

Publikacje pracowników KChNiK w latach 2020-2022

Rok 2022

Balović, J.; Ćoćić, D.; Đorđević, S.; Radenković, S.; **van Eldik, R.**; Puchta, R.; A theoretical mechanistic study of $[K \subset [2.2.2]]^+$ enantiomerization, *Journal of Physical Organic Chemistry*, **2022**, 35, 1-10.

DOI:10.1002/poc.4289

Barwiołek, M.; Jankowska, D.; Kaczmarek-Kędziera, A.; **Muzioł, T. M.** Structural and optical properties of the p-alkylated 2,6-bis(benzimidazol)phenoles obtained from o-phenylenediamine and their sensitive behavior towards zinc(II) ions, *Polyhedron*, **2022**, 224, 1-15. DOI:10.1016/j.poly.2022.116004

Barwiołek, M.; Jankowska, D.; Kaczmarek-Kędziera, A.; Wojtulewski, S.; Skowroński, Ł.; Rerek, T.; Popielarski, P.; **Muzioł, T. M.** Experimental and theoretical studies of the optical properties of the schiff bases and their materials obtained from o-phenylenediamine, *Molecules*, **2022**, 27, 1-19. DOI:10.3390/molecules27217396

Chrzanowska, M.; **Katafias, A.**; **van Eldik, R.**; Chatterjee, D. Oxidoreductase mimicking activity of Ru(edta) complexes in conversion of NAD coenzymes, *Polyhedron*, **2022**, 221, 1-4. DOI:10.1016/j.poly.2022.115872

Chrzanowska, M.; **Katafias, A.**; **van Eldik, R.**; Conradie, J. Electronic effects on the mechanism of the NAD⁺ coenzyme reduction catalysed by a non-organometallic ruthenium(ii) polypyridyl amine complex in the presence of formate, *RSC Advances*, **2022**, 12, 21191-21202. DOI:10.1039/d2ra01890j

Ćoćić, D.; Petrović, B.; Puchta, R.; **Chrzanowska, M.**; **Katafias, A.**; **van Eldik, R.** Investigation of water substitution at RuII complexes by conceptual density function theory approach, *Journal of Computational Chemistry*, **2022**, 43, 1161-1175. DOI:10.1002/jcc.26878

Ehlert, M.; **Radtke, A.**; Bartmański, M.; **Piszczyk, P.** Evaluation of the cathodic electrodeposition effectiveness of the hydroxyapatite layer used in surface modification of Ti6Al4V – based biomaterials, *Materials*, **2022**, 15, 1-21. DOI:10.3390/ma15196925

Ehlert, M.; **Radtke, A.**; Forbot, N.; Jędrzejewski, T.; Roszek, K.; Golińska, P.; Trykowski, G.; **Piszczyk, P.** TiO₂/HA and titanate/HA double-layer coatings on Ti6Al4V surface and their influence on in vitro cell growth and osteogenic potential, *Journal of Functional Biomaterials*, **2022**, 13, 1-24. DOI:10.3390/jfb13040271

Fandzloch, M.; Jędrzejewski, T.; **Wiśniewska, J.**; Sitkowski, J.; Dobrzańska, L.; Brożyna, A.; Wrotek, S. Sawhorse-type ruthenium complexes with triazolopyrimidine ligands: what do they represent in terms of cytotoxic and CORM compounds?, *Dalton Transactions*, **2022**, 51, 8804-8820. DOI:10.1039/d1dt04294g

Grodzicka, M.; **Gąsior, G.**; Wiśniewski, M.; Bartmański, M.; **Radtke, A.** A simple replica method as the way to obtain a morphologically and mechanically bone-like iron-based biodegradable material, *Materials*, **2022**, 15, 1-14. DOI:10.3390/ma15134552

Impert, O.; Kozakiewicz-Piekarz, A.; **Katafias, A.**; Witwicki, M.; Komarnicka, U. K.; Kurpiewska, K.; **van Eldik, R.** Mixed-valence outer-sphere RuII/RuIII ion-pair complexes : synthesis, experimental, and theoretical studies, *Polyhedron*, **2022**, 223, 1-12. DOI:10.1016/j.poly.2022.115939

Jędrzejowska, K.; Kobylarczyk, J.; Głosz, D.; Kuźniak-Glanowska, E.; Tabor, D.; Srebro-Hooper, M.; Zakrzewski, J. J.; Dziedzic-Kocurek, K.; **Muzioł, T. M.**; Podgajny, R. Supramolecular *cis*-“bis(chelation)” of $[M(CN)_6]^{3-}$ (M = CrIII, FeIII, CoIII) by phloroglucinol (H₃PG), *Molecules*, **2022**, 27, 1-22. DOI:10.3390/molecules27134111

Madajaska, K.; Dobrzańska, L.; **Muzioł, T.**; Szymańska, I. B. Silver ionic compounds as a source of metal carriers in the gas phase, *Polyhedron*, **2022**, 227, 1-15. DOI:10.1016/j.poly.2022.116149

Muzioł, T. M.; Tereba, N.; Podgajny, R.; Pełka, R.; Czernia, D.; Wiśniewski, M.; Koter, S.; **Wrzeszcz, G.** Sorption and magnetic properties of oxalato-based trimetallic open framework stabilized by charge-assisted hydrogen bonds, *International Journal of Molecular Sciences*, **2022**, 23, 1-22. DOI:10.3390/ijms23031556

Polaczek, J.; Stochel, G.; Ruiz Molina, D.; Novio Vázquez, F.; **van Eldik, R.** Influence of modified nano-copper oxide particles on the reaction between nitrocobalamin and ascorbic acid, *Polyhedron*, **2022**, 223, 1-6. DOI:10.1016/j.poly.2022.115942

Sagandykova, G.; **Piszczyk, P.**; **Radtke, A.**; Mametov, R.; Pryshchepa, O.; Gabryś, D.; Kolankowski, M.; Pomastowski, P. Silver nanostructured substrates in LDI-MS of low molecular weight compounds, *Materials*, **2022**, 15, 1-12. DOI:10.3390/ma15134660

Śmigiel, J.; **Muzioł, T.**; **Piszczyk, P.**; **Radtke, A.** Titanium(IV) oxo-complex with acetylsalicylic acid ligand and its polymer composites: synthesis, structure, spectroscopic characterization, and photocatalytic activity, *Materials*, **2022**, 15, 1-16. DOI:10.3390/ma15134408

Soliman, E.; Ibrahim, M. M.; El-Khouly, M. E.; El-Mehasseb, I.; El-Motaleb, M.; Ramadan, A.; Mahfouz, M. E.; Shaban, S. Y.; **van Eldik, R.** BSA interaction, molecular docking, and antibacterial activity of zinc(II) complexes containing the sterically demanding biomimetic N3S2 ligand: the effect of structure flexibility, *Molecules*, **2022**, 27, 1-16. DOI:10.3390/molecules27113543

Zienkiewicz, J. A.; Kałduńska, K.; Fedoruk, K.; Barros dos Santos, A. J.; Stefański, M.; Paraguassu, W.; **Muzioł, T.M.**; Ptak, M. Luminescence and dielectric switchable properties of a 1D (1,1,1-trimethylhydrazinium)PbI₃ hybrid perovskitoid, *Inorganic Chemistry*, **2022**, 61, 20886-20895. DOI:10.1021/acs.inorgchem.2c03287

Rok 2021

Barwiołek, M.; Jankowska, D.; Chorobiński, M.; Kaczmarek-Kędziera, A.; Łakomska, I.; Wojtulewski, S.; **Muzioł, T.M.** New dinuclear zinc(II) complexes with Schiff bases obtained from o-phenylenediamine and their application as fluorescent materials in spin coating deposition. *RSC Advances* **2021**, 11, 24515-24525, DOI: 10.1039/d1ra03096e

Chatterjee, D.; **Chrzanowska, M.**; **Katafias, A.**; Osajca, M.; **van Eldik, R.** Ru(III)(edta) complexes as molecular redox catalysts in chemical and electrochemical reduction of dioxygen and hydrogen peroxide inner-sphere versus outer-sphere mechanism. *RSC Advances* **2021**, 11, 21359-21366, DOI:10.1039/d1ra03293c

Chatterjee, D.; **Chrzanowska, M.**; **Katafias, A.**; **van Eldik, R.** Reaction mechanisms relevant to the formation and utilization of [Ru(edta)(NO)] complexes in aqueous media. *Journal of Inorganic Biochemistry* **2021**, 225, 1-9, DOI: 10.1016/j.jinorgbio.2021.111595

Chatterjee, D.; Osajca, M.; **Katafias, A.**; **van Eldik, R.** Electrochemistry of Ru(edta) complexes relevant to small molecule transformations: Catalytic implications and challenges. *Coordination Chemistry Reviews* **2021**, 436, 1-16, DOI: 10.1016/j.ccr.2021.213773

Ćocić, D.; Manaa, A.; Siegl, S.; Puchta, R.; **van Eldik, R.** [3.2.1] and [4.1.1] isomers of Lehn's [2.2.2] cryptand: prediction of ion selectivity by quantum chemical calculations XV**. *Zeitschrift für anorganische und allgemeine Chemie* **2021**, 647, 915-921, DOI: 10.1002/zaac.202000452

Ćorčić, D.; **Chrzanowska, M.**; **Katafias, A.**; Puchta, R. **van Eldik, R.** Tuning the lability of a series of Ru(II) polypyridyl complexes: a comparison of experimental-kinetic and DFT-predicted reaction mechanisms. *Journal of Coordination Chemistry* **2021**, *74*, 433-443, DOI: 10.1080/00958972.2021.1874369

Dzieszkowski, K.; Słotwiński, M.; Rafińska, K.; **Muzioł, T.M.**; Rafiński, Z. NHC-catalyzed enantioselective C2-functionalization of 3-hydroxychromenones *via* α,β -unsaturated acyl azoliums. *Chemical Communications* **2021**, *57*, 9999-10002, DOI: 10.1039/d1cc03708k

Ehlert, M.; **Radtke, A.**; Roszek, K.; Jędrzejewski, T.; **Piszczyk, P.** Assessment of titanate nanolayers in terms of their physicochemical and biological properties. *Materials* **2021**, *14*, 1-22, DOI: 10.3390/ma14040806

Fandzloch, M.; Jędrzejewski, T.; Dobrzańska, L.; Esteban-Parra Ginés, M.; **Wiśniewska, J.**; Paneth, A.; Paneth, P.; Sitkowski, J. New organometallic ruthenium(II) complexes with purine analogs: a wide perspective on their biological application. *Dalton Transactions* **2021**, *50*, 5557-5573 DOI: 10.1039/d0dt03974h

Ford, P. C.; Shiro, Y.; **van Eldik, R.** Renaissance in NO chemistry. *Inorganic Chemistry* **2021**, *60*, 15831-15834 DOI: 10.1021/acs.inorgchem.1c03287

Gąsior, G.; Szczepański, J.; **Radtke, A.** Biodegradable iron-based materials: what was done and what more can be done? *Materials* **2021**, *14*, 1-25, DOI: 10.3390/ma14123381

Khoshtariya, D.E.; Dolidze, T.D.; Nioradze, N.; Laliashvili, L.; Shushanyan, M.; **van Eldik, R.** The self-assembled, atomically defined, flexible and highly tunable bilayered Au/L-cysteine/Cu(II/I) junctions capable of voltage-gated coherent multiple electron/hole exchange. *Nano Futures* **2021**, *5*, 1-14, DOI: 10.1088/2399-1984/abc2aa

Kubiak, B.; **Radtke, A.**; **Topolski, A.**; **Wrzeszcz, G.**; Golińska, P.; Kaszkowiak, E.; Sobota M.; Włodarczyk, J.; Stojko, M.; **Piszczyk, P.** The composites of PCL and tetranuclear titanium(IV)-oxo complexes as materials exhibiting the photocatalytic and the antimicrobial activity. *International Journal of Molecular Sciences* **2021**, *22*, 1-20 DOI: 10.3390/ijms22137021

Kujawa, J.; Al-Gharabli, S.; **Muzioł, T.M.**; Knozowska, K.; Li, G.; Dumée, L.F.; Kujawski, W. Crystalline porous frameworks as nano-enhancers for membrane liquid separation: recent developments. *Coordination Chemistry Reviews* **2021**, *440*, 1-54 DOI: 10.1016/j.ccr.2021.213969

Kujawa, J.; Al-Gharabli, S.; **Wrzeszcz, G.**; Knozowska, K.; Lagzdins, R.; Talik, E.; Dziedzic, A.; Loulergue, P.; Szymczyk, A.; Kujawski, W. Physicochemical and magnetic properties of functionalized lanthanide oxides with enhanced hydrophobicity. *Applied Surface Science* **2021**, *542*, 1-15, DOI: 10.1016/j.apsusc.2020.148563

Orzeł, Ł.; Rutkowska-Żbik, D.; **van Eldik, R.**; Fiedor, L.; Stochel, G. Chlorophyll a π -cation radical as redox mediator in superoxide dismutase (SOD) mimetics. *ChemPhysChem* **2021**, *22*, 344-348, DOI: 10.1002/cphc.202000777

Oszejca, M.; Drabik, G.; Radoń, M.; Franke, A.; **van Eldik, R.**; Stochel, G. Experimental and computational insight into the mechanism of NO binding to ferric microperoxidase : the likely role of tautomerization to account for the pH dependence. *Inorganic Chemistry* **2021**, *60*, 15948-15967, DOI: 10.1021/acs.inorgchem.1c00933

Polaczek, J.; Subedi, H.; Orzeł, Ł.; Lisboa, L .S.; Cink, R. B.; Stochel, G.; Brasch, N. E.; **van Eldik, R.** Mechanistic studies on the reaction between aquacobalamin and the HNO donor Piloty's acid over a wide pH range in aqueous solution. *Inorganic Chemistry* **2021**, *60*, 2964-2975, DOI: 10.1021/acs.inorgchem.0c02968

Richert, M.; Mikstacka, R.; Walczyk, M. Cieślak, M.J.; Kaźmierczak-Barańska, J.; Królewska-Golińska, K.; **Muzioł, T.M.**; Biniak, S. Gold(I) complexes with P-donor ligands and their biological evaluation. *Processes* **2021**, *9*, 1-18, DOI: 10.3390/pr9122100

Trocha, A.; Impert, O.; Katafias, A.; van Eldik, R. Mechanistic details of the catalytic degradation of methylene blue by hydrogen peroxide in basic solution the unexpected innocence of percarbonate. *Polyhedron* **2021**, *210*, 1-12, DOI: 10.1016/j.poly.2021.115507

Rok 2020

Barwiołek, M.; Kaczmarek-Kędziera, A.; **Muzioł, T. M.**; Jankowska, D.; Jezierska, J.; Bieńko, A. Dinuclear Copper(II) complexes with Schiff bases derived from 2-Hydroxy-5-methylisophthalaldehyde and histamine or 2-(2-Aminoethyl)pyridine and their application as magnetic and fluorescent materials in thin film deposition. *International Journal of Molecular Sciences* **2020**, *21*, 4587; Doi: 10.3390/ijms21134587.

Chatterjee, D.; **van Eldik, R.**, Prospect of RuIII(edta) in catalysis of bicarbonate reduction, *Current Catalysis* **2020**, *9*, 23-31; Doi: 10.2174/2211544708666190902124817.

Chrzanowska, M.; Katafias, A.; Kozakiewicz, A.; **van Eldik, R.** Steric and electronic tuning of the reactivity of [RuII(terpy)(N^N)Cl]Cl complexes. *Inorganic Chimica Acta* **2020**, *504*, 119449; Doi: org/10.1016/j.ica.2020.119449.

Chrzanowska, M.; Katafias, A.; van Eldik, R. Can a nonorganometallic ruthenium(II) polypyridylamine complex catalyze hydride transfer? Mechanistic insight from solution kinetics on the reduction of coenzyme NAD⁺ by formate. *Inorganic Chemistry* **2020**, *59*, 14944-14953; Doi: 10.1021/acs.inorgchem.0c01613.

Ehlert, M.; Radtke, A.; Jędrzejewski, T.; Roszek, K.; Bartmański, M.; **Piszczyk, P.** In vitro studies on nanoporous, nanotubular and nanosponge-like titania coatings, with the use of adipose-derived stem cells. *Materials* **2020**, *13*, 1574; Doi: 10.3390/ma13071574.

Ehlert, M.; Radtke, A.; Topolski, A.; Śmigiel, J.; Piszczyk, P. The photocatalytic activity of titania coatings produced by electrochemical and chemical oxidation of Ti6Al4V substrate, estimated according to ISO 10678:2010. *Materials* **2020**, *13*, 2649; Doi: 10.3390/ma13112649.

Fandzloch, M.; Dobrzańska, L.; Jędrzejewski, T.; Jezierska, J.; **Wiśniewska, J.**; Łakomska, I. Synthesis, structure and biological evaluation of ruthenium(III) complexes of triazolopyrimidines with anticancer properties. *Journal of Biological Inorganic Chemistry* **2020**, *25*, 109-124.

Fandzloch, M.; Jaromin, A.; Zaremba-Czogalla, M.; Wojtczak, A.; Lewińska, A.; Sitkowski, J.; **Wiśniewska, J.**; Łakomska, I.; Gubernator, J. Nanoencapsulation of a ruthenium(II) complex with triazolopyrimidine in liposomes as a tool for improving its anticancer activity against melanoma cell lines, *Dalton Transactions* **2020**, *49*, 1207-1219.

Hubbard, C.D.; Chatterjee, D.; Osajca, M.; Polaczek, J.; **Impert, O.; Chrzanowska, M.; Katafias, A.**; Puchta, R.; **van Eldik, R.** Inorganic reaction mechanisms. A personal journey. Invited review for the 50th Anniversary of the RSC IRMDG for *Dalton Transactions*. *Dalton Transaction* **2020**, *49*, 4599-4659; Doi: 10.1039/c9dt04620h.

Impert, O.; Kozakiewicz, A.; **Wrzeszcz, G.; Katafias, A.**; Bieńko, A.; **van Eldik, R.** Ozarowski Andrew. Characterization of a mixed-valence Ru(II)/Ru(III) ion-pair complex : unexpected high-frequency electron

paramagnetic resonance evidence for Ru(III)-Ru(III) dimer coupling. *Inorganic Chemistry* **2020**, *59*, 8609-8619; Doi: 10.1021/acs.inorgchem.0c01068.

Nasibipour, M.; Safaei, E.; **Wrzeszcz, G.**; Wojtczak, A. Tuning of the redox potential and catalytic activity of a new Cu(II) complex by o-iminobenzosemiquinone as an electron-reservoir ligand. *New Journal of Chemistry* **2020**, *44*, 4426-4439; Doi: 10.1039/c9nj06396j.

Piszczek, P.; Kubiak, B.; Golińska, P.; **Radtke, A.** Oxo-titanium(IV) complex/polymer composites : synthesis, spectroscopic characterization and antimicrobial activity test. *International Journal of Molecular Sciences* **2020**, *21*, 9663; Doi: 10.3390/ijms21249663

Piszczek, P.; **Radtke, A.**; **Ehlert, M.**; Jędrzejewski, M.; Sznarkowska, A.; Sadowska, B.; Bartmański, M.; Kemal Erdoğan, Y.K.; Ercan, B.; Jedrzejczyk, W. Comprehensive evaluation of the biological properties of surface-modified titanium alloy implants. *Journal of Clinical Medicine* **2020**, *9*, 342; Doi: 10.3390/jcm9020342.

Sadler, P.J.; **van Eldik, R.** (Eds) Advances in *Inorganic Chemistry* 75: Medicinal Chemistry, Elsevier Academic Press, San Diego **2020**, 495.

Shehata, M.R.; Shoukry, M.M.; Ragab, M.S.; Ćoćić, D.; Puchta, R.; **van Eldik, R.** Kinetics, mechanism and DFT calculations on base hydrolysis of α-amino acid esters catalyzed by [Pd(AEMP)(H₂O)₂]²⁺. *Reaction Kinetics, Mechanisms and Catalysis* **2020**, *129*, 613-626.

Shoukry, M. M.; Shehata, M. R.; Ragab, M. S.; Ćoćić, D.; Puchta, R.; **van Eldik, R.** Kinetics, mechanism and density functional theory calculations on base hydrolysis of α-amino acid esters catalyzed by [Pd(AEMP)(H₂O)₂]²⁺ (AEMP = 2-(2-aminoethyl)-1-methylpyrrolidine). *Reaction Kinetics, Mechanisms and Catalysis* **2020**, *129*, 613-626; Doi: 10.1007/s11144-020-01734-7.

Topolski, A. Kinetics of chloride substitution in the [Pt₂(6NNpy)Cl₄] complex by L-methionine. *Inorganica Chimica Acta* **2020**, *506*, 119528; Doi: org/10.1016/j.ica.2020.119528.