

PREFACE

**XXV. International Conference
on Coordination & Bioinorganic Chemistry
(25th ICCBiC), June 2015, Slovakia**

The XXV. International Conference on Coordination & Bioinorganic Chemistry (XXV. ICCBiC) was held from May 31st to June 5th 2015 in the Smolenice Castle, Slovakia. The conference was organized by the Slovak Chemical Society, Slovak University of Technology in Bratislava, and the Alexander Dubček University in Trenčín. The conference has celebrated a jubilee – 50 years of its vital existence and influence especially on the community of coordination chemists. This year, 76 scientists from abroad and 43 scientists from Slovakia participated in the conference; geographically, 26 countries from four continents were represented. Active participation of 40 colleagues younger than 35 years is a clear sign of the challenging future of both coordination chemistry and the series of ICCBiC.

The participants have reported their scientific results in 90 lectures (of them, 28 lectures were given in the “Young Scientists Session”) and in 23 posters.

Scientific program was focused on the following topics:

- A. Electronic, molecular, and crystal structures;
- B. Solution and solid state reactivity;
- C. Applied inorganic and coordination chemistry;
- D. Complexes in human medicine and environment.

The topics of plenary lectures were: “Photophysics of d^6 transition metal complexes”, Prof. Andreas Hauser, University of Geneva, Geneva, Switzerland; “How to measure extremely large zero-field splitting in high-spin coordination complexes?”, Dr. Jerzy Krzyszek, Florida State University, Tallahassee, FL, USA; “Electronic structure of transition-metal compounds with various spin charge-orbital instabilities”, Prof. Takashi Mizokawa, Waseda University, Tokyo, Japan; “Zeolites: Fundamental features and environmental implications”, Prof. Christopher J. Rhodes, Freshlands Environmental Actions, Coversham, UK. All contributions have been published in the Conference book of abstracts. Also, a monograph (12th in the series) – “Advancing Coordination, Bioorganic, and Applied Inorganic Chemistry. The 50th Anniversary of ICCBiC”, comprising 17 contributions based on conference lectures has been published and another 13 papers will appear in a special issue of Chemical Papers

(CC journal, DeGruyter) commemorating the jubilee and the XXV. ICCBiC.

The XXV. ICCBiC was an event of vital inspirational and stimulating exchange of research knowledge. Actual problems of coordination chemistry, such as the relationship between structures and reactivity of coordination compounds, stereochemistry and mutual influence of ligands, crystallochemistry, biological activity, redox and substitution reactions, catalytic reactions, magnetochemistry, spectroscopy, etc. were the topical subjects of lectures discussed in the framework of the conference.

The conference initiated also very interesting and important discussion of problems from various points of view and helped to formulate new research goals.

The unique magic of coordination chemistry is dawned to the understanding of its enormous progress and to a harmonious relationship between various structures and behaviors from the physical, chemical and biological point of view. It is this harmony that helps to create mutual understanding, respect and partnerships.

The organizing committee very much appreciates the contribution of all participants to the smooth running, success and results of the conference. It is necessary to thank in particular the participating prominent coordination chemists who keep the high scientific level of the conference.

On behalf of the organizers, I am proud to note that the feedback of participants has been encouraging in a variety of aspects, some responses are included below: “... I found the conference to have moved a notch higher, most impressive of all is that this conference had internationally renowned coordination chemists with diverse fields of applications from catalysis to medical field; ... probably the conference could do with a little more posters” (Martin Onani, University of Western Cape, South Africa). “... The sense of community and friendship among participants, and not least, the ideal location at the beautiful castle in the fresh air of the mountain forest made this conference very special, most talks were also high quality; ... I recommend this conference to any inorganic chemist who values the above qualities” (Feyissa G. Gelalcha,

Texas A & M University-Kingsville, Kingsville, TX, USA). "... Best place to have a talk with colleges, to find something new in your sphere and also to present your results; ... especially I want to say thank for "Young scientists section", it is a good chance for us to present our ideas, it is a great opportunity to discuss results, to have a talk with experts and answer some questions" (Yulia Nosova, Lomonosov Moscow State University, Moscow, Russia).

The next conference in this series, XXVI. ICCBiC, will be held on July 4–9, 2017 again in the Smolenice Castle, Slovakia. We look forward to meeting you there.

Special issue of Chemical Papers

The special issue of Chemical Papers from the XXV. International Conference on Coordination & Bioinorganic Chemistry held in June 2015 in Smolenice, Slovakia, presents papers covering a wide range of studies dealing with the most recent development in coordination and bioinorganic chemistry. In total, two review papers, nine original contributions, and two short communications have been submitted.

Rhodes (2016) presents a critical review on zeolites and their use in practical applications. Special attention is devoted to the role of zeolites as media for selective light-induced oxidation using molecular oxygen. A variety of experimental methods for the determination of the strength of zeolite surface fields are discussed and finally, the prospective use of electron-irradiated zeolites as suitable substances for selective removal of radioactive cesium and strontium from wastewaters is presented (pp. 4–21).

Another review by Pintauer (2016) presents fundamentals of copper catalyzed atom transfer radical addition and mechanistically similar polymerization. Recent advances in the development of highly active copper complexes for both processes are also thoroughly reviewed (pp. 22–42).

Original contribution by Bortoluzzi and coworkers reports on mononuclear and heterodinuclear phenanthroline-dione complexes of d- and f-block elements. The authors succeeded in the preparation of the first heterobimetallic d/f complexes with 1,10-phenanthroline-5,6-dione as a bridging ligand. The novel compounds were studied by spectroscopic techniques and characterized by DFT calculations (pp. 43–52).

Scrivanti and coworkers report new heteroscorpionate lanthanide complexes for ring-opening polymerization of ϵ -caprolactone and *rac*-lactide. While poly(ϵ -caprolactone) was obtained in almost quantitative yield under mild conditions, *rac*-lactide polymerizations were less efficient. Ground-state geometries of the complexes and the first stages of ϵ -caprolactone polymerization were computationally modeled by means of DFT calculations (pp. 53–60).

A further series of papers is devoted to coordination chemistry of transition metal compounds. Strauch and coworkers present EPR spectra of bis(1,2-dithiosquarato)Cu(II) in an isostructural diamagnetic nickel(II) host lattice. The obtained EPR parameters for copper(II) complex in a dichloromethane solution and in a crystalline host lattice were found to be different, indicating the presence of a significant solvent effect (pp. 61–68).

Mikuriya and coworkers present a full paper and a short communication. In the full paper, a nickel(II) complex with a 1,4,7-tris(2-aminoethyl)-1,4,7-triazacyclononane ligand was prepared and characterized. The complex is composed of an octahedral nickel(II) cation with three 2-aminoethyl pendant groups of the ligand, tetrahedral ClO_4^- anion, and a water molecule from the solvent (pp. 69–74). Another contribution by Mikuriya and coworkers in the form of a short communication reports on cobalt(II) complexes with tridentate Schiff bases. Complexes were characterized by X-ray structural analysis and electronic spectroscopy. The complex is composed of an octahedral cobalt(III) ion with an N_2O_4 donor set (pp. 126–130).

Puchonova and coworkers present a paper on salicylato-copper(II) complexes in the presence of a nitrogen donor ligand as prospective SOD mimetics. The complexes were characterized by elemental analysis, IR and UV-VIS spectrophotometry and their SOD mimetic activity was found to be the most profound for dimeric species (pp. 75–81).

Matelkova and coworkers report on the synthesis and characterization of copper(II) oxalate complexes. All compounds were characterized by X-ray diffraction analysis and the results have shown three-dimensional crystal packing structures consolidated by intermolecular hydrogen bonds (pp. 82–92).

Bakalova and coworkers report on the synthesis, DFT calculations and characterization of new mixed Pt(II) complexes containing 3-thiolanespiro-5'-hydantoin and 4-thio-1*H*-tetrahydropyranspiro-5'-hydantoin. The complexes were characterized by elemental analysis, melting points, IR, and ^1H NMR spectroscopy. In addition, DFT calculations were performed. Cytotoxicity experiments showed that all complexes exhibit concentration dependent antiproliferative activity against HL-60 human tumor cell lines (pp. 93–100).

Halaska and coworkers present a structural and EPR study of self-assembly hydrogen-bonded supramolecular arrays from copper(II) halogenobenzoates with nicotinamide. Nicotinamide has been found to be a suitable supramolecular agent. All complexes were of monomeric nature and were characterized by means of EPR spectroscopy (pp. 101–113).

Bertova and coworkers present different structural types of copper(II) furan- and thiophencarboxylates. The prepared complexes were character-

ized by X-ray structural, EPR, and magnetic analyses (pp. 114–125).

Janikova and coworkers present a short communication on the formation of coordination compounds with aniline in the interlayer space of Ca²⁺-, Cu²⁺- and Fe³⁺-exchanged montmorillonite. The results of X-ray diffraction showed that aniline was successfully intercalated into the interlayer space of montmorillonite. IR spectroscopy revealed coordination modes in the studied systems (pp. 131–134).

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Milan Melník

*Department of Natural Sciences
Alexander Dubček University in Trenčín
Študentská 1
911 50 Trenčín, Slovakia
e-mail: milan.melnik@stuba.sk*

Peter Segľa

*Department of Inorganic Chemistry
Slovak University of Technology in Bratislava
Radlinského 9
812 37 Bratislava, Slovakia
e-mail: peter.segla@stuba.sk*

Marián Valko

*Department of Physical Chemistry
Slovak University of Technology in Bratislava
Radlinského 9
812 37 Bratislava, Slovakia
e-mail: marian.valko@stuba.sk*