

VMESNO POROČILO O REZULTATIH INFRASTRUKTURNEGA PROGRAMA ZA OBDOBJE 2015 – 2016

Priloga: Objavljeni članki in članki sprejeti v objavo s podporo programa IO-0002-0101: Infrastrukturna dejavnost pri IMFM

4. podpora infrastrukturnega programa raziskovalnim programom

V obdobju 2015 – 2016 smo objavili 32 člankov, 6 pa jih je bilo sprejeto v objavo.

Objavljeni članki:

- [1] Z. Lavrič, J. Pirnat, J. Lužnik, U. Puc, Z. Trontelj, S. Srčič. 14N nuclear quadrupole resonance study of piroxicam: Confirmation of new polymorphic form V. *J. Pharm. Sci.* **104**(6): 1909-18 (2015), doi: [10.1002/jps.24421](https://doi.org/10.1002/jps.24421)
- [2] G. Ferk, J. Stergar, D. Makovec, A. Hamler, Z. Jagličič, M. Drogenik, I. Ban. Synthesis and characterization of Ni-Cu alloy nanoparticles with a tunable Curie temperature. *J. Alloys Compd.* **648**: 53-58 (2015), doi: [10.1016/j.jallcom.2015.06.067](https://doi.org/10.1016/j.jallcom.2015.06.067)
- [3] L. Hajikhanmirzaei, E. Safaei, A. Wojtczak, Z. Jagličič. New mixed-ligand salicylaldehyde complexes of Mn(III) bis(phenol) di-amine: Synthesis, electronic and magnetic properties. *Inorg. Chim. Acta* **430**: 125-131 (2015), doi: [10.1016/j.ica.2015.02.025](https://doi.org/10.1016/j.ica.2015.02.025)
- [4] L.-L. Han, S.-N. Wang, Z. Jagličič, S.-Y. Zeng, J. Zheng, Z.-H. Li, J.-S. Chena, D. Sun. Synthesis, structural versatility and magnetic properties of a series of copper(II) coordination polymers based on bipyrazole and various dicarboxylate ligands. *CrystEngComm* **17**: 1405-1415 (2015), doi: [10.1039/c4ce02248c](https://doi.org/10.1039/c4ce02248c)
- [5] X.-P. Wang, Y.-Q. Zhao, Z. Jagličič, S.-N. Wang, S.-J. Lin, X.-Y. Li, D. Sun. Controlled in situ reaction for the assembly of Cu(II) mixed-ligand coordination polymers: synthesis, structure, mechanistic insights, magnetism and catalysis. *Dalton Trans.* **44**: 11013-20 (2015), doi: [10.1039/c5dt01206f](https://doi.org/10.1039/c5dt01206f)
- [6] N. Hojnik, M. Kristl, A. Golobič, Z. Jagličič, M. Drogenik. Hydrolytic synthesis of novel lanthanide(III) complexes with pyridine-2,6-dicarboxylic acid. *J. Mol. Struct.* **1079**: 54-60 (2015), doi: [10.1016/j.mol-struct.2014.09.029](https://doi.org/10.1016/j.mol-struct.2014.09.029)
- [7] B. Kozlevčar, K. Jakomin, M. Počkaj, Z. Jagličič, A. Beyer, N. Burzlaff, N. Kitanovski. Dinuclear nitrate coordination compounds with bis(3, 5-tert-butylpyrazol-1-yl)acetate. *Eur. J. Inorg. Chem.* **2015**: 3688-93 (2015), doi: [10.1002/ejic.201500368](https://doi.org/10.1002/ejic.201500368)
- [8] T.-P. Hu, Y.-Q. Zhao, Z. Jagličič, K. Yu, X.-P. Wang, D. Sun. Four hybrid materials based on Preyssler P₅W₃₀ polyoxometalate and first-row transition-metal complex. *Inorg. Chem.* **54**: 7415-23 (2015), doi: [10.1021/acs.inorgchem.5b00962](https://doi.org/10.1021/acs.inorgchem.5b00962)
- [9] S. H. Lee, J. Kim, K. Lee, A. Jelen, S. Vrtnik, Z. Jagličič, J. Dolinšek, M. Jung. Antiferromagnetic order competing with topological state in Ce_xBi_{2-x}Te₃. *Appl. Phys. Lett.* **107**: 182409-1-5 (2015), doi: [10.1063/1.4935120](https://doi.org/10.1063/1.4935120)
- [10] J. Lužnik, P. Koželj, S. Vrtnik, A. Jelen, Z. Jagličič, A. Meden, M. Feuerbacher, J. Dolinšek. Complex magnetism of Ho-Dy-Y-Gd-Tb hexagonal high-entropy alloy. *Phys. Rev. B, Condens. Matter Mater. Phys.* **92**: 224201-1-14 (2015), doi: [10.1103/PhysRevB.92.224201](https://doi.org/10.1103/PhysRevB.92.224201)
- [11] Z. Mazej, T. Michałowski, E. A. Goresnik, Z. Jagličič, I. Arčon, J. Szydłowska, W. Grochala. The first example of a mixed valence ternary compound of silver with random distribution of Ag(I) and Ag(II) cations. *Dalton Trans.* **44**: 10957-69 (2015), doi: [10.1039/c5dt00740by](https://doi.org/10.1039/c5dt00740by)
- [12] T. Michałowski, Z. Mazej, A. Budzianowski, Z. Jagličič, P. J. Leszczyński, W. Grochala. Unexpectedly complex crystalline phases in the MSO₃F-Ag(SO₃F)₂ phase diagram (M = Na, K, Rb, Cs). *Eur. J. Inorg. Chem.* **2015**: 324-32 (2015), doi: [10.1002/ejic.201402948](https://doi.org/10.1002/ejic.201402948)
- [13] M. Pourskandari, E. Safaei, S. M. Sajjadi, T. Karimpour, Z. Jagličič, Y. Lee. Iron(III) complex of N-phenylethylenediamine derivative of amine bis(phenol) ligand as model for catechol dioxygenase: Synthesis, characterization and complexation studies. *J. Mol. Struct.* **1094**: 130-6 (2015), doi: [10.1016/j.mol-struct.2015.04.008](https://doi.org/10.1016/j.mol-struct.2015.04.008)
- [14] M. Sluban, P. Umek, Z. Jagličič, J. Buh, P. Šmitek, A. Mrzel, C. Bittencourt, P. Guttman, M. Delville, D. Mihailović, D. Arčon. Controlling disorder and superconductivity in titanium oxynitride nanoribbons with anion exchange. *ACS Nano* **9**: 10133-41 (2015), doi: <http://dx.doi.org/10.1021/acs.nano.5b03742>
- [15] M. Wencka, J. Schwerin, M. Klanjšek, M. Krnel, S. Vrtnik, P. Koželj, A. Jelen, G. Kapun, Z. Jagličič, I. Sharafutdinov, Ib, Chorkendorff, P. Gille, J. Dolinšek. Physical properties of the GaPd₂ intermetallic catalyst in bulk and nanoparticle morphology. *Intermetallics* **67**: 35-46 (2015), doi: [10.1016/j.intermet.2015.07.010](https://doi.org/10.1016/j.intermet.2015.07.010)

- [16] T. Đorđević, A. Wittwer, Z. Jagličić, I. Djerdj. Hydrothermal synthesis of single crystal CoAs_2O_4 and NiAs_2O_4 compounds and their magnetic properties. *RSC Adv.* **5**: 18280-7 (2015), doi: [10.1039/C4RA16122J](https://doi.org/10.1039/C4RA16122J)
- [17] A. Zorko, M. Pregelj, M. Gomilšek, Z. Jagličić, D. Pajić, M. Telling, I. Arčon, I. Mikulska, M. Valant. Strain-induced extrinsic high-temperature ferromagnetism in the Fe-doped hexagonal barium titanate. *Sci. Rep.* **5**: 7703-1-7 (2015), doi: [10.1038/srep07703](https://doi.org/10.1038/srep07703)
- [18] T. Todorović, S. Grubišić, M. Pregelj, M. Jagodič, S. Misirlić-Denčić, M. Dulović, I. Marković, O. Klisurić, O., A. Malešević, D. Mitić, K. Anđelković, N. Filipović. Structural, Magnetic, DFT, and Biological Studies of Mononuclear and Dinuclear CuII Complexes with Bidentate N-Heteroaromatic Schiff Base Ligands. *Eur. J. Inorg. Chem.* **2015**: 3921-31 (2015), doi: [10.1002/ejic.201500349](https://doi.org/10.1002/ejic.201500349)
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- [20] I. Djerdj, J. Popović, S. Mal, T. Weller, M. Nuskol, Z. Jagličić, Ž. Skoko, D. Pajić, C. Suchomski, P. Voepel, R. Marschall, B. Kozlevčar, B.M. Smarsly. Aqueous sol-gel route toward selected quaternary metal oxides with single and double perovskite-type structure containing tellurium. *Cryst. Growth Des.*, **16**(5): 2535-2541 (2016), doi: [10.1021/acs.cgd.5b01558](https://doi.org/10.1021/acs.cgd.5b01558)
- [21] F. Yang, Y.-K. Deng, L.-Y. Guo, H.-F. Su, Z. Jagličić, Z.-Y. Feng, G.-L. Zhuang, S.-Y. Zeng, D. Sun. Structural, electrochemical and magnetic analyses of a new octanuclear $\text{Mn}^{\text{III}}_2\text{Mn}^{\text{II}}_6$ cluster with linked-defect cubane topology. *CrystEngComm*, **18**(8): 1329-1336 (2016), doi: [10.1039/C5CE02215K](https://doi.org/10.1039/C5CE02215K)
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- [23] L.-Y. Guo, M. Jagodič, S.-Y. Zeng, Z. Wang, Z.-Q. Shi, X.-P. Wang, C.-H. Tung, D. Sun. pH-Controlled assembly of two novel Dawson-sandwiched clusters involving the in situ reorganization of trivalent α - $[\text{P}_2\text{W}_{15}\text{O}_{56}]^{12-}$ into divalent α - $[\text{P}_2\text{W}_{16}\text{O}_{57}]^{8-}$. *Dalton Trans.*, **45**(20): 8404-8411 (2016), doi: [10.1039/C6D-T00793G](https://doi.org/10.1039/C6D-T00793G)
- [24] W.-F. Xie, L.-Y. Guo, J.-H. Xu, M. Jagodič, Z. Jagličić, W.-G. Wang, G.-L. Zhuang, Z. Wang, C.-H. Tung, D. Sun. Multifaceted bicubane Co_4 clusters: Magnetism, photocatalytic oxygen evolution, and electrical conductivity. *Eur. J. Inorg. Chem.*, **2016**(20): 3253-3261 (2016), doi: [10.1002/ejic.201600510](https://doi.org/10.1002/ejic.201600510)
- [25] L.-Y. Guo, S.-Y. Zeng, Z. Jagličić, Q.-D. Hu, S.-X. Wang, Z. Wang, D. Sun. A pyridazine-bridged sandwiched cluster incorporating planar hexanuclear cobalt ring and bivalent phosphotungstate. *Inorg. Chem.*, **55**(17):9006-9011 (2016), doi: [10.1021/acs.inorgchem.6b01468](https://doi.org/10.1021/acs.inorgchem.6b01468)
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- [28] S. Jazbec, S. Kashimoto, P. Koželj, S. Vrtnik, M. Jagodič, Z. Jagličić, J. Dolinšek. Schottky effect in the i-Zn-Ag-Sc-Tm icosahedral quasicrystal and its 1/1 Zn-Sc-Tm approximant. *Phys. Rev. B, Condens. Matter Mater. Phys.*, **93**(5):054208-1-054208-14 (2016), doi: [10.1103/PhysRevB.93.054208](https://doi.org/10.1103/PhysRevB.93.054208)
- [29] E. Safaei, L. Hajikhanmirzaei, B. Karimi, A. Wojtczak, P. Cotič, Y.-I. Lee. TEMPO-mediated aerobic oxidation of alcohols using copper(II) complex of bis(phenol) di-amine ligand as biomimetic model for galactose oxidase enzyme. *Polyhedron*, **106**:153-162 (2016), doi: [10.1016/j.poly.2015.11.003](https://doi.org/10.1016/j.poly.2015.11.003)
- [30] E. Safaei, N. Naghdi, A. Wojtczak, Z. Jagličić. New mixed-ligand 8-hydroxyquinolinato iron(III) complexes of dimethylethylenediamine-based aminophenol ligands. *Polyhedron*, **109**:190-198 (2016), doi: [10.1016/j.poly.2016.01.049](https://doi.org/10.1016/j.poly.2016.01.049)
- [31] E. Safaei, L. Hajikhanmirzaei, S. Alavi, Y.-I. Lee, A. Wojtczak, Z. Jagličić. Tetrabromocatecholato Mn(III) complexes of bis(phenol) diamine ligands as models for enzyme-substrate adducts of catechol dioxygenases. *Polyhedron*, **118**:171-179 (2016), doi: [10.1016/j.poly.2016.07.041](https://doi.org/10.1016/j.poly.2016.07.041)
- [32] A. Spepi, C. Duce, C. Ferrari, J. González-Rivera, Z. Jagličić, V. Domenici, F. Pineider, M.R. Tiné. A simple and versatile solvothermal configuration to synthesize superparamagnetic iron oxide nanoparticles using a coaxial microwave antenna. *RSC advances*, **6**(106): 104366-104374 (2016), doi: [10.1039/C6RA17513A](https://doi.org/10.1039/C6RA17513A)

Sprejeto v objavo:

- [1] S. Beguš, J. Pirnat, V. Jazbinšek, Z. Trontelj. Optical detection of low frequency NQR signals: A step forward from conventional NQR. Sprejeto v *J. Phys. D, Appl. Phys.*
- [2] T. Gilewski, J. Gawraczyński, M. Derzsi, Z. Jagličić, Z. Mazej, P. Połczyński, R. Jurczakowski, P.J. Leszczyński, W. Grochala. $[\text{Ag}(\text{OH}_2)_2][\text{Ag}(\text{SO}_4)_2]$: A hydrate of a silver(II) salt. Sprejeto v *Chemistry*
- [3] Z. Mazej, T. Gilewski, E.A. Goreshnik, Z. Jagličić, M. Derzsi, W. Grochala. Canted antiferromagnetism in two-dimensional silver(II) Bis[pentafluoridooxidotungstate(VI)]. Sprejeto v *Inorg. Chem.*

- [4] E. Safaei, H. Bahrami, A. Pevec, B. Kozlevčar, Z. Jagličič. Copper(II) complex of new non-innocent O-aminophenol-based ligand as biomimetic model for galactose oxidase enzyme in aerobic oxidation of alcohols. Sprejeto v J. Mol. Struct.
- [5] M. Mihalik, M. Mihalik, Z. Jagličič, R. Vilarinho, J.A. Moreira, E. Queiros, P.B. Tavares, A. Almeida, M. Zentková. Magnetic phase diagram of the TbMn_{1-x}Fe_xO₃ solid solution system. Sprejeto v Phys. B, Condens. Matte
- [6] E. Safaei, N. Naghdi, Z. Jagličič, A. Pevec, Y.-I. lee. Synthesis and characterization of an iron(III) complex of an ethylenediamine derivative of an aminophenol ligand in relevance to catechol dioxygenase active site. Sprejeto v Polyhedron

5. podpora infrastrukturnega programa raziskovalnim projektom:

V obdobju 2015 - 2016 smo objavili 4 članke, 3 pa so bili sprejeti v objavo.

Objavljeni članki:

- [1] B. Babić-Stojić, V. Jokanović, D. Milivojević, M. Požek, Z. Jagličič, D. Makovec, K. Arsić, V. Paunović. Gd₂O₃ nanoparticles stabilized by hydrothermally modified dextrose for positive contrast magnetic resonance imaging. J. Magn. Magn. Mater., **403**: 118-126 (2016), doi: [10.1016/j.jmmm.2015.11.075](https://doi.org/10.1016/j.jmmm.2015.11.075)
- [2] B. Dojer, A. Pevec, Z. Jagličič, M. Drofienik, M. Kristl. Nickel(II) pyridinecarboxamide complexes : Solvothermal synthesis, crystal structures and magnetic properties. Inorg. Chim. Acta, **446**: 124-131 (2016), doi: [10.1016/j.ica.2016.03.002](https://doi.org/10.1016/j.ica.2016.03.002)
- [3] N. Hojnik, M. Kristl, G. Ferk, A. Golobič, M. Turel, Z. Jagličič, M. Drofienik. Complexes of Eu(III), Tb(III) and Cu(II) with proton transfer compound between 2,6-pyridinedicarboxylic acid and 2-aminobenzothiazole: Characterization of the structures and physical properties. J. Coord. Chem., **69**(9): 1484-1498 (2016), doi: [10.1080/00958972.2016.1182632](https://doi.org/10.1080/00958972.2016.1182632)
- [4] M. Krnel, S. Vrtnik, P. Koželj, A. Kocjan, Z. Jagličič, P. Boulet, M.-C. De Weerd, J.-M. Dubois, J. Dolinšek. Random-anisotropy ferromagnetic state in the Cu₅Gd_{0.54}Ca_{0.42} intermetallic compound. Phys. Rev. B, Condens. Matter Mater. Phys., **93**(9): 094202-1-094202-14, doi: [10.1103/PhysRevB.93.094202](https://doi.org/10.1103/PhysRevB.93.094202)

Sprejeto v objavo:

- [1] S. Pršič, S.M. Savić, Z. Branković, Z. Jagličič, S. Vrtnik, G. Branković. Antiferromagnetism and heat capacity of NaCo_{2-x}Cu_xO₄ ceramics. Sprejeto v Ceramics Internat.
- [2] S. Gyergyek, D. Makovec, M. Jagodič, M. Drofienik, K. Schenk, O. Jordan, J. Kovač, G. Dražić, H. Hofmann. Hydrothermal growth of iron oxide NPs with a uniform size distribution for magnetically induced hyperthermia: Structural, colloidal and magnetic properties. Sprejeto v J. Alloy. Compnd.
- [3] B. Dojer, A. Pevec, Z. Jagličič, M. Kristl. Cobalt(II) complexes with hydroxypyridines and halogenides. Sprejeto v J. Mol. Struct.