



The 5<sup>th</sup> International Scientific Conference

Applied Natural Sciences 2015

**Perspectives in V4 Countries**

## PROGRAMME

**Wednesday September 30, 2015**

**9:00 – 15:00 Registration of participants**

**Opening and plenary talks – congress hall 1**

<b>15:00 – 15:30</b>	<b>Opening ceremony</b>
<b>Chair: Boča, R.</b>	
<b>15:30 – 16:00</b>	<b>Studzińska, S., Mounicou, S., Szpunar, J., Łobiński, R., Buszewski, B.</b> Determination of phosphorothioate oligonucleotides by ion pair liquid chromatography coupled with electrospray or inductively coupled plasma mass spectrometry
<b>16:00 – 16:30</b>	<b>Trögl, J.</b> Bioreporters and their environmental applications
<b>16:30 – 17:00</b>	<b>Seneci, P.</b> Rational design, parallel synthesis and biological characterization of Smac peptidomimetics as pro-apoptotic agents against cancer
<b>17:00 – 17:30</b>	<b>Coffee break</b>
<b>17:30 – 18:00</b>	<b>Linert, W.</b> Iron acting as catalyst for oxidative stress in the pathogenesis of Parkinson's disease?
<b>18:00 – 18:30</b>	<b>Janoš, P.</b> Cerium oxide – a remarkable compound with diverse applications
<b>18:30 – 19:30</b>	<b>Poster section (Sections: Applied Biology and Biotechnology &amp; Pedagogy, Humanities and Foreign Languages in Natural and Technical Sciences)</b>
<b>19:30</b>	<b>Dinner</b>

**Thursday October 1, 2015**

**Chemistry and Applied Chemistry – congress hall 1**

<b>Inorganic chemistry (Chair: Renz, F.)</b>	
9:00 – 9:30	<b>Boča, R.</b> General notes to the spin crossover phenomenon
9:30 – 9:45	<b>Titiš, J.</b> Investigation of single-molecule magnets using modern computational methods
9:45 – 10:00	<b>Šalitroš, I., Fuhr, O., Ruben, M., Boča, R.</b> Thermal and photoinduced spin crossover in iron(II) complexes
10:00 – 10:15	<b>Masárová, P., Šalitroš, I., Gembický, M., Moncol, J., Nemeč, I.</b> Synthesis, structural and magnetochemical study of the iron(III) Schiff base complexes
10:15 – 10:30	<b>Varga, F., Titiš, J., Boča, R.</b> Synthesis, structural and magnetic properties of cobalt(II) complexes: investigation of potential single molecule magnets
10:30 – 10:45	<b>Vomáčka, P., Štengl, V.</b> Tin-doped CuO: synthesis, characterization and photocatalytic properties
10:45 – 11:00	<b>Milata, V.</b> Selenadiazoloquinolones like precursors to azoloquinolones
11:00 – 11:15	<b>Bůžek, D., Hynek, J., Kirakci, K., Demel, J., Lang K.</b> New coordination polymer based on Mo <sub>6</sub> I <sub>8</sub> (OOCPh-PPh <sub>2</sub> ) <sub>6</sub> cluster as an effective catalyst for Suzuki cross-coupling reactions
11:15 – 11:45	<b>Coffee break</b>

<b>Nanochemistry (Chair: Linert, W.)</b>	
11:45 – 12:00	<b>Pomastowski, P., Sprynskyy, M., Rafińska, K., Buszewski, B.</b> Study of silver binding to lactoferrin
12:00 – 12:15	<b>Rafińska, K., Pomastowski, P., Railean-Plugaru, V., Buszewski, B.</b> Biological activity of silver nanoparticles from actinomycete CGG 11N strain
12:15 – 12:30	<b>Railean-Plugaru, V., Pomastowski, P., Szultka, M., Buszewski, B.</b> Evaluation of BioAgNPs synthesized by actinomycete CGG11N strain against clinical bacteria using fluorescence flow cytometry
12:30 – 12:45	<b>Unruh, D., Kumar, M., Heyer, L., Meyer, T., Dreyer, B., Preiss, A., Menze, M., Jahns, M., Klimke, S., Sindelar, R., Renz, F.</b> Switching and addressing of molecular switches and magnetic nanoparticles in nanoscopic fibers
12:45 – 13:45	<b>Lunch</b>

<b>Bioremediation (Chair: Trögl, J.)</b>	
13:45 – 14:15	<b>Soja, G.</b> <b>Key-note talk</b> Biochar as environmental management tool
14:15 – 14:30	<b>Micháleková Richveisová B., Frišták, V., Soja, G., Pipiška, M.</b> Iron-impregnated biochar as phosphorus efficient sorbent

14:30 – 14:45	<b>Düřešová, Z., Partelová, D., Horník, M., Pipiška, M., Rajec, P., Kováč, P., Lesný, J.</b> Determination of metal uptake and distribution in plant tissues by radionuclide imaging methods
14:45 – 15:00	<b>Wawra, A., Friesl-Hanl, W., Jaeger, A., Puschenreiter, M., Soja, G., Watzinger, A.</b> Assessing the effect of in-situ sanitation of a multi-contaminated soil by using stable isotope labeling
15:00 – 15:15	<b>Summer, D., Reichenauer, T.G., Wimmer, B.</b> Remediation of TCE, arsenic and nickel contaminated groundwater using permeable barriers – column experiments with zero-valent iron
15:15 – 15:30	<b>Matušek, I., Reth, S., Heerdt, Ch., Hrčková, K., Gubiš, J.</b> New lysimetric stations in Slovakia unique tool for applied research
15:30 – 15:45	<b>Cepuder, P., Nolz, R.</b> The lysimeter reseach group - an international network for lysimeter research
15:45 – 16:00	<b>Kříženecká, S., Zárybnická, L., Vlčková, M.</b> The comparison of properties of iron humates
16:00 – 16:30	<b>Coffee break</b>

<b>Analytical chemistry (Chair: Lehotay, J.)</b>	
16:30 – 16:45	<b>Fikarová, J., Kříženecká, S.</b> Extraction of PAHs from river sediments
16:45 – 17:00	<b>Walczak, J., Bocian, S., Buszewski, B.</b> Separation of phospholipids classes in on-line and off-line two dimensional liquid chromatography
17:00 – 17:15	<b>Sokol, J.</b> Determination of biogenic amines in food
17:15 – 17:30	<b>Rubashvili, I., Kordzakhia, T., Eprikashvili, L.</b> Determination of N-nitrosodimethylamine in tobacco smoke and its removal possibility by using natural zeolites
18:00 – 19:00	<b>Poster section (Sections: Applied Chemistry and Chemistry &amp; Applied Informatics)</b>

### Applied Biology and Biotechnology – congress hall 2

<b>Environmental microbiology (Chairs: Godány, A. &amp; Hostin, S.)</b>	
9:00 – 9:30 <b>Key-note talk</b>	<b>Pristaš, P., Stramová, Z.</b> What is hidden in the drainage water of aluminum production plant brown mud diposal site near Ziar nad Hronom?
9:30 – 9:45	<b>Mehnert, M., Vater, S., Tischler, D.</b> Screening of soil bacteria for metallophores
9:45 – 10:00	<b>Hagarová, L., Řezanka, T., Kupka, D.</b> Molecular identification of acidophilic heterotrophic bacterium <i>Acidiphilum</i> SJH
10:00 – 10:15	<b>Kaduková, J., Velgosová, O., Marcinčáková, R., Mražíková, A.</b> Silver uptake from aqueous solutions by alga <i>Parachlorella kessleri</i>

10:15 – 10:30	<b>Dakos, Z., Kupka, D., Praščáková, M., Mačingová, E., Hagarová, L., Václavíková, M.</b> Occurrence, properties and retention potencial of ochreous precipitates in AMD Smolník-Pech
10:30 – 10:45	<b>Svoboda, C.A.</b> Modelling of microbial soil respiration in lad surface models; applications to climate change
10:45 – 11:00	<b>Marcincakova, R., Mrazikova, A., Kadukova, J.</b> Lithium recovery by biological methods
11:00 – 11:15	<b>Valica, M., Hostin, S.</b> Electrochemical inactivation of green algae in water
11:15 – 11:45	<b>Coffee break</b>

<b>Proteomics (Chair: Janeček, Š.)</b>	
11:45 – 12:00	<b>Gabriško, M., Janeček, Š.</b> A complex evolutionary history of mammalian proteins from the family GH31
12:00 – 12:15	<b>Kuchtová, A., Janeček, Š.</b> Family GH77 4-alpha-glucanotransferases – an <i>in silico</i> study
12:15 – 12:30	<b>Urbáníková, E., Gašperík, J.</b> The structure and stability of glucoamylase Gla from <i>Saccharomycopsis fibuligera</i>
12:30 – 12:45	<b>Frečer, V., Kollár, J., Hotra, A.</b> Computer-assisted molecular design of antiviral compounds
12:45 – 13:45	<b>Lunch</b>

<b>Plant biotechnology (Chairs: Krajčovič, J. &amp; Kraic, J.)</b>	
13:45 – 14:15	<b>Schmidt, R., Szákal, P.</b> <b>Key-note talk</b> Trace element aspects of Hungarian crop production
14:15 – 14:30	<b>Gubišová, M., Gubiš, J., Žofajová, A., Čičková, M., Klčová, L., Kraic, J.</b> <i>In vitro</i> propagation of gigantic grasses: the case of <i>Miscanthus giganteus</i> and <i>Arundo donax</i>
14:30 – 14:45	<b>Piliarová, M., Ondreičková, K., Gubišová, M., Kraic, J.</b> Impact of sewage sludge on the genetic diversity of fungal communities in the rhizosphere of giant reed
14:45 – 15:00	<b>Ondreičková, K., Mihálik, D., Hudcovicová, M., Klčová, L., Kraic, J.</b> Bacterial diversity in the rhizosphere of genetically modified maize
15:00 – 15:15	<b>Krajčovič, J., Hadariová, L., Vesteg, M., Birčák, E.</b> Gene organisation, expression and biotechnological applications of the flagellate <i>Euglena gracilis</i>
15:15 – 15:30	<b>Birčák, E., Krajčovič, J.</b> Variantions and abundance of meiotic genes among representatives of the <i>Phylum euglenozoa</i>
15:30 – 15:45	<b>Le, P., Zamecnikova, B., Vodickova, H., Lachman, J.</b> Preparation of plant material for the study of transport across membranes

15:45 – 16:00	<b>Mihálik, D., Klčová, L., Gubišová, M., Klemková, T., Ondreičková, K., Hudcovicová, M., Žofajová, A., Gubiš, J., Čertík, M., Kraic, J.</b> Breaking barriers to biosynthesis of essential polyunsaturated fatty acids in cereals
16:00 – 16:30	<b>Coffee break</b>
16:30 – 16:45	<b>Szüle, B., Barkóczy, M., Kuti, R., Szakál, T.</b> The effect of composted sewage sludge on maize

<b>Applied biology (Chair: Miertuš, S.)</b>	
16:45 – 17:00	<b>Fic, V., Fišera, M., Anetová, K.</b> Reduce the sulphur dioxide content of wine by biological process in relation to the content of polyphenolic substances
17:00 – 17:15	<b>Zimmerling, j., Szymanska, K., Schlömann, M., Tischler, D.</b> Immobilized phenylacetaldehyde dehydrogenase as proper biocatalyst for the biotechnological production of phenylacetic acids
17:15 – 17:30	<b>Teplický, T., Horilová, J., Chorvát, Jr. D., Marček Chorvátová, A.</b> 3D printing at microscale level and its live-cell applications
17:30 – 17:45	<b>Planý, M., Kuchta, T., Siekel, P., Szemeš, T.</b> Metagenomic analysis of traditional Slovak bryndza cheese using high-throughput 16S rDNA amplicon sequencing
18:00 – 19:00	<b>Poster section (Sections: Applied Chemistry and Chemistry &amp; Applied Informatics)</b>

### **Pedagogy, Humanities and Foreign Languages in Natural and Technical Sciences – congress hall 3**

<b>Chair: Miština, M.</b>	
9:00 – 9:30 <b>Key-note talk</b>	<b>Slavík, M., Smékalová, L.</b> Transferable skills and competences in technical and science education
9:30 – 9:45	<b>Smékalová, L., Tomšíková, K., Slavík, M.</b> The prospects of exploration in the area of transferable competences in technical and science education
9:45 – 10:00	<b>Kučerka, M., Hrmo, R., Koszembar-Wiklik, M.</b> Ergonomics of integrated didactic workplaces
10:00 – 10:15	<b>Hrmo, R., Krištofiaková, L.</b> Quality system of education

<b>Chair: Slavík, M.</b>	
10:15 – 10:30	<b>Húšťava, Š., Trubenová, J., Dirgová Luptáková, I.</b> Mathematics in physics and in natural sciences
10:30 – 10:45	<b>Beňo, M.</b> Strategy for attracting and retaining the attention of the website user
10:45 – 11:00	<b>Zárubová, H.</b> Vocabulary teaching strategies in the English for specific purposes classroom
11:00 – 11:15	<b>Miština, J.</b> Specifics of English technical terminology for science and technology

11:15 – 11:45	<b>Coffee break</b>
12:45 – 13:45	<b>Lunch</b>

### Applied Informatics – congress hall 3

Chair: <b>Host'ovecký, M.</b>	
<b>13:45 – 14:15</b> <b>Key-note talk</b>	<b>Sekanina, L.</b> Evolutionary design by computers
14:15 – 14:30	<b>Kubera P., Felcman J.</b> Computer simulation of pedestrian crowds using a macroscopic model
14:30 – 14:45	<b>Kvasnička, V.</b> A concept of collective memory from the standpoint of artificial intelligence and cognitive science
14:45 – 15:00	<b>Gabriska, D., Michalconok, G.</b> Fault tree analysis of operation control system
15:00 – 15:15	<b>Gabriska, D.</b> Risk analysis in control design of safety critical process
15:15 – 15:30	<b>Dirgová Luptáková, I., Pospichal, J.</b> Modified neural gas algorithm for constraint size clusters
15:30 – 15:45	<b>Pospichal, J., Dirgová Luptáková, I.</b> Influencing spatio-temporal discrete chaotic system by changing its initial conditions
15:45 – 16:00	<b>Jurinová, J.</b> Characteristics analysis of sorting algorithms development of interactive visual application
16:00 – 16:30	<b>Coffee break</b>

Chair: <b>Jurinová, J.</b>	
16:30 – 16:45	<b>Huraj, L., Šimon, M.</b> Performance comparison of routing protocols using botnet testbed in IPv6 network
16:45 – 17:00	<b>Šimon, M., Huraj, L.</b> Thwarting DDoS attacks in IPv6 network using iptables firewall
17:00 – 17:15	<b>Vadkertiová, A.</b> Theory and practice of management information systems
18:00 – 19:00	<b>Poster section (Sections: Applied Chemistry and Chemistry &amp; Applied Informatics)</b>

**19:00 Social dinner**

**Friday October 2, 2015**

**Chemistry and Applied Chemistry – congress hall 1**

<b>Special analytical chemistry (Chair: Boča, R.)</b>	
9:00 – 9:15	<b>Marček Chorvatová, A.</b> Time-resolved endogenous fluorescence: intrinsic sensor of metabolic state in living cells
9:15 – 9:30	<b>Vitešníková, A., Hrdlička, A., Novotný, K., Kanický, V., Kaiser, J., Novotný, J., Prochadzka, D., Sládková, L., Pořizka, P.</b> Feasibility of iodine determination with laser-induced breakdown spectroscopy
9:30 – 9:45	<b>Ederer, J.</b> Titration method for graphene oxide characterization
9:45 – 10:00	<b>Húšťava, Š., Huraj, L., Šimon, M., Dirgová Luptáková, I., Slaninka, A.</b> Monitoring of gamma radiation in the environment
10:00 – 10:15	<b>Došek, M.</b> An electrochemical characterization of the electrode modified by layer of the polypyrrole
10:15 – 10:30	<b>Rudi, H., Hamzeh, Y.</b> Strength properties of papers made from recycled fibers treated by cationic starch/CMC polyelectrolyte multilayers
10:30 – 10:45	<b>Rudi, H., Hamzeh, Y.</b> The use of polyelectrolyte multilayers of ionic starches on OCC fibers: optimization with zeta potential and tensile strength analysis

**Applied Biology and Biotechnology – congress hall 2**

<b>Biological-active compounds (Chairs: Kraic, J. &amp; Pristaš, P.)</b>	
9:00 – 9:15	<b>Baublys, V., Kaya, M., Nagrockaitė, R., Tubelytė, V., Lelešius, E.</b> Comparison of chitin properties isolated from five mushroom species
9:15 – 9:30	<b>Havrlentová, M., Trybulová, B., Hozlár, P., Maliar, T., Gavurníková, S.</b> Cereal $\beta$ -D-glucan as an agent of added value in food products
9:30 – 9:45	<b>Gavurníková, S., Ruckschloss, L., Hanková, A., Havrlentová, M., Krajčirová, A.</b> Comparison of the technological quality of wheat, spelt and their crossbreed (PS Lubica)
9:45 – 10:00	<b>Selamoglu, Z., Dastan, S.D., Gulhan, M.F., Dastan, T.</b> The effects of ethanolic pollen extract in various concentrations on total RNA and total protein levels in different tissues of rainbow trout ( <i>Oncorhynchus mykiss</i> )
10:00 – 10:15	<b>Krošlák, E., Maliar, T., Kraic, J., Havrlentová, M., Nemeček, P.</b> Determination of selected secondary metabolites groups and biological activity in vitro in traditional slovak agrarian crops
10:15 – 10:30	<b>Mrvová, N., Škandík, M., Kuniaková, M., Račková, L.</b> Anti-inflammatory potential of novel quercetin pivaloyl ester in microglial BV-2 cell line

10:30 – 10:45	<b>Topol'ská, D., Valachová, K., Šoltés, L.</b> Design of in vitro model of oxidative damage of 3T3 cell line
10:45 – 11:00	<b>Valachová, K., Tamer, T.M., Mohy Eldin, M.S., Šoltés, L.</b> Radical scavenging capacity of glutathione, chitosan and its derivatives

**11:00 Closing ceremony of ANS 2015**