

- imenovanim,
- arhivi Fakulteta.

D e k a n
Fakulteta za fizičku hemiju



Prof. dr Gordana Čirić-Marjanović

МЕНТОРСКИ РАД

ДАТУМ: 13.12.2012.		
ОПШ. ЈЕДИ.	БРОЈ	ПРИЛОЗИ
	902	

Na osnovu članova 98. i 192. Statuta i članova 3., 4. i 6. Pravilnika o izradi i oceni doktorske disertacije Univerzitet u Beogradu – Fakulteta za fizičku hemiju, a u skladu sa odlukom Nastavno-naučnog veća Fakulteta, br. 1219/2 od 25.12.2007. godine, Nastavno-naučno veće Fakulteta, na III redovnoj sednici, održanoj 13.12.2012. godine donosi sledeću

O D L U K U

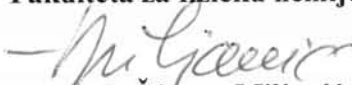
1. Za mentore doktorskih studija i doktorske disertacije studentu doktorskih studija **dipl. fizikohem. Miloša Miloviću, istraživaču pripravniku Instituta tehničkih nauka SANU**, određuju se: 1) dr Ivana Stojković Simatović, docent, Fakultet za fizičku hemiju, i 2) **dr Dragana Jugović**, naučni saradnik, Institut tehničkih nauka SANU.

Odluku dostaviti:

- studentu,
- mentorima,
- Službi za studentske poslove,
- Arhivi Fakulteta.

D e k a n

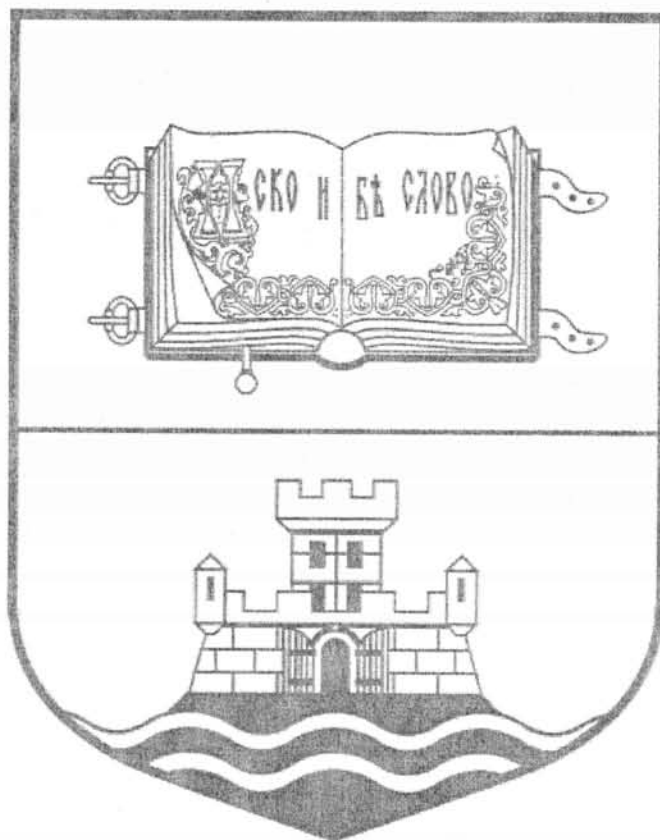
Fakulteta za fizičku hemiju


prof. dr Šćepan Miljanić



Република Србија

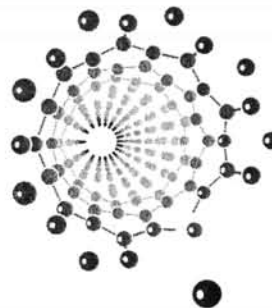
Универзитет у Београду



ДОДАТАК ДИПЛОМИ



Универзитет у Београду



Факултет за физичку хемију, Београд

ДОДАТАК ДИПЛОМИ

Важи само уз оригинал дипломе
број 5551500, издате 30. јуна 2016. године.

Додатак дипломи омогућује опис природе, нивоа, повезаности, садржаја и статуса студија које је похађало и успешно завршило лице наведено у дипломи уз коју је овај додатак издат. Информације морају бити наведене у свих осам поглавља. Тамо где нема података треба дати образложење о разлогу зашто их нема.

1. Подаци о имаоцу дипломе

- 1.1 Име: *Милош*
 1.2 Презиме: *Миловић*
 1.3 Датум рођења: *23. новембар 1987. године*
 1.4 Број индекса студента: *2011/0308*
 ЈМБГ: *2311987910022*

2. Подаци о стеченој дипломи

- 2.1 Стечени научни назив: *доктор наука – физичкохемијске науке*
 2.2 Научна/уметничка/стручна област (или области) студија: *физичко-хемијске науке*
 2.3 Назив и статус високошколске установе која издаје диплому:
Универзитет у Београду, државна самостална високошколска установа
 2.4 Назив и статус високошколске установе која организује студије (уколико се разликује од 2.3):
Универзитет у Београду - Факултет за физичку хемију, државна високошколска установа
 2.5 Језик на коме се одржава настава: *српски језик*

3. Подаци о врсти и нивоу студија

- 3.1 Врста и степен студија: *докторске академске студије, треће степен*
 3.2 Дужина трајања студија: *3 године (180 ЕСПБ)*
 3.3 Услови уписа:
Завршене мастер академске студије (најмање 300 ЕСПБ) из области: физичке хемије, физике, хемије, биохемије, молекулске биологије и техничке физике, или неке друге на којима се изучавала физичка хемија или њој припадајуће области и стекла одштаћена просечна оцена најмање 8 (осам) на основним и мастер академским студијама.

4. Подаци о садржају и постигнутим резултатима

- 4.1 Начин студирања: *студије у седишту установе*

- 4.2 Назив студијског програма:

Физичка хемија

Циљеви студијског програма:

Докторске студије физичке хемије имају за циљ да јруже докторантима разумевање истраживачког процеса и његове методологије и особине их за самостална истраживања у области физичке хемије и њој сродних наука, компетентну обраду и тумачење добијених резултата као и систематско и критичко праћење литературе. Подстиче се развој креативних способности кандидата које му омогућавају оригиналност у раду, али и критичност и објективност у размисљању и посматрању. Студенти се посебно кроз студијски истраживачки рад оспособљавају за практични рад и стичу специфичне практичне вештине неопходне за истраживања у јединим областима. На тај начин кандидати се оспособљавају за квалитетнији рад у својој даљој професионалној каријери јер су стекли рутину у примени различитих метода и техника у теоријским и експерименталним истраживањима. Циљ је да кандидат у току израде докторске дисертације овлада методама и методологијом научног рада, дође до оригиналних научних резултата које може објавити у релевантним научним часописима, да стекне компетенције које ће му омогућити лако укључивање у међународне научно-истраживачке пројекте.

- 4.3 Појединости студијског програма и постигнуте оцене:

ред. бр.	шифра	Наставни предмети		ста-тус	ЕСПБ	укупан број часова			год. студ. прог.	оце-на	наставник
		назив				пред.	веж.	ост.			
1	Д07ИДД1	Израда докторске дисертације	1	о.	15	-	-	-	1	-	Ивана Стојковић Симатовић
2	Д07НФМ	Нове физичкохемијске методе		о.	15	75	-	225	1	10	Миљенко Перић Славко Ментус

ред. бр.	шифра	Наставни предмети назив	ста-тус	ЕСПБ	укупан број часова пред. веж. ост.	год. студ. прог.	оце-на	наставник
								Драгомир Станисављев
3	Д07ИДД2	Израда докторске дисертације 2	о.	15	- - -	1	-	Драгана Југовић
4	Д07ИФХН	Физичка хемија наноматеријала	и.	15	75 - 225	1	10	Гордана Ђирић-Марјановић Славко Ментус Војислав Спасојевић
5	Д07ИДД3	Израда докторске дисертације 3	о.	10	- - -	2	-	Ивана Стојковић Симатовић
6	Д07ИДД4	Израда докторске дисертације 4	о.	10	- - -	2	-	Драгана Југовић
7	Д07ИХИС	Хемијски извори струје	и.	7	45 - 90	2	9	Славко Ментус Игор Пашти
8	Д07ИРСА	Рендгеноструктурна анализа	и.	7	45 - 90	2	10	Никола Цвјетићанин Миодраг Митрић
9	Д07ИТМ	Транспорт кроз мембране	и.	7	45 - 90	2	10	Милош Мојовић Ана Поповић-Бијелић
10	Д07ИЕНС	Електрохемија неводених средина	и.	7	45 - 90	2	9	Славко Ментус Ивана Стојковић Симатовић Никола Цвјетићанин
11	Д07СК	Специјални курс	о.	12	- - 60	2	10	Ивана Стојковић Симатовић Никола Цвјетићанин Славко Ментус Драгана Југовић Миодраг Митрић
12	Д07ИДД5	Израда докторске дисертације 5	о.	25	- - -	3	-	Ивана Стојковић Симатовић
13	Д07НИР1	Научно-истраживачки рад 1	о.	5	- - -	3	-	Ивана Стојковић Симатовић
14	Д07НИР2	Научно-истраживачки рад 2	о.	5	- - -	3	-	Драгана Југовић
15	Д07ИДД6	Израда докторске дисертације 6	о.	25	- - -	3	-	Драгана Југовић

Наслов дисертације: Синтеза, структурна и електрохемијска својства LiFePO_4 и $\text{Li}_2\text{FeSiO}_4$ као катодних материјала за литијум-јонске батерије

Комисија за одбрану дисертације: Ивана Стојковић Симатовић (ментор), Драгана Југовић (ментор), Никола Цвјетићанин, Славко Ментус, Миодраг Митрић

4.4 Начин оцењивања на предметима:

Оцена	Значење оцено	Број поена од до
10	одличан	91 100
9	изузетно добар	81 90
8	врло добар	71 80
7	добар	61 70
6	довољан	51 60
5	није положио	0 50

4.5 Просечна оцена и општи успех: 9,71 (девет и 71/100) - одличан

5. Подаци о намени стеченог назива

5.1 Приступ даљим студијама:

Посљедокторске студије.

Datum: 17.9.2015.

Broj: 957

Na osnovu članova 98. i 192. Statuta i članova 3., 4. i 6. Pravilnika o izradi i oceni doktorske disertacije Univerzitet u Beogradu – Fakulteta za fizičku hemiju, Nastavno-naučno veće Fakulteta, na X redovnoj sednici, održanoj 17.9.2015. godine donosi sledeću

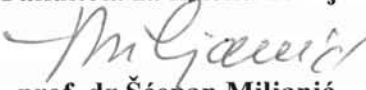
O D L U K U

1. Za mentora doktorskih studija i doktorske disertacije kandidata **mast. fiz.-hem. Maje Kuzmanović**, određuju se: 1) dr Ivana Stojković Simatović, docent, Fakultet za fizičku hemiju, 2) dr Dragana Jugović, viši naučni saradnik, Institut tehničkih nauka SANU.

Odluku dostaviti:

- studentu,
- mentorima,
- Službi za studentske poslove,
- Arhivi Fakulteta.

D e k a n
Fakulteta za fizičku hemiju


prof. dr Šćepan Miljanić

1. Подаци о имаоцу дипломе

- 1.1 Име: *Маја*
 1.2 Презиме: *Кузмановић*
 1.3 Датум рођења: *29. септембар 1977. године*
 1.4 Број индекса студента: *2008/0309*
 ЈМБГ: *2909977107089*

2. Подаци о стеченој дипломи

- 2.1 Стечени научни назив: *доктор наука – физичкохемијске науке*
 2.2 Научна/уметничка/стручна област (или области) студија: *физичко-хемијске науке*
 2.3 Назив и статус високошколске установе која издаје диплому:
Универзитет у Београду, државна самостална високошколска установа
 2.4 Назив и статус високошколске установе која организује студије (уколико се разликује од 2.3):
Универзитет у Београду - Факултет за физичку хемију, државна високошколска установа
 2.5 Језик на коме се одржава настава: *српски језик*

3. Подаци о врсти и нивоу студија

- 3.1 Врста и степен студија: *докторске академске студије, треће степен*
 3.2 Дужина трајања студија: *3 године (180 ЕСПБ)*
 3.3 Услови уписа:
Завршене мастер академске студије (најмање 300 ЕСПБ) из области: физичке хемије, физике, хемије, биохемије, молекулске биологије и техничке физике, или неке друге на којима се изучавала физичка хемија или њој припадајуће области и стекла оштра просечна оцена најмање 8 (осам) на основним и мастер академским студијама.

4. Подаци о садржају и постигнутим резултатима

- 4.1 Начин студирања: *студије у седишту установе*

- 4.2 Назив студијског програма:

Физичка хемија

Циљеви студијског програма:

Докторске студије физичке хемије имају за циљ да пружи докторантима разумевање истраживачког процеса и његове методологије и особине их за самостална истраживања у области физичке хемије и њој сродних наука, компетентну обраду и тумачење добијених резултата као и систематско и критичко праћење литературе. Подстиже се развој креативних способности кандидата које му омогућавају оригиналност у раду, али и критичност и објективност у размишљању и посматрању. Студенти се посебно кроз студијски истраживачки рад оспособљавају за практични рад и стичу специфичне практичне вештине неопходне за истраживања у појединим областима. На тај начин кандидати се оспособљавају за квалитетнији рад у својој даљој професионалној каријери јер су стекли рутину у примени различитих метода и техника у теоријским и експерименталним истраживањима. Циљ је да кандидати у току израде докторске дисертације овлада методама и методологијом научног рада, дође до оригиналних научних резултата које може објавити у релевантним научним часописима, да стекне компетенције које ће му омогућити лако укључивање у међународне научно-истраживачке пројекте.

- 4.3 Појединости студијског програма и постигнуте оцене:

ред. бр.	шифра	Наставни предмети		ста-тус	ЕСПБ	укупан број часова			год. студ. прог.	оце-на	наставник
		назив				пред.	веж.	ост.			
1	Д07ИДД1	Израда докторске дисертације 1	о.	15	-	-	-	-	1	-	Ивана Стојковић Симатовић
2	Д07НФМ	Нове физичкохемијске методе	о.	15	75	-	-	225	1	7	Славко Ментус Иванка Холцлајтнер-Антуновић

ред. бр.	шифра	Наставни предмети		ста-тус	ЕСПБ	укупан број часова			год. студ. прог.	оце-на	наставник
		назив				пред.	веж.	ост.			
											Боривој Аднађевић
3	Д07ИФХН	Физичка хемија наноматеријала	и.	15	75	-	225	1	9		Гордана Ђирић-Марјановић Славко Ментус Војислав Спасојевић
4	Д07ИДД2	Израда докторске дисертације 2	о.	15	-	-	-	2	-		Драгана Југовић
5	Д07ИДД3	Израда докторске дисертације 3	о.	10	-	-	-	2	-		Ивана Стојковић Симатовић
6	Д07ИДД4	Израда докторске дисертације 4	о.	10	-	-	-	2	-		Драгана Југовић
7	Д07ИКЕР	Кинетика електродних реакција	и.	7	45	-	90	2	8		Славко Ментус Игор Пашти
8	Д07ИХИС	Хемијски извори струје	и.	7	45	-	90	2	9		Славко Ментус Игор Пашти
9	Д07ИЕХ	Електроаналитичка хемија	и.	7	45	-	90	2	8		Драгица Минић-Поповић Биљана Шљукић Паунковић
10	Д07ИЕМ	Електрохемијске методе	и.	7	45	-	90	2	9		Драгица Минић-Поповић Ивана Стојковић Симатовић
11	Д07СК	Специјални курс	о.	12	-	-	60	2	9		Ивана Стојковић Симатовић Драгана Југовић Никола Цвјетићанин Миодраг Митрић Милица Вујковић
12	Д07ИДД5	Израда докторске дисертације 5	о.	25	-	-	-	3	-		Ивана Стојковић Симатовић
13	Д07ИДД6	Израда докторске дисертације 6	о.	25	-	-	-	3	-		Драгана Југовић
14	Д07НИР1	Научно-истраживачки рад 1	о.	5	-	-	-	3	-		Ивана Стојковић Симатовић
15	Д07НИР2	Научно-истраживачки рад 2	о.	5	-	-	-	3	-		Драгана Југовић

Наслов дисертације: *Морфолошке и електрохемијске карактеристике прахова LiFePO_4 синтетисаних у присуству различитих карбоксилних киселина*

Комисија за одбрану дисертације: *Ивана Стојковић Симатовић (ментор), Драгана Југовић (ментор), Никола Цвјетићанин, Миодраг Митрић, Милица Вујковић*

4.4 Начин оцењивања на предметима:

Оцена	Значење оцено	Број поена	
		од	до
10	одличан	91	100
9	изузетно добар	81	90
8	врло добар	71	80
7	добар	61	70
6	довољан	51	60
5	није положио	0	50

4.5 Просечна оцена и општи успех: *8,43 (осам и 43/100) - врло добар*

5. Подаци о намени стеченог назива

5.1 Приступ даљим студијама:

Посљедокторске студије.

5.2 Професионални статус:

Сврха студијској програми докторских студија физичке хемије је образовање и развој успешној, одговорној и конкурентној научној и наставној кадра у различитим областима физичке хемије као што су општа физичка хемија, атомистика, хемијска термодинамика, електрохемија, електрохемија, нуклеарна и радиохемија, хемијска кинетика, квантна хемија, физичка хемија чврстој материји, флуида и плазме, биофизичка хемија, заштитна животне средине, наноматеријали и друго. Доктори наука – физичкохемијске науке су оспособљени за рад у научном тиму, за рад у интердисциплинарним областима и за развој научној младости. Спекли су способности и знања да резултате својих истраживања презентују домаћој и међународној јавности; да планирају, организују и самостално воде оригинална научно-релевантна истраживања и развој нових технологија.

6. Додатне информације

6.1 Додатне информације о студенту:

Студент је успешно завршио: Универзитет у Београду - Факултет за физичку хемију, Србија и Црна Гора, основне студије, 4,5 године, 21. маја 2004.

Студент је успешно завршио: Универзитет у Београду - Факултет за физичку хемију, Република Србија, мастер академске студије, 60 ЕСПБ, 10. јула 2007.

На захтев студента одобрено је мировање права и обавеза у школској 2010/2011 и 2011/2012. години. На захтев студента одобрено је продужење рока за завршетак студија за два семестра, сагласно Статуту Универзитета у Београду и Статуту Факултета за физичку хемију, а на основу Одлуке бр. 198 од 16.11.2016. године.

6.2 Извори додатних информација о установи:

<http://www.bg.ac.rs>

<http://www.ffh.bg.ac.rs>

7. Овера додатка дипломи

7.1 Број: 8033901 Датум: 28. фебруар 2018. године

7.2 Одговорно лице

Декан, проф. др Гордана Тирић-Марјановић

7.3 Печат и потпис



Одговорно лице

Ректор, проф. др Владимир Бумбаширевић

Печат и потпис



ПОЗИВНА ПИСМА

From: "Janko Jamnik" <janko.jamnik@ki.si>
Subject: FW: Invitation for the invited speaker - Electric Mobility Conference
Date: Thu, March 31, 2011 1:36 pm
To: dragana.jugovic@itn.sanu.ac.rs

Dear Prof. Dr. Jugović,

It gives me great pleasure to inform you that National Institute of Chemistry is the organizer of the International Electric Mobility Conference, which will be held in Ljubljana, Slovenia, in the last week of October, 2011. Please find more information at www.ki.si/e-mobility

The program committee has recognized you as one of leading experts in the field. Thus, we would like to invite you to serve as an invited speaker at our conference to share your insights into the latest developments in this field.

We would be deeply honored to have you participate in Electric Mobility Conference 2011. Please notify us of your response in writing by 10th of April, 2011.

Should you need any additional information, please do not hesitate to contact us.

Yours sincerely,

Prof. Dr. Janko Jamnik, director

National Institute of Chemistry
Hajdrihova 19
SI-1001 Ljubljana, Slovenia
Tel.: + 386 /1/ 4760 - 210
Fax: + 386 /1/ 4760-300
www.ki.si

National Institute of Chemistry is a Slovenian research institution in the field of chemistry and related disciplines. More information available at www.ki.si/en.

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Attachments:



CERTIFICATE

We have honor to certify that
Dragana Jugovic
has been invited lecturer at the
Advanced Ceramic and Application Conference VI



Belgrade
September 18-20, 2017.

Serbian Ceramic Society

Наслов **Invite to Deliver an Invited Talk at the Nano-Micro Conference 2018 - Your published work entitled "The use of various dicarboxylic acids as a carbon source for the preparation of LiFePO₄/C composite" is influential**



Од Zhihua Zhou - Nano-Micro Letters <zhouxiaozhi@sjtu.edu.cn>
 За <dragana.jugovic@itn.sanu.ac.rs>
 Датум 2018-09-21 01:29

Dr. Dragana Jugovic
 SASA, Inst Tech Sci, Knez Mihailova 35-4, Belgrade 11000, Serbia

9/21/2018

Dear Dr. Dragana Jugovic,

On behalf of the conference chair and committees, I take great pleasure to invite you to present an Invited Talk in the session of "Nanomaterials for Energy and Environmental Applications" at the coming Nano-Micro Conference 2018, which will take place from December 17 to 20 2018 at the Ramada Plaza Jeju, Jeju, South Korea. Your work entitled "The use of various dicarboxylic acids as a carbon source for the preparation of LiFePO₄/C composite" published in CERAMICS INTERNATIONAL has been cited more than 9 times now by other researchers. It has a big influence in the scientific community. We hope you will be able to accept this invitation and contribute your work which will be beneficial for finding international collaborators, making friends and improving your personal influence. You may check our confirmed speakers here.

The Nano-Micro Conference 2018 is supported by Nano-Micro letters (2017 IF 7.381, Open Access, No Publication Fee) and Shanghai Jiao Tong University (QS World University Rankings 2018 #59). The conference is established to promote the international academic exchange in nano and micro science. The topic of Nano-Micro Conference covers Nanomaterials for Energy and Environmental Applications, Synthesis and application of nanostructured photocatalysts, Synthesis, properties and application of graphene, 2D Heterostructures, Nanotechnology for sensors, Topological Insulators, Nanophotonic Devices and Materials. It will be an ideal academic platform to exchange experiences, ideas, insight, and information with other scientists from all around the world.

Beyond the well-prepared topical sessions, there will be a range of other exciting opportunities for visiting participants to get out and explore Jeju, the vibrant, dynamic and accessible city in South Korea. Through the well arranged scientific social activities, you might perhaps make the acquaintance of more researchers in your research field.

Except abstracts which have been published elsewhere, all the conference abstracts will be published in the Proceedings of the Nano-Micro Conference 2018 with an ISBN code. Each abstract will have a unique DOI number. Accepted full papers will be selected to publish in Nano-Micro Letters and Frontier Research Today. No publication fee is required to publish full papers in the above mentioned journals.

All participants including conference chairs, keynote speakers, invited speakers and contributed speakers are required to register and pay the conference registration fee. The conference registration fee covers the welcome reception, coffee breaks, lunch buffet, conference proceeding book and all scientific social activities. For your reference, you may visit a previous conference organized by us at <https://www.frt.org/frontier-research-talk/2017/nmc2017>.

If you could contribute, please reply me with a tentative title of your invited presentation. I will then send you a formal invitation letter signed by the conference chair, Prof. Yafei Anderson Zhang. You may send me your abstract or full paper before November 1st 2018. Presentation slots have 25 minutes for Invited talks (20 + 5 min for discussion) and 15 minutes for Contributed talks (12 + 3 min for discussion).

If you don't wish to accept this invitation, we understand your busy schedule. Please just simply ignore this email.

For further information, please visit <https://www.frt.org/frontier-research-talk/2018/nmc2018>.

Sincerely Yours,
 Dr. Zhihua Zhou

.....
 Conference Secretary, Nano-Micro Conference 2018
 Managing Editor

Nano-Micro Letters, A Springer Open Access Journal
 2017 IF 7.381, Quartile 1 in MATERIALS SCIENCE, MULTIDISCIPLINARY, PHYSICS, APPLIED, Nanoscience and Nanotechnology (Web of Science)
<https://link.springer.com/journal/40820>

Conference Organizing Committee Member of Nano-Micro Conference 2018

If you would like to never receive email from us again, please click Unsubscribe me from the list or reply me with subject of No Interest and blank content. Thank you.

Надпись: **Invitation Letter to deliver an Invited Talk in the International Conference on Nanomaterials & Nanotechnology 2018**

От: ICNANO 2018 <contact@bcs18f.com>

За: D. Jugovic <dragana.jugovic@itn.sanu.ac.rs>

Датум: 2018-05-07 01:26



Dear Dr. D. Jugovic,

We would like to invite you to DELIVER AN INVITED TALK in the 8th anniversary of International Conference on Nanomaterials & Nanotechnology (ICNano, www.nm18.iaamevents.org [1]). ICNano 2018 will be held in the city of Nobel Prize, Stockholm, Sweden during 09 - 12 OCTOBER 2018. PLEASE SEND US YOUR CONSENT BY 11 MAY 2018 USING THE YES OR NO OPTIONS:

YES - I would like to deliver an Invited Talk in the International Conference on Nanomaterials & Nanotechnology 2018 [2]

NO - I am unable to deliver an Invited Talk in the International Conference on Nanomaterials & Nanotechnology 2018 [3]

We will offer you a 50% SUPPORT IN YOUR REGISTRATION FEE UNDER THE PRIVILEGE OF "INVITED SPEAKER". Please note that it is a purely academic contribution and organisers will not pay any honorarium for this service and you will be responsible for the payment of your registration fees (only 50%), accommodation, and travel etc.

The ICNANO 2018 is intended to provide an opportunity to get together, to exchange information and ideas, to promote stimulus discussions and collaborations among participants and furthermore to foster young researchers and students of cross-disciplinary areas ranging from Nanomaterials: Synthesis and Characterization, functional nanomaterials and their applications, Nanomedicine, drug delivery, and MRI imaging, Nanocomputing (simulation works on nanomaterials and devices), Nanotechnology for energy, Nano-safety, Polymers composites, Nanoparticles, Magnetic nanoparticles, Nanowhiskers, Bionano particles, Carbon nanomaterials, Nanocomposites (Polymer matrix, metal matrix, ceramic Matrix and bionano composites), Nano- interphases/interfaces, Fully biocompatible nanocomposites, Nanocrystals, Optical properties of nanostructured materials, Electrical properties of nanostructured materials, Rheology of nanostructured materials and nanocomposites, Self-assembled nanostructured systems, Organic/inorganic hybrid nanomaterials, Nanomaterial, advanced materials synthesis and analysis, Self-Assembly of Nanostructures materials, Polymer Nanocomposites, Nanomaterials for Energy Applications, Nanomagnetism and spintronics, Green Nanotechnology, Nanobiotechnology, Nanomaterials for drug-delivery, Nanofiltration, Nanocatalysis, Porous Nanomaterials, Nanophotonics, Nanophosphors, Radiation effects in nanomaterials and nanocomposites, Nanoelectronics, Nanodevices, Quantum Dots, Characterization techniques for nanomaterials and any other related topic including nanomaterials Design and Fabrications, Characterizations, Integrations, and their Applications, etc.

The conference will be host on the Conference Centre, M/S Mariella, Viking Line Cruise ship cruising from Stockholm (Sweden) - Helsinki (Finland) - Stockholm (Sweden) during 09 - 12 October 2018. The conference will bring an amazing experience of cruise hospitality and visit two capital cities of Scandinavia, with allusion of the beautiful views of Stockholm archipelago (sailing through nearly 30,000 islands) in the autumn.

AWARDS: International Association of Advanced Materials announced different categories of Awards for this Congress and Parallel Events/Symposia 2018. Please send your nominations (CV and 2 - 3 pages statement of contributions with two recommendations) by email to secretarygeneral@iaaonline.org. THE LAST DATE FOR RECEIVING NOMINATIONS IS 01 JUNE 2018. For more information, please visit www.nm18.iaamevents.org/pages/awards [4]

CALL FOR SYMPOSIUM PROPOSAL: Please submit your symposium proposal with a short CV of the proposed organizer and co-organizers to secretarygeneral@iaaonline.org UNTIL 15 MAY 2018. For more information, please visit

www.nm18.iaamevents.org/pages/invite-proposals-for-symposium [5]

We look forward to receiving your response.

With kindest regards,

IAAM CONFERENCE COORDINATOR
International Conference on Nanomaterials & Nanotechnology 2018
www.nm18.iaamevents.org [6]

If you no longer want to receive email alerts, click here to UNSUBSCRIBE [7] or send an email to unsubscribe@vbnipress.com

Links:

-
- [1] http://r.iaaonline.com/tr/c1/RvIbaJ2gFKIhrSCcVur6QzFwMB2ggV11CNU7g8EFxx94nGgi8c18zueWGrzzTpiFRVPgGsYp4vS13IP6gzvTQV0on9R8IBrqpBP-MQ_TJ2n9gJ1ULhaMwR3UbSdd8nt0GKaigdb1M2IxcBvnyvBTzhSa_thi4731BngIFUc08ysLiQV7pdg
 - [2] http://r.iaaonline.com/tr/c1/9uFktzW3V2V12j2R29b1YA-mvx9r2Fsd0jWm09C5a1RTTjRty6F5XWt6xcoLjYvrW74jhdhVYHns0My8p5Wx82ZKuSLHLto9lWmZKqbAjqwSk4nP3g15XRxnRgudtwbwoDhcnbgbcjnCv68vKiFutQzPvm_J9Mmk9D3PrpgfKfMRzh8L1DY1ZaBESiKuV0m01Nze2hY8sKBL3ExKhUnZGoe105b1zyEx_JA1w
 - [3] http://r.iaaonline.com/tr/c1/WhPkH0Bw9m8L_1t5P4gRSgccc2gIn3zSgPDg2ttVcesN0_ffz2gy5DdxG5YAXy_Fv11_z5hgCEMAXIaR0LnaTsHxy_3_fJkpBj0Ux0BU921w75k7rtw5FnTRZ9dabHgHdpLAjTWxwb5Nb_LXtFECCPIDJ3esJTI0Fc-d8Pn6ReYgB2x3H6TejovY1X65NwGGeELGBeOwJS0VUCOFKsdBYBoItEcB7itC1Lz8C0AVRcxPB4mFMNclD8L2VYjPfe_oyk05zXLEy0rPE0LiaCgSdt50AXH62iqFxFG0
 - [4] http://r.iaaonline.com/tr/c1/tectmZsV_GBLClKafmwR-0G7cpusDggcmZg5KF1xdSsSrwl1Y_b0CgVEYSFngnUZkAkqKMiH5T8Rei0dotZ-N5VNH3J0ExL0ktPhugGvKvn8gIpi0Vfpgip1NTahwaVepsXwpp6ZP8gaSffrSPbPpTT0U2se0fhwEo771r6rNkuc3sSfzHeJ162ymRQ7gDxovRM-LTKOYQ
 - [5] http://r.iaaonline.com/tr/c1/Wvmd1zN7IVGdehZnsxhvwvQ-FFQwWClby19bKp0gxiCRqKtrecedbN6zj13YoLfxkUcJkxg7YC7J212wpZcxn6bkwnCoICDNWFLfxzQ3YRJOHwiEgAZmo7sCTC08VT36i419gU_4ynJ2J41ZtHwJ3APHUKimggAEjv4AuWgqCv1yLd9LP4KfifcZj
 - [6] http://r.iaaonline.com/tr/c1/UsvfaN_uylgWnBLi6kaHG5ka_V3uAy8XmrUII7hgr4bFhv-hXh-RDUNVLJDbxKk080aNTcgRHPpWpYdufnrziEHJ386xJ2-1v5PNLEyZb0o1p1yWFKmkM09YivSTqR4HDG5XNpRyJz0F8E-4J0gDYU0gIpvBmuvRbgtV21LDJfYCuLxmM2E
 - [7] http://r.iaaonline.com/tr/c1/QUlnD80kTwez1CwFXf0XhkB-0UFQipFfe_ckWlQaJpgAyHfZHY8aLD5X06SV251EPSJdsN1_nonKNrC90eU18tJyXVZ50ccvt_Er9TxsUsh3o_9noGHJf12trAMuPy1C9_6-6XISmY5jHKNscpE8I7Jxyat6Y9Y6G1ciGbsYnPeIe8P5A-n8gQAGMB908EE-FJ4Ttkf1l1j2VUCNvbMaGrxsNSPnY3tQrWNXRhrbm7IHmufZMge4EUBLYXFn3Ipzst1Z

Наслов **Invited speaker invitation regarding Crystal structure analysis and first principle investigation of F doping in LiFePO₄**



Од <Yinpan@intergridconf.org>
За <dragana.jugovic@itn.sanu.ac.rs>
Одговори Yin Pan <Yinpan@intergridconf.org>
Датум 2016-10-29 06:24

Dear Jugovic, D.,

This is Yin Pan from the 2017 International Conference on New Energy and Future Energy System (NEFES 2017) which is sponsored by Yunnan Normal University. It is scheduled to be held in Kunming, Southwest China from September 22nd to 25th, 2017. Considering your research "Crystal structure analysis and first principle investigation of F doping in LiFePO₄" is good for this conference, I cordially invite you to participate in this event to share your new research findings.

Invited speakers could get 30% discount on standard registration fee.

Selected papers will be published in well-known journals with ISI impact factors.

Conference proceedings will be published in IOP Conference Series:Earth and Environmental Science, indexed by EI Compendex, Scopus, CPCI-S, Inspec, etc.

If you are not available for attendance, could you help us review one or two papers? Active Reviewers are candidates for Technical Program Committee next year.

It is highly appreciated if you kindly forward this conference information to your colleagues or friends in this field.

Yin Pan

Conference Secretary

Yinpan@intergridconf.org

www.intergridconf.org

Click here to Unsubscribe [[1](#)]

Links:

[1] <http://paper.academicconf.com/Unsubscribe/index.aspx?address=dragana.jugovic@itn.sanu.ac.rs&from=SES&name=NEFES>

Subject **Reg: Invited Talk Materials Science-2018**
From Materials Science-2018 <materials_science-2018@scientificfederation.com>
Sender Materials Science-2018 <materials_science-2018@scientificfederation.com>
To Dragana Jugović <djugovic@vinca.rs>
Reply-To <materials_science-2018@scientificfederation.com>
Date 2018-08-01 12:21



Dear. Dragana Jugović ,

On behalf of the Organizing Committee, all of us have the pleasure to cordially invite you as an Invited Speaker at our upcoming meeting " *4th Global Congress & Expo on Materials Science and Nanoscience*", will be held during **October 15-17, 2018** at **Amsterdam, Netherlands**. This meeting is a part of series of conferences organized by Scientific Federation, is expert-driven and is initiated to organize and facilitate proficient and international scientific conferences worldwide with associating the world class researchers.

This Meeting will be a great occasion for discussions of previous, present, and future research on "**Materials Science & Nanoscience**". It will provide an exciting scientific program, which will cover all aspects from the basics to their applications. It will be a great forum for students, postdoctoral fellows and established scientists from different countries to exchange ideas, and to broaden their knowledge. It will be an excellent occasion to meet researchers from around the world, widen professional contact and create new opportunities, including establishing new collaborations.

For further information and conference updates, please visit the conference website:

<https://scientificfederation.com/materials-nanoscience-2018/>

Your participation is important for the success of this meeting, and will be very much appreciated.

Looking forward to hear positive acknowledgement from you. Please feel free to write to us.

Sincerely,

Saidulu R
Conference Secretary
Materials Science-2018
T: +91-779-979-0002
E: materials_science-2018@scientificfederation.com

This message was sent to djugovic@vinca.rs by materials_science-2018@scientificfederation.com
1-8-506/2/B, PRAKASH NAGAR, HYDERABAD, TELANGANA 500016, India

 [Unsubscribe](#) | [Manage Subscription](#) | [Forward Email](#) | [Report Abuse](#)

Subject **Lithium iron silicate
(Li₂FeSiO₄)**

From <shajeena@energy8-nscj.co.uk>

To <djugovic@vinca.rs>

Reply-To <chair@energy8.nscj.co.uk>

Reply-To <chair@energy8.nscj.co.uk>

Date 2018-04-15 18:51



Dear Author,

This is the final call for an Invited Talk at the **8th International Symposium on Energy, 6-9 August 2018 in Aberdeen, Scotland, United Kingdom**. Session topics include such as

Rutgers Session: Porous materials and structures for energy applications
<https://energy8.nscj.co.uk/sessions/Rutgers.html>

The complete list of topics can be found at
<https://energy8.nscj.co.uk/Sessions.html>

Conference social activities and field trip are included and free
<https://energy8.nscj.co.uk/Activities.html>

The symposium will generate two awards, the Best Research Image and the Best Poster respectively.
<https://energy8.nscj.co.uk/Awards.html>

The abstract submission deadline has been extended to 25 April 2018. Submission Guidelines can be found at
<https://energy8.nscj.co.uk/Submission.html>

If you are not available for the conference time, or if you are lack of travel funding, you may like to consider **Free Participation for online abstract/poster/slides/video links**, for details please check
<https://energy8.nscj.co.uk/Online.html>

For more information, please check the conference homepage at
<https://energy8.nscj.co.uk/>

If you have any enquiries, please do not hesitate to contact chair@energy8.nscj.co.uk

Regards,
Conference Team
8th International Symposium on Energy

If prefer not to receive any more communications, we thank you for the precious time and please click [unsubscribe](#).

ПРЕДСЕДАВАЊА
НА НАУЧНИМ
СКУПОВИМА

- 11.40–12.00 **INV3 Modeling, designing and processing of barium titanate stannate functionally graded electroceramics**
Smilja Marković¹, Srečo Davor Škapin², Boban Stojanović³, Danilo Suvorov², Dragan Uskoković¹
¹Institute of Technical Sciences of SASA, Belgrade, Serbia
²Jožef Stefan Institute, Ljubljana, Slovenia
³Faculty of Science, University of Kragujevac, Serbia
- 12.00–12.15 **OR1 The Rare-Earths influences on doped BaTiO₃ Ceramics Microstructure and Electric Characteristics**
Vesna V. Paunović¹, Vojislav V. Mitić^{1,2}, Ljubiša M. Kocić¹, Miloš Marjanović¹, Miloš Đorđević¹
¹ University of Nis, Faculty of Electronic Engineering, Niš, Serbia
² Institute of Technical Sciences of SASA, Belgrade, Serbia
- 12.15–12.30 **OR2 Implementation of Wide-Bandgap Materials in Power Electronics Components**
Jelena Milojković¹, Simon Le Blond², Vojislav Mitić³, Vančo Litovski²
¹Inovation centre of advanced technologies, Niš, Serbia
²University of Bath, Bath, UK
³Serbian Academy of Science and Arts, Belgrade, Serbia
- 12.30–12.45 **OR3 The nonorthogonality effects on capacitive behaviour of quantum dot**
Miloš S. Dražić, Ivana Đurišić, Viktor Z. Cerovski and Radomir Žikić
Institute of Physics, University of Belgrade, Pregrevica 118, Belgrade
- 12.45–13.00 **OR4 Spectroscopy characterization of YFeO₃ obtained by the mechanochemical synthesis**
Zorica Ž. Lazarević¹, Čedomir Jovalekić², Dalibor Sekulić³, Valentin N. Ivanovski⁴, Ana Umićević⁴, Martina Gilić¹, Nebojša Ž. Romčević¹
¹Institute of Physics, University of Belgrade, Belgrade, Serbia
²The Institute for Multidisciplinary Research, University of Belgrade, Serbia
³Faculty of Technical Sciences, University of Novi Sad, Serbia
⁴Institute of Nuclear Sciences Vinča, University of Belgrade, Serbia
- 13.00–14.00 **Buffet Lunch** **Club SASA, Mezzanine**
- Blue Hall 2, 1st floor
- 14.00–15.40 **Keynote Session 2**
Chairpersons: Vladimir Blagojević, Dragana Jugović
- 14.00–14.25 **KN5 Environmental forensics – concepts and contemporary challenges**
Goran Kniewald
Rudjer Bošković Institute, Zagreb, Croatia
- 14.25–14.50 **KN6 Fractals, Materials and Energy Technologies**
Ljubiša M. Kocić¹, Vojislav V. Mitić^{1,2}, Vesna V. Paunović¹
¹University of Niš, Faculty of Electronic Engineering, Niš, Serbia
²Institute of Technical Sciences of SASA, Belgrade, Serbia

- 14.25 - 14.50** **KN-EM2 Thermodynamics of Vapor-Liquid-Solid Growth**
Jonas Johansson
 Solid State Physics and NanoLund, Lund University, Lund, Sweden
- 14.50 – 15.15** **KN-EM3 The use of ceramic coating by ESD technique to improve the service life of copper spot welding caps**
Sükrü Talaş
 Afyon Kocatepe University, Faculty of Technology, ANS Campus, Afyonkarahisar, Turkey
- 15.15 - 15.40** **KN-EM4 Some practical application of TiO₂**
Mirjanić D. Lj.¹, Pelemiš S.²
¹Academy of Sciences and Arts of Republic of Srpska, B&H
²Faculty of Technology, University of East Sarajevo, B&H
- 15.40 - 16.00** **INV-EM1 Granular material transport and mixing - DEM/CFD numerical approach**
Lato Pezo
 University of Belgrade, Institute of General and Physical Chemistry, Belgrade, Serbia

Hall, 1st Floor

16.00 - 16.20 **Coffee Break**

Red Hall, 1st Floor

16.20 - 18.05 **Session: Electro and Multifunctional 2**
Chairpersons: Dragana Jugović, Saleem F. Shaukat

- 16.20 - 16.40** **INV-EM2 Assessing electrical properties of ceramic samples**
D. Olćan¹, N. Obradović², S. Filipović², A. Terzić³, V. Pavlović², M. Kachlik⁴, K. Maca⁴, A. Djordjević¹
¹School of Electrical Engineering, University of Belgrade, Serbia
²Institute of Technical Sciences, Serbian Academy of Sciences and Arts, Belgrade, Serbia
³Institute for Testing of Materials IMS, Belgrade, Serbia
⁴EITEC BUT, Brno University of Technology, 61600 Brno, Czech Republic

1 s t W O R K S H O P
o n
MATERIALS SCIENCE FOR ENERGY RELATED APPLICATIONS
(Belgrade, September 26th-27th 2014)

Place: University of Belgrade, Faculty of Physical Chemistry, Studentski trg 12-16, Belgrade

Room: 368 (Amphitheatre)

P R O G R A M

DAY 1 – September 26th 2014

REGISTRATION and OPENING

8:00 to 9:00 Registration and posters mounting

9:00 to 9:10 **OPENING WORDS**

Session 1.1 – Methods (Chairperson: Natalia V. Skorodumova)

	<u>Olga Yu. Vekilova</u> , Johan O. Nilsson, Olle Hellman, Sergei I. Simak and Natalia V. Skorodumova
9:10 to 9:30	<i>AB INITIO NON-EQUILIBRIUM MOLECULAR DYNAMICS COMBINED WITH COLOR-DIFFUSION ALGORITHM: A THEORETICAL STUDY OF IONIC CONDUCTIVITY IN OXIDES</i>
	<u>Mikael Leetmaa</u>
9:30 to 9:50	<i>THE KINETIC MONTE-CARLO APPROACH TO STUDY SLOW DIFFUSION PROCESSES IN ENERGY RELATED MATERIALS USING KMCLib</i>
	<u>Petar Laušević</u> , Vladimir Nikolić, Milica Marčeta Kaninski, Predrag Pejović
9:50 to 10:10	<i>MODELING OF ELECTROCHEMICAL DOUBLE-LAYER CAPACITORS</i>
	<u>Biljana Babić</u> , Branko Matović
10:10 to 10:30	<i>NEW SYNTHETIC PROCEDURE FOR NANOMETRIC CARBIDES</i>

Coffee break/Posters (10:30 to 11:00)

**Session 1.2 – Solid electrolytes and oxide materials for energy related applications
(Chairperson: Dragana Jugović)**

	<u>Anton Kokalj</u> , Robert Dominko, Gregor Mali, Anton Meden, Miran Gaberšček, and Janez Jamnik
11:00 to 11:20	<i>DESIGNING $\text{Li}_2\text{Mn}_x\text{Fe}_{1-x}\text{SiO}_4$ AS A POTENTIAL Li-BATTERY CATHODE MATERIAL</i>
	<u>Milica Vujković</u> , Slavko Mentus
11:20 to 11:40	<i>LITHIUM vs. SODIUM INTERCALATION MATERIALS IN AQUEOUS SOLUTIONS</i>
	O. Hellman, N. V. Skorodumova and <u>S. I. Simak</u>
11:40 to 12:00	<i>TUNING IONIC CONDUCTIVITY IN CERIA BY VOLUME OPTIMIZATION</i>

Session I: 15⁰⁰-18³⁰

Chairpersons: Dragana Jugović and Irena Nikolić

- 15⁰⁰-15¹⁵ **Silver Nanowire Based Networks for Transparent Electrode Applications**
Vuk Radmilović¹, Manuela Göbelt², Silke Christiansen^{2,3}, Erdmann Spiecker⁴, Velimir Radmilović^{5,6}
¹Innovation Center, University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia, ²Max Planck Institute for the Science of Light, Günther-Scharowsky-Str. 1, 91058 Erlangen, Germany, ³Helmholtz Centre Berlin for Materials and Energy, Hahn-Meitner Platz 1, 14109 Berlin, Germany, ⁴Center for Nanoanalysis and Electron Microscopy (CENEM), Friedrich-Alexander University Erlangen-Nürnberg, Cauerstrasse 6, 91058 Erlangen, Germany, ⁵University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia, ⁶Serbian Academy of Sciences and Arts, Knez Mihailova 35, 11000 Belgrade, Serbia
- 15¹⁵-15³⁰ **Direct Observation of the Magneto Crystal Anisotropy Axis in Fe_{3-x}O₄ Nanoparticles by MFM**
Carlos Moya¹, Óscar Iglesias-Freire^{2,3}, Nicolás Pérez¹, Xavier Batlle¹, Amílcar Labarta¹, Agustina Asenjo²
¹Departament de Física Fonamental, Institut de Nanociència i Nanotecnologia, Universitat de Barcelona, Barcelona, Spain, ²Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Cantoblanco, Madrid, 28049 Spain, ³Department of Physics, McGill University, Montreal, Canada
- 15³⁰-15⁴⁵ **Smart Hydrogels of Thermoresponsive Interpenetrating Networks of Poly(N-isopropylacrylamide) and Polyacrylamide**
Jiri Spevacek, Marek Radecki, Lenka Hanykova, Alexander Zhigunov, Zdenka Sedlakova
Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
- 15⁴⁵-16⁰⁰ **Methodology of Formation of New Generation Multilayer Coatings for Cutting Tools**
Alexey Vereschaka¹, Anatoly Vereschaka¹, Boris Mokritskii², Andre Batako³
¹Moscow State Technological University STANKIN, ²Komsomolsk-na-Amure State Technical University, ³Liverpool John Moores University
- 16⁰⁰-16¹⁵ **Design of Phase Percolated Composites for Military Application**
Paulina Chabera, Anna Boczkowska
Warsaw University of Technology, Faculty of Materials Science and Engineering, Woloska St 141, 02-507 Warsaw

Session II: 11⁰⁰-12¹⁵

Chairpersons: Dragana Jugović and Pozhhan Mokhtari

- 11⁰⁰-11¹⁵ **Structural and electrochemical study of lithium iron (II) pyrophosphate**
Dragana Jugović¹, Miloš Milović¹, Miodrag Mitrić², Valentin Ivanovski², Srečo Škapin³, Dragan Uskoković¹
¹Institute of Technical Sciences of SASA, Belgrade, Serbia; ²Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia; ³Jožef Štefan Institute, Jamova 39, SI-1000 Ljubljana, Slovenia
- 11¹⁵-11³⁰ **Li₄Ti₅O₁₂. Promising anode material for Li-ion batteries synthesized via mechanochemically assisted route**
Martin Fabián¹, Markéta Žukalová², Ladislav Kavan², Vladimír Šepelák¹, Mamoru Senna³
¹Institute of Geotechnics, Slovak Academy of Sciences, 040 01 Košice, Slovak Republic; ²J. Heyrovsky Institute of Physical Chemistry, Acad. Sci. Czech Republic, 182 23 Praha, Czech Republic; ³Faculty of Science and Technology, Keio University, 223-8522, Yokohama, Japan
- 11³⁰-11⁴⁵ **CTAB- and pluronic F-127-assisted microwave processing of ZnO particles with modified morphology and optical properties**
Smilja Marković¹, Ivana Stojković-Simatović², Sanita Ahmetović², Ljiljana Veselinović¹, Stevan Stojadinović³, Vladislav Rac⁴, Srečo Škapin⁵, Dragan Uskoković¹
¹Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Belgrade, Serbia; ²University of Belgrade, Faculty of Physical Chemistry, Belgrade, Serbia; ³University of Belgrade, Faculty of Physics, Belgrade, Serbia; ⁴University of Belgrade, Faculty of Agriculture, Belgrade, Serbia; ⁵Jožef Stefan Institute, Ljubljana, Slovenia
- 11⁴⁵-12⁰⁰ **Synthesis of tribological WS₂ powder from oxide precursor**
Nataša Gajić¹, Željko Kamberović², Zoran Anđić³, Jarmila Trpčevska⁴, Beatrice Plešingerova⁴, Jovana Đokić³
¹University of Belgrade, Innovation Center of the Faculty of Technology and Metallurgy in Belgrade Ltd., Belgrade, Serbia; ²University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia; ³University of Belgrade, Innovation center of Faculty of Chemistry Ltd., Belgrade, Serbia; ⁴Technical University of Košice, Faculty of Materials, Metallurgy and Recycling, Košice, Slovakia
- 12⁰⁰-12¹⁵ **Thermochemistry aspects of mechanochemistry activation of the flotation processes**
Milan M. Petrov, Marina S. Blagojev, Ljubiša D. Andrić, Dragan S. Radulović
Institute for Technology of Nuclear and other Raw Materials, Belgrade, Serbia

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Beograd, 20. 09. 2018.

P O T V R D A

Ovim se potvrđuje da je **dr Dragana Jugović**, viši naučni saradnik Instituta tehničkih nauka SANU član Srpskog keramičkog društva od 2014.godine. Unapređenjem i podizanjem kvaliteta istraživanja u oblasti savremenih keramičkih materijala za litijum jonske baterije i formiranja mlađeg naučnog kadra, dr Dragana Jugović je dala značajan doprinos međunarodnoj konferenciji Advanced Ceramic Materials and Application koju ovo društvo organizuje od 2012.godine.

Potvrda se izdaje na lični zahtev radi izbora u zvanje naučni savetnik.

Srdačan pozdrav,

Prof. Dr. Vojislav Mitić
Predsednik Srpskog Keramičkog Društva



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Завод за интелектуалну својину је, на основу члана 31. Закона о министарствима („Службени гласник РС”, бр. 44/14, 14/15, 54/15 и 96/15 - др. закон), чл. 67, 69, 70. и 107. Закона о патентима („Службени гласник РС”, број 99/11) решења о преносу овлашћења за доношење и потписивање управних и других аката Завода за интелектуалну својину 990 број 021-2016/2212-01 од 31.3.2016. године, у управном поступку по пријави патента број П-2010/0488, подносиоца ИНСТИТУТ ТЕХНИЧКИХ НАУКА СРПСКЕ АКАДЕМИЈЕ НАУКА И УМЕТНОСТИ, Кнез Михаилова 35/IV, 11000 Београд, RS, ради признања патента, донео следеће

РЕШЕЊЕ

I ПРИЗНАЈЕ СЕ патент по пријави број П-2010/0488 од 12.11.2010. године, за проналазак под називом: „**ПОСТУПАК ДОБИЈАЊА КОМПОЗИТА ЛИТИЈУМ ГВОЖЂЕ ФОСФАТА (LiFePO_4) И УГЉЕНИКА МЕТОДОМ ПРЕЦИПИТАЦИЈЕ У РАСТОПУ СТЕАРИНСКЕ КИСЕЛИНЕ**”, према опису, патентним захтевима и цртежима из патентног списка.

II УПИСУЈЕ СЕ у Регистар патената Завода за интелектуалну својину, признато право из тачке I диспозитива овог решења под бројем

54805

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III Податке о признатом праву и први патентни захтев објавити у „Гласнику интелектуалне својине” број 5/2016.

Образложење

ИНСТИТУТ ТЕХНИЧКИХ НАУКА СРПСКЕ АКАДЕМИЈЕ НАУКА И УМЕТНОСТИ, Кнез Михаилова 35/IV, 11000 Београд, RS, поднео је дана 12.11.2010. године, пријаву патента број П-2010/0488, за проналазак под називом: „ПОСТУПАК ДОБИЈАЊА КОМПОЗИТА ЛИТИЈУМ ГВОЖЂЕ ФОСФАТА (LiFePO_4) И УГЉЕНИКА МЕТОДОМ ПРЕЦИПИТАЦИЈЕ У РАСТОПУ СТЕАРИНСКЕ КИСЕЛИНЕ”.

У спроведеном поступку суштинског испитивања пријаве патента, у смислу члана 104. Закона о патентима („Службени гласник РС”, број 99/11), утврђено је да су испуњени сви услови за признање патента прописани овим законом.

Имајући у виду наведено, Завод је, на основу чл. 107, 109. и 111. Закона о патентима, одлучио као у диспозитиву овог решења.

Такса за исправу о признатом праву плаћена је у складу са Тарифним бројем 123. Тарифе републичких административних такси, која је саставни део Закона о републичким административним таксама („Службени гласник РС”, бр. 43/03, 51/03-исправка, 53/04, 42/05, 61/05, 101/05-др. закон, 42/06, 47/07, 54/08, 5/09, 54/09, 35/10, 50/11, 70/11, 55/12, 93/12, 47/13, 65/13-др. закон, 57/14, 45/15-усклађени дин. износи, 83/15 и 112/15), док су трошкови за објаву података о признатом праву и за штампање патентног списка плаћени у складу са Тарифним бр. 1. и 2. Тарифе трошкова поступка и трошкова за пружање информационих услуга Завода за интелектуалну својину, која је саставни део Одлуке о висини и начину плаћања трошкова поступка и трошкова за пружање информационих услуга Завода за интелектуалну својину („Службени гласник РС”, број 113/13), а доказ о уплати је приложен уз поднесак број RS/E/2016/3326-П-2010/0488 од 13.6.2016. године.

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PROGRAMME AND THE BOOK OF ABSTRACTS

3rd International Symposium on Materials for Energy Storage and
Conversion - mESC-IS 2018

Edited by:

Nikola Novaković
Sandra Kurko
Sanja Milošević Govedarović
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Fluorination of sodium cobalt oxide: effects on structure and electrochemical performance

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Lower market cost of sodium in contrast to lithium makes sodium intercalating compounds attractive for application as electrodes in rechargeable sodium batteries. Among them, sodium cobalt oxide, Na_xCoO_2 , have been extensively investigated as potential cathode material for sodium ion batteries [1]. Na_xCoO_2 crystallizes in a number of layered structures depending on sodium content, oxygen partial pressure and temperature [2]. In each of these structures, edge-sharing CoO_6 octahedra form sheets between which sodium ions are inserted with trigonal prismatic (P) or octahedral (O) environment. The packing differs in the number of sheets within the unit cell – 2 or 3 sheets – creating three possible structural types denoted as O3, P2, and P3. The P2 type of structure (displayed in Figure 1) is considered as the most suitable for electrochemical application for its cycle stability.

Within this research the possibility of fluorine doping of the P2 type Na_xCoO_2 powder was examined. As fluorine substitution already proved successful in improving cathode performance of layered lithium-based counterparts, the effects of fluorination on structure and electrochemical properties of P2 Na_xCoO_2 were investigated and discussed.

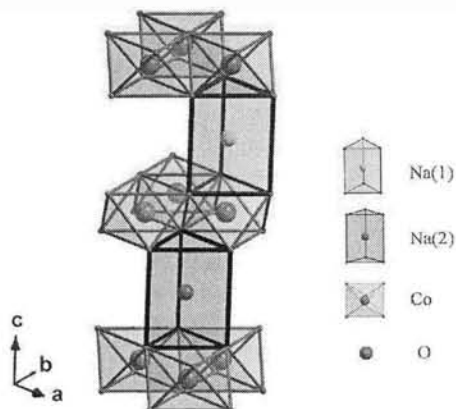


Figure 1. P2 structure of Na_xCoO_2 .

A modified solid state reaction (an adopted method that includes sequential cycles of rapid heating – at 750°C in the air with dwell time of 15 minutes – and rapid cooling, with an intermediate grinding of the powder between two cycles) was applied for the preparation of a pristine Na_xCoO_2 powder. Na_2CO_3 and Co_3O_4 in a molar ratio 1.7 : 1 were used as starting compounds. Fluorination of the synthesized Na_xCoO_2

has been conducted at 200°C in a vacuum evacuated atmosphere with NH_4HF_2 as a fluorination agent. The obtained samples were analysed by X-ray powder diffraction, FTIR spectroscopy, FESEM electron microscopy, X-ray photoelectron spectroscopy and Galvanostatic charge/discharge tests.

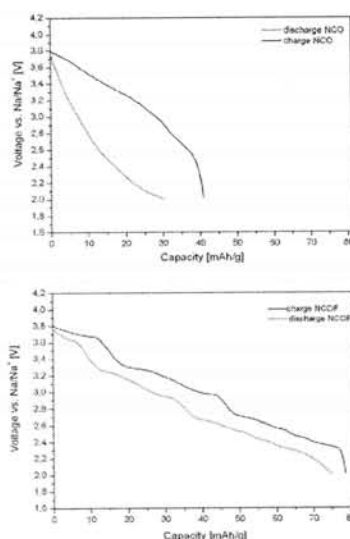


Figure 2. Galvanostatic charge/discharge profiles for pristine (upper graph) and fluorinated powder (lower graph).

The results of the Rietveld refinement combined with the findings from the X-ray photoelectron spectroscopy measurements confirm $\text{Na}_{0.76}\text{CoO}_2$ and $\text{Na}_{0.44}\text{CoO}_{1.96}\text{F}_{0.04}$ stoichiometries for the pristine and fluorinated powders, respectively, which implies that 4 at.% of fluorine ions per formula unit are incorporated in the structure. Fluorination modifies the structure through both the reduction of crystallite size and the increase of interslab distance. Consequently, fluorinated powder has showed the improvement of the electrochemical performances (Figure 2).

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Influence of platinization of mechanically activated nuclear grade graphite powders on the hydrogen adsorption process

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Non-activated powder of nuclear grade graphite and powders of nuclear grade graphite that were milled for 10, 20 and 30 minutes are doped with 0.03% of platinum. XRD analysis of initial and activated graphite powders was used for structural characterization. Hydrogen adsorption performed in isothermal conditions showed that platinization of powder samples of nuclear grade graphite decreases time needed for reaching adsorbent saturation during hydration. Simultaneously it was shown that platinization, due to the hydrogen spillover effect, increases adsorption capacity in a function of mechanical activation duration.

Increase of the adsorption capacity, in comparison to the non-platinized samples (relative to non-platinized samples) is: 5% for initial non-activated sample, 12% for graphite milled 10 minutes, 18% for graphite milled 20 minutes and 26% for graphite milled 30 minutes. The analysis of isothermal time dependencies of hydrogen pressure in the chamber, at the temperatures of 60 °C, 70°C and 80°C, enabled definition of adsorption mechanism in the powders. At the same time, the kinetic parameters of hydrogen adsorption process are determined.

Figure 1 shows observed average chamber pressure change for non-platinized and platinized samples of different milling times, illustrating the effect of platinization on increase of adsorption capacity. Figure 2 shows the results of calculations of pressure change using ideal gas equation in case of average applied initial pressure (1.6 bar) and average temperature for isothermal treatment (70°C).

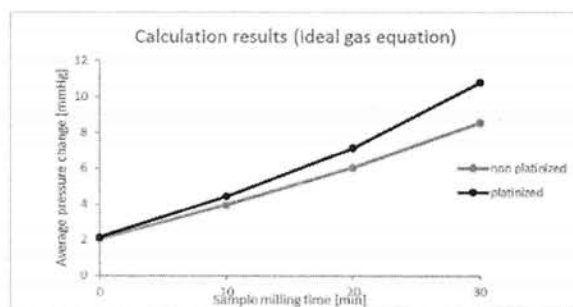


Figure 1. Average chamber pressure change observed in measurements

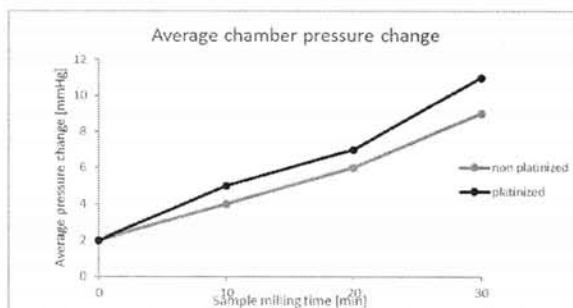


Figure 2. Calculated average pressure change for medium temperature (70 °C) and medium initial pressure (1.6 bar)

Key words: nuclear graphite, hydrogen, platinization, hydrogen adsorption



Dragana Čekerevac
Mirković

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Na_{0.44}MnO₂ as a cathode material for aqueous sodium-ion batteries

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The application of rechargeable batteries is growing significantly and it became the most important field for large-scale electric energy storage. While lithium-ion batteries (LIBs) have great commercial success, due to their large energy and power density, their application was limited because of the availability of lithium and its high cost. Sodium-ion batteries (SIBs) can be a promising alternative due to the huge availability of sodium, its low price and similar intercalating electrochemistry to LIBs [1]. Among various Na-ion battery materials, low-cost and tunnel-type, Na_{0.44}MnO₂ (NMO) was regarded as one of the most promising cathode materials for sodium-ion batteries, because of its high theoretical specific capacity (122 mA h g⁻¹) and good cyclability [2]. In this work, for the synthesis of NMO powder, rapid glycine-nitrate method (GNM) was used, which, on the basis of the literature review, has not been used to synthesize this material so far.

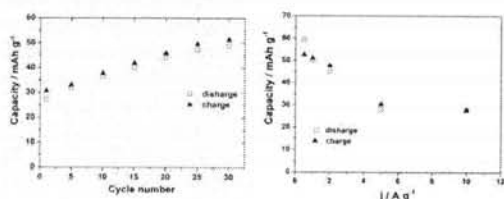


Figure 1. The discharge/charge capacity of Na_{0.44}MnO₂ vs. number of cycles (left) and current rates (right) in aqueous NaNO₃ solution.

Na_{0.44}MnO₂ as a potential cathode material for sodium-ion batteries, was synthesized by glycine-nitrate method (GNM). Powder synthesis procedure includes preparation and mixing of NaNO₃ and Mg(NO₃)₂ aqueous solutions, corresponding to a stoichiometric ratio of 0.44 for Na/Mn. Glycine was added to the mixture with molar ratio of glycine-to-nitrate 1.2. The resulting precursor solution was placed in a glass beaker and heated in an oven until spontaneous ignition occurred. The obtained powder was heated in the air at 900 °C for 4 h. The structure and morphology of synthesized powder were characterized by X-ray diffraction (XRD) and field-emission scanning electron microscopy (FESEM). XRD patterns were recorded at Philips PW-1050 over a 2θ range 10–70° with a step of 0.05° and a counting time of 5 s. The morphology of the synthesized powder was analyzed by FESEM (TESCAN, MIRA3 XMU) at 20 kV. The electrochemical behavior of NMO was investigated by cyclic voltammetry (CV) and chronopotentiometry (CP) in NaNO₃ aqueous solution.

Electrochemical performances were tested by cyclic voltammetry and chronopotentiometry using Gamry PCI4/300 Potentiostat/ Galvanostat/ ZRA) in NaNO₃ aqueous solution. A platinum foil was used as a counter electrode, while saturated calomel electrode was used as a reference electrode. The working electrode was made of NMO powder (85%), carbon black (10%) and polyvinylidene fluoride (5%), as binder, in a certain amount of N-methyl-2-pyrrolidone, as solvent. The suspension was homogenized in an ultrasonic bath to form a homogeneous slurry and afterwards transferred on glassy carbon rod and dried under vacuum 10⁻² mbar at 140 °C for 4 h. The phase structure of the product was identified as orthorhombic structured Na_{0.44}MnO₂ with *Pbam* space group (JCPDS No.27-0750). A minor amount of impurities was detected and identified as Mn₂O₃ (JCPDS No.75-1560) [3]. The average width and length of uniform rod-like particles were found to be ~80 nm and ~800 nm, respectively. CVs showed is capable of intercalating/deintercalating sodium ions in an aqueous electrolyte solution. The initial charge and discharge specific capacity, measured in aqueous solution of NaNO₃ at scan rate of 20 mV s⁻¹, amounted to 30.6 mA h g⁻¹ and 27.1 mA h g⁻¹, respectively. It increases (Fig.1) throughout charging/discharging, reaching the value of 51.4 mA h g⁻¹ and 48.9 mA h g⁻¹, after 30 cycles. CP measurements revealed that the capacity decreases with the increase of the current rates. It's discharging values were found to be 59.4 mA h g⁻¹ at 0.5 A g⁻¹ and 27.8 mA h g⁻¹ at 10 A g⁻¹ (Fig.1). Relatively high discharge capacity makes it promising cathode material for aqueous rechargeable sodium-ions batteries. This study was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia under Grant no III45014 and the Serbian Academy of Sciences and Arts through the project F-190 "Electrocatalysis in the contemporary processes of energy conversion".

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SYNTHESIS, CHARACTERIZATION AND ELECTROCHEMICAL PROPERTIES OF $\text{Na}_{0.44}\text{MnO}_2$ IN NaNO_3 AND LiNO_3 AQUEOUS SOLUTION

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ABSTRACT

$\text{Na}_{0.44}\text{MnO}_2$ synthesized by glycine-nitrate method (GNM) was described in this paper and it was characterized by X-ray powder diffraction (XRD) and field-emission scanning electron microscopy (FE-SEM). Electrochemical performances of $\text{Na}_{0.44}\text{MnO}_2$ were studied by cycling voltammetry (CV) at various scan rates in NaNO_3 and LiNO_3 aqueous solutions in order to compare the intercalation/deintercalation kinetics of Li^+ and Na^+ ions. The initial discharge capacity was found to be 27.1 and 27.44 in the aqueous solution of NaNO_3 and LiNO_3 , respectively, and after 30 cycles its values increased for 12% in both electrolytes.

INTRODUCTION

The rechargeable batteries are seen as one of the most promising system for energy conversion and storage. Lithium-ion batteries (LIBs) are the most investigate type of rechargeable battery, due to its specific energy and specific power, high energy density storage, small weight and long life time [1]. In recent years, the development of the sodium-ion batteries (SIBs) has become more attractive, owing to the low cost and natural abundance of sodium, as well as the physicochemical similarity with lithium. The working principle of SIBs is identical to LIBs. One of the main problems of SIBs is the larger radius of Na-ion than of Li-ion, which could cause more difficult intercalation compared to Li-ion [2]. Until now investigated LIBs and SIBs use highly toxic and flammable organic solvents which have low ionic conductivity and high price. Aqueous LIBs and SIBs have a series of advantages: they do not contain flammable organic electrolytes, the ionic conductivities of the aqueous electrolyte is about two orders of magnitude higher than in nonaqueous electrolyte and the electrolyte salt and solvent are

cheaper. Manganese oxides, vanadium oxide or phosphates are used as electrode materials (cathodic and anodic) in both types of batteries. Li–Mn–O or Na–Mn–O systems with tunnel or layered crystal structures are the mostly used type of manganese oxides as electrode materials. $\text{Na}_{0.44}\text{MnO}_2$ (NMO) have been synthesized by different methods such as hydrothermal process, thermo-chemical conversion process, polymer-pyrolysis process, molten salt technique, electrostatic spinning method, spray pyrolysis process and spray drying process [3]. In this work NMO was synthesized by glycine-nitrate method (GNM), which, according to the literature, has not been used for synthesis of this material so far.

EXPERIMENTAL

NaNO_3 and $\text{Mn}(\text{NO}_3)_2$ aqueous solutions were mixed in ratio corresponding to a stoichiometric ratio of Na/Mn in NMO. The glycine was added to the mixture with molar ratio of glycine-to-nitrate 1.2. The resulting precursor solution was placed in a glass beaker and heated in an oven until spontaneous ignition occurred. The obtained powder was heated in the air at 900°C for 4 h.

The structure of synthesized powder was characterized by X-ray diffraction (XRD) and XRD pattern was recorded at Philips PW-1050 over a 2θ range $10\text{--}70^\circ$ with a step of 0.05° and a counting time of 5 s. The morphology of the synthesized powder was analyzed by FE-SEM (TESCAN, MIRA 3 XMU) at 20 kV. The electrochemical behavior of NMO was investigated by cyclic voltammetry (CV) at various scan rates, in both NaNO_3 and LiNO_3 aqueous solutions using Gamry PCI4/300 Potentiostat/Galvanostat/ZR

A in three-electrode cell. A platinum foil was used as a counter electrode, saturated calomel electrode (SCE) was used as a reference electrode and the working electrode was made of NMO powder (85%), carbon black (10%) and polyvinylidene fluoride (5%) in N-methyl-2-pyrrolidone as solvent. The suspension was homogenized in an ultrasonic bath to form homogeneous slurry and afterwards transferred on

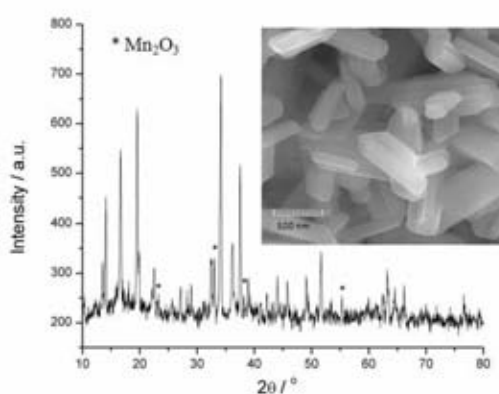


Figure 1. XRD pattern and FE-SEM image of $\text{Na}_{0.44}\text{MnO}_2$. The asterisk shows the positions of Mn_2O_3 reflections.

glassy carbon rod and dried under vacuum 10-2 mbar at 140°C for 4h.

RESULTS AND DISCUSSION

Fig. 1 shows the XRD pattern of the synthesized material. The sharp diffraction peaks indicated that the product was well-crystallized and was identified as orthorhombic structured of $\text{Na}_{0.44}\text{MnO}_2$ with *Pbam* space group (JCPDS No.27-0750). A minor amount of impurities was detected and identified as Mn_2O_3 (JCPDS No.41-1442) [3]. The FE-SEM images of NMO indicated that the powder consisted of uniform rod-like particles and the average width and length of particles were found to be ~80 nm and ~800 nm, respectively, Fig 1.

Cyclic voltammograms of NMO recorded in NaNO_3 and LiNO_3 aqueous solutions, by high polarization scan rates from 20 to 400 mV s^{-1} within the voltage range -1.30 to 1.35 V vs. SCE, are shown on Fig. 2. For both solutions, the shape of CV's and peaks position were similar for all rates which means that process of intercalation/deintercalation of Li^+ and Na^+ are reversible and synthesized material can be used in lithium and sodium batteries. In NaNO_3 electrolyte at a polarization rate of 20 mVs^{-1} , NMO showed three anodic peaks at the potential 0.005, 0.723 and 1.168 V and two cathodic peaks at the potentials of 0.4 and - 0.32 V vs. SCE. In the case of LiNO_3 as an electrolyte, the three anodic peaks were present at the potential 0.116, 0.649 and 1.206 V while two cathodic peaks were at the potential 0.729 and - 0.242 V vs. SCE.

The initial discharge capacity of NMO in NaNO_3 and LiNO_3 aqueous solution at the polarization rate of 20 mV s^{-1} is 27.1 and 27.4 mAh g^{-1} while

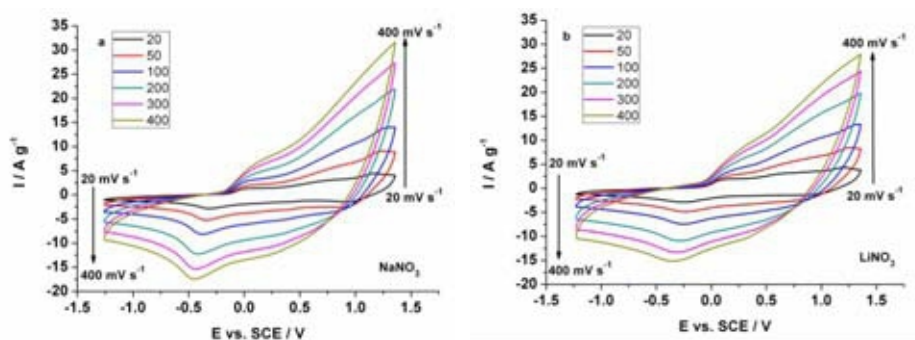


Figure 2. CV's of $\text{Na}_{0.44}\text{MnO}_2$ in aqueous solution of a) NaNO_3 and b) LiNO_3 at scan rate of 20, 50, 100, 200, 300 and 400 mVs^{-1} .

initial charge capacity is 30.6 and 30.5 mAh g⁻¹, respectively. The discharge capacity of NMO in NaNO₃ and LiNO₃ electrolytes, after 30 cycles, at the same polarization rate, was increased to values 51.1 and 53.3 mAh g⁻¹, while charge capacity was 50.8 and 53.9 mAh g⁻¹, respectively. With the increase in polarization rates from 20 to 400 mVs⁻¹, the discharge capacity decreases to 14.6 and 13.3 mAh g⁻¹, and charge capacity decreases to 14.8 and 12.8 mAh g⁻¹, in both NaNO₃ and LiNO₃, respectively.

CONCLUSION

In summary, Na_{0.44}MnO₂ was successfully synthesized by glycine-nitrate method and the powder consisted of uniform rod-like particles. The intercalation/deintercalation of lithium and sodium ions in synthesized material were reversible in NaNO₃ and LiNO₃ aqueous electrolyte which indicated that Na_{0.44}MnO₂ synthesized by glycine-nitrate method can be used as the positive material in lithium and sodium aqueous batteries.

Acknowledgement

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Наслов **Paper Accepted for Selection of Papers of ACA V Conference**

Од vblag <vladimir.blagojevic@itn.sanu.ac.rs>

За <dragana.jugovic@itn.sanu.ac.rs>

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Dear Dr. Jugovic,

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26.03.2014. године

Београд

На основу члана 22. става 2. члана 70. став 6. Закона о научноистраживачкој делатности ("Службени гласник Републике Србије", број 110/05 и 50/06 – исправка и 18/10), члана 2. става 1. и 2. тачке 1 – 4.(прилози) и члана 38. Правилника о поступку и начину вредновања и квантитативном исказивању научноистраживачких резултата истраживача ("Службени гласник Републике Србије", број 38/08) и захтева који је поднео

Инстѿиѿуѿ ѿехничких наука САНУ у Београду

Комисија за стицање научних звања на седници одржаној 26.03.2014. године, донела је

**ОДЛУКУ
О СТИЦАЊУ НАУЧНОГ ЗВАЊА**

Др Драгана Јуѿовић

стиче научно звање

Виши научни сарадник

у области природно-математичких наука - физичка хемија

О Б Р А З Л О Ж Е Њ Е

Инстѿиѿуѿ ѿехничких наука САНУ у Београду

утврдио је предлог број 373/1 од 11.10.2013. године на седници научног већа Института и поднео захтев Комисији за стицање научних звања број 375/1 од 15.10.2013. године за доношење одлуке о испуњености услова за стицање научног звања ***Виши научни сарадник***.

Комисија за стицање научних звања је по претходно прибављеном позитивном мишљењу Матичног научног одбора за хемију на седници одржаној 26.03.2014. године разматрала захтев и утврдила да именована испуњава услове из члана 70. став 6. Закона о научноистраживачкој делатности ("Службени гласник Републике Србије", број 110/05 и 50/06 – исправка и 18/10), члана 2. става 1. и 2. тачке 1 – 4.(прилози) и члана 38. Правилника о поступку и начину вредновања и квантитативном исказивању научноистраживачких резултата истраживача ("Службени гласник Републике Србије", број 38/08) за стицање научног звања ***Виши научни сарадник***, па је одлучила као у изреци ове одлуке.

Доношењем ове одлуке именована стиче сва права која јој на основу ње по закону припадају.

Одлуку доставити подносиоцу захтева, именованој и архиви Министарства просвете, науке и технолошког развоја у Београду.

ПРЕДСЕДНИК КОМИСИЈЕ

др Станислава Стошић-Грујичић,

научни саветник

С. Станислава Стошић-Грујичић

МИНИСТАР

Проф. др Томислав Јовановић

