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# **Programme of the 15th International Students Conference “Modern Analytical Chemistry”**

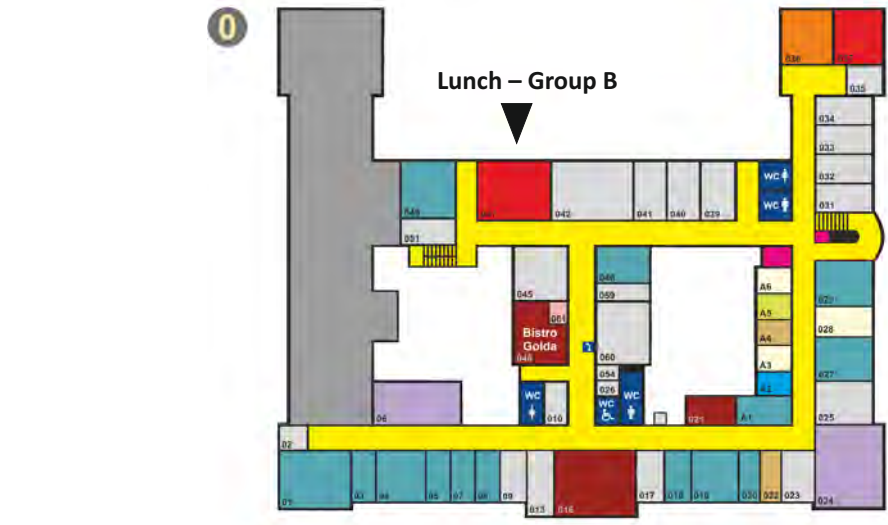
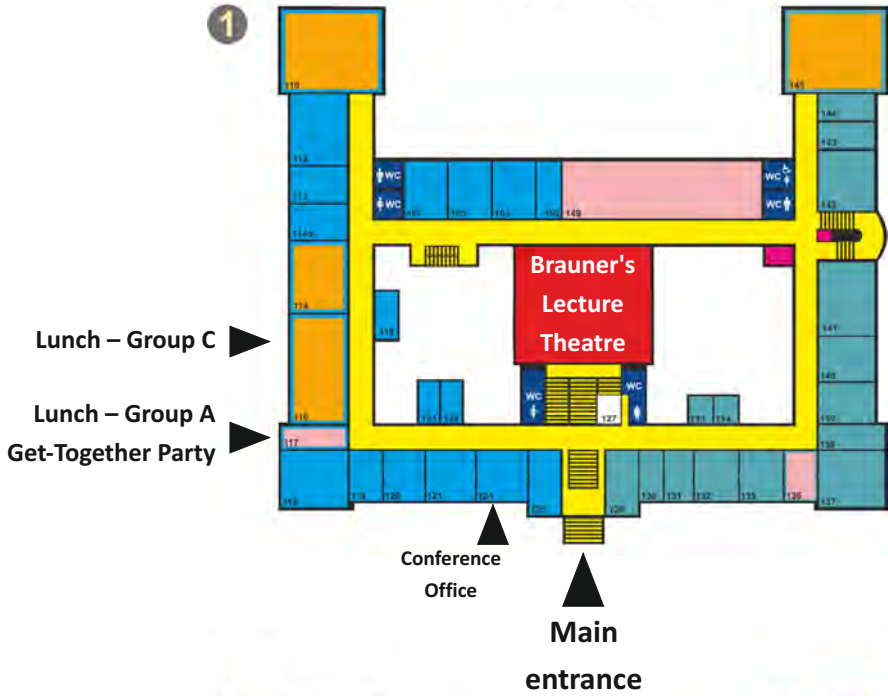
Prague, 19—20 September 2019



**FACULTY OF SCIENCE**  
Charles University

Prague 2019

# How to Find?



## General Information

The **conference is held** at the Institute of Chemistry, Faculty of Science, Charles University (Hlavova 8, 128 43 Prague 2) in the main lecture hall (Brauner's Lecture Theatre).

The **registration** is located at the landing of main staircase, across the entrance to the building. It will be open on Thursday, September 19 from 8:30 to 9:00. Later, please, contact organizers.

**Oral presentations are 15 minutes** including discussion and speakers are asked to download their PowerPoint presentation on the local computer in the lecture hall before the start of the session. The letter "P" and following number denote the page of the contribution in the Proceedings.

The **coffee breaks** are held in the lecture hall.

The **lunches** are served in rooms number 117, 047 or 116 (please, see details at the page 10).

The **get-together party** will be held in room 117, on Thursday, September 19 from 18:00.

There is **WiFi connection** in the building. You could:

- a) use your eduroam connection;
- b) connect to network **Konference**, open your web browser and insert login and password, which you will find at the back side of your name-plate.

## Programme

### Thursday, September 19, 2019

- 8:30–9:00 **Registration of participants**
- 9:00–9:15 **Opening ceremony, welcoming address**
- Session 1** • chairperson: Beate Scherer
- 9:15–9:30 Valentina Popova (Tomsk Polytechnic University, Russia): *Determination of L-arginine in dietary supplement by voltammetry on glassy carbon electrode* (P-138)
- 9:30–9:45 Anna Król (Nicolaus Copernicus University, Poland): *Effect of different types of divalent metal ions on Lactobacillus paracasei electrophoretic determination* (P-67)
- 9:45–10:00 Eva Jeníková (Charles University, Czech Republic): *UV-photochemical generation of volatile compounds of tellurium*
- 10:00–10:15 Magdalena Borowska (Warsaw University of Technology, Poland): *Application of analytical methods for determining properties of selenium nanoparticles* (P-142)
- 10:15–10:30 Anton Korban (Belarusian State University, Belarus): *The possibility to employ ethanol as an internal standard in quantification of volatile compounds in alcoholic products with GC-MS* (P-202)
- 10:30–10:45 **Coffee Break**
- Session 2** • chairperson: Anton Korban
- 10:45–11:00 Olga Wrona (Nicolaus Copernicus University, Poland): *The influence of process parameters of the supercritical carbon dioxide extraction on the antioxidant activity in extracts from Medicago sativa L. and Solidago gigantea Ait.* (P-30)
- 11:00–11:15 Stefan Wert (University of Regensburg, Germany): *Novel probe fabrication method for simultaneous scanning electrochemical microscopy and scanning ion conductance microscopy measurements* (P-79)
- 11:15–11:30 Agnieszka Kalinowska (Gdansk University of Technology, Poland): *Status quo of the arctic wastewater recipient – environment modification by chemical compounds including selected heavy metals (Longyearbyen, Svalbard)* (P-248)
- 11:30–11:45 Martina Outláš (Masaryk University, Czech Republic): *Study of synthetic oligonucleotides containing guanine by voltammetry on a pyrolytic graphite electrode and circular dichroism spectroscopy*

- 11:45–12:00 Agnieszka Rogowska (Nicolaus Copernicus University, Poland): *Application of the MALDI-TOF MS technique to investigation the molecular profiles of Escherichia coli treated with antibiotics and various zinc forms* (P-1)
- 12:00–12:15 Daniel Dobrovodský (Masaryk University, Czech Republic): *Electrochemical detection of G-quadruplex by interaction with porphyrin ligands* (P-215)
- 12:15–13:00 **Lunch**
- Session 3** • chairperson: Karel Kudláček
- 13:00–13:15 Alena Nikolaeva (Tomsk Polytechnic University, Russia): *Determination of food additives quinine and indigo carmine in pharmaceutical drugs by the fluorimetry* (P-125)
- 13:15–13:30 Gulyaim Sagandykova (Nicolaus Copernicus University, Poland): *Molecular mechanisms of natural bioactive compounds unravelled by multi-instrumental approach*
- 13:30–13:45 Barbora Štádlarová (Charles University, Czech Republic): *Atomization of bismuthane in two flame atomizers for atomic fluorescence spectrometry* (P-208)
- 13:45–14:00 Magdalena Świądro (Jagiellonian University, Poland): *Development of extraction method for the isolation of anti-depressants from human blood* (P-92)
- 14:00–14:15 Natalia Festinger (University of Lodz, Poland): *Electrochemical and microscopic properties of edge-plane pyrolytic graphite and basal-plane pyrolytic graphite electrodes*
- 14:15–14:30 Karel Musil (Charles University, Czech Republic): *Development, design, optimization and application of a pulsed flow double modulator for comprehensive two-dimensional gas chromatography (GC×GC) for the complex samples analysis*
- 14:30–14:45 **Coffee Break**
- Session 4** • chairperson: Július Gajdár
- 14:45–15:00 Ksenia Andreeva (Moscow State University, Russia): *Stabilized lactate biosensors based on composite alkoxyasilane-Nafion membranes* (P-155)
- 15:00–15:15 Petra Horká (Charles University, Czech Republic): *Structural characterization of fatty acids with triple bond and unusual double bond positions by HPLC/APCI-MS<sup>2</sup>* (P-269)
- 15:15–15:30 Karol Machowski (Jagiellonian University, Poland): *Iron speciation analysis using flow system with direct-injection detector*
- 15:30–15:45 Štěpánka Skalová (Charles University, Czech Republic): *Continuous monitoring of anthraquinone-based anticancer drugs by amperometric technique* (P-238)

- 15:45–16:00 Radosław Porada (AGH University of Science and Technology, Poland): *Application of stripping voltammetry for monitoring of vitamin B<sub>2</sub> in vitro synthesis by Bacillus subtilis* (P-104)
- 16:00–16:15 Lenka Benešová (Charles University, Czech Republic): *Electro-analysis of cholesterol and its precursor 7-dehydrocholesterol on carbon-based electrodes* (P-197)
- 16:15–16:30 **Coffee Break**
- Session 5** • chairperson: Eva Jeníková
- 16:30–16:45 Elena V. Karpova & Elizaveta Shcherbacheva (Moscow State University, Russia): *Non-invasive monitoring of diabetes and hypoxia based on continuous sweat analysis by flow-through biosensors* (P-190)
- 16:45–17:00 Katarína Molnárová (Charles University, Czech Republic): *Determination of low-molecular-mass heparin using affinity capillary electrophoresis* (P-39)
- 17:00–17:15 Agnieszka Rodzik (Nicolaus Copernicus University, Poland): *Zinc ions binding to  $\beta$ -lactoglobulin: proteomic study and physicochemical characteristic* (P-51)
- 17:15–17:30 Sofia Tvorynska (Charles University, Czech Republic): *Flow amperometric biosensor based on two enzymatic reactors (acetylcholinesterase-choline oxidase) for the detection of neurotransmitter acetylcholine* (P-61)
- 17:30–17:45 Karel Kudláček (Charles University, Czech Republic): *Analysis of historical pharmaceutical preparations containing opium alkaloids or neosalvarsan*
- 17:45–18:00 **Sponsors' Presentation**  
David Matoušek (Optik Instruments, Czech Republic): *New trends and innovations in molecular vibrational spectroscopy*
- 18:00 **Get-Together Party**

## Friday, September 20, 2019

### Session 6 • chairperson: Karel Kudláček

- 9:00–9:15 Sladjana Djurdjic (University of Belgrade, Serbia): *Electrochemical quantification of arrow poison, tubocurarine: application on biological fluids* (P-118)
- 9:15–9:30 Yulia A. Krasilnikova (Moscow State University, Russia): *Investigation of Ru, Rh, Pd, Os, Ir, Pt, Au chlorocomplexes sorption preconcentration in static and dynamic mode on the new polyvinylpyridine sorbents* (P-160)
- 9:30–9:45 Oleksandra Pryshchepa (Nicolaus Copernicus University, Poland): *Selection of experimental conditions for the identification of bacteria by MALDI-TOF MS* (P-45)
- 9:45–10:00 Jakub Šoukal (Charles University, Czech Republic): *Optimization of photochemical vapor generation of nickel with ICP-MS detection* (P-179)
- 10:00–10:15 Marek Dębosz (Jagiellonian University, Poland): *Signal increment standard addition method: new calibration approach in potentiometric measurements* (P-149)
- 10:15–10:30 Tereza Bosáková (Charles University, Czech Republic): *Kinetic model of the action of 17 $\alpha$ -ethynylestradiol and 17 $\beta$ -estradiol on the capacitation of mouse sperm, monitored by HPLC-MS/MS*
- 10:30–10:45 **Coffee Break**

### Session 7 • chairperson: Agnieszka Kalinowska

- 10:45–11:00 Laura Banaszekiewicz (Gdańsk University of Technology, Poland): *Application of GC-MS/MS technique for the determination of benzodiazepines in blood samples* (P-131)
- 11:00–11:15 Anastasia D. Golubova (Moscow State University, Russia): *New sorbent based on silica gel modified with eremomycin-stabilized gold nanoparticles for enantioseparation by liquid chromatography* (P-15)
- 11:15–11:30 Katarzyna Pauter (Nicolaus Copernicus University, Poland): *Complementary approach on bacteria and antibiotics investigation* (P-74)
- 11:30–11:45 Július Gajdár (Charles University, Czech Republic): *Novel construction of renewable silver amalgam film electrode for voltammetric analysis* (P-57)
- 11:45–12:00 Małgorzata Borowska (Gdańsk University of Technology, Poland): *Biopsy needles coated with the antimicrobial coatings* (P-174)

12:00–12:15 Beate Scherer (University of Regensburg, Germany): *Analytical investigations of fusing und detailing agents used in the context of the multi jet fusion process in 3D printings* (P–22)

12:15–13:00 **Lunch**

**Session 8** • chairperson: Stefan Wert

13:00–13:15 Ivan Krylov (Moscow State University, Russia): *Chemometric estimation of spectral profile of internal standard* (P–184)

13:15–13:30 Marta Gładysz (Jagiellonian University, Poland): *Analysis of red lipstick traces: development of sampling procedure* (P–85)

13:30–13:45 Jaromír Vyhnanovský (Charles University, Czech Republic): *Effect of metal sensitizers on photochemical vapor generation of bismuth for analytical atomic spectrometry* (P–257)

13:45–14:00 Kamila Morawska (University of Lodz, Poland): *Assays for guanine damage by hydroxyl radical and its protection by sesamol*

14:00–14:15 Justyna Lipińska (AGH University of Science and Technology, Poland): *Electrochemical characteristic of a novel bi-disc glassy carbon electrode* (P–242)

14:15–14:30 Petra Vaňkátová (Charles University, Czech Republic): *Use of ultra-performance chromatographic methods for the evaluation of enantiomeric excess of chiral liquid crystals*

14:30–14:45 **Coffee Break**

**Session 9** • chairperson: Elena Karpova

14:45–15:00 Elizaveta Rukosueva (Moscow State University, Russia): *A classification technique based on adding fluorophores to samples ("fluorescent eye")*

15:00–15:15 Ishak Kovač (Charles University, Czech Republic): *Method optimization for simultaneous separation of six triazole fungicides in HPLC* (P–220)

15:15–15:30 Radik Mameetov (University of Nicolaus Copernicus, Poland): *Evolution and evaluation of gas-chromatographic columns*

15:30–15:45 Vít Novotný (Charles University, Czech Republic): *A novel version of a silver solid amalgam electrode for the combination of hollow fiber supported membrane extraction and voltammetric determination of acidic substances* (P–276)

15:45–16:00 Maria Madej (Jagiellonian University, Poland): *Application of double disc glassy carbon electrode for voltammetric determination of viloxazine* (P–98)

16:00–16:15 Michal Augustin (Charles University, Czech Republic): *Novel electrochemical DNA biosensor based on edge-plane pyrolytic graphite for DNA interaction studies* (P–263)



16:15–16:30 **Coffee Break**

**Session 10** • chairperson: Tereza Bosáková

16:30–16:45 Vera Shavokshina (Moscow State University, Russia): *Sensing element based on poly(3,4-(1-azidomethylethylene) dioxithiophene) as electroactive layer of electrochemical DNA sensors* (P-8)

16:45–17:00 Timotej Strmeň (Charles University, Czech Republic): *Aldrithiol-2 as a new derivatization agent for double bond localization in unsaturated compounds by mass spectrometry* (P-111)

17:00–17:15 Marina Zavolskova (Moscow State University, Russia): *DC amperometric flow-injection analysis of ions and neutral molecules transduced by electroactive polymers* (P-167)

17:15–17:30 Kateryna Yavir (Gdansk University of Technology, Poland): *Evaluation of ionogel fibers by headspace solid-phase microextraction for determination of pesticides*

17:30–17:45 Jana Vosáhllová (Charles University, Czech Republic): *Fabrication, morphology and electrochemical properties of boron doped diamond microelectrodes on tungsten supports* (P-226)

17:45 **Closing Ceremony**

## Groups for Lunch

The **lunches** are served in rooms number 117, 047 or 116. Please, respect the following distribution of participants in groups.

### Group A (room 117)

Andreeva Ksenia  
 Dębosz Marek  
 Djurdjic Sladjana  
 Gładysz Marta  
 Golubova Anastasia  
 Karpova Elena  
 Krasilnikova Yulia  
 Krylov Ivan  
 Kudláček Karel  
 Madej Maria  
 Machowski Karol  
 Nikolaeva Alena  
 Popova Valentina  
 Rukosueva Elizaveta  
 Shavokshina Vera  
 Shcherbacheva Elizaveta  
 Scherer Beate  
 Świądro Magdalena  
 Wert Stefan  
 Zavolskova Marina

### Group B (room 047)

Banaszkiewicz Laura (veg.)  
 Borowska Magdalena  
 Borowska Małgorzata  
 Dobrovodský Daniel  
 Fabianowicz Rafał  
 Festinger Natalia  
 Górniak Grzegorz  
 Kalinowska Agnieszka  
 Korban Anton  
 Krol Anna  
 Lipińska Justyna (veg.)  
 Mаметov Radik  
 Morawska Kamila  
 Outlá Mariana (veg.)  
 Pauter Katarzyna (veg.)  
 Porada Radosław  
 Pryshchepa Oleksandra  
 Rodzik Agnieszka  
 Rogowska Agnieszka  
 Sagandykova Gulyaim  
 Shikun Maryna  
 Toporets Pavlo  
 Wrona Olga  
 Wrona Kamil  
 Yavir Kateryna

### Group C (room 116)

Benešová Lenka  
 Bosáková Tereza  
 Gajdár Július  
 Kovač Ishak  
 Molnárová Katarína  
 Novotný Vít  
 Skalová Štěpánka  
 Strmeň Timotej  
 Šoukal Jakub  
 Tvorynska Sofiia  
 Vaňkátová Petra  
 Vosáhllová Jana  
 Vyhnanovský Jaromír

## Menu

### Thursday, September 19, 2019

- chicken slice with cheese and ham, French fries
- *vegetarian*: vegetable salad with mozzarella

### Friday, September 20, 2019

- chicken pieces, baby carrot, American potatoes
- *vegetarian*: breaded cauliflower, potatoes

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