
Programme of the 17th International Students Conference “Modern Analytical Chemistry”

Prague, 16—17 September 2021



FACULTY OF SCIENCE
Charles University


Prague 2021

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 the main staircase, across the entrance to the building. It will be open on Thursday, September 16 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 the following number denote the page of the contribution in the *Proceedings*.

Virtual participants join the conference using Google meet, which requires only an Internet connection, a microphone, and a speaker. The link is: meet.google.com/sqb-reen-wvm. Please, keep the speakers turned off during your presentation to avoid unwanted echoes. Virtual participants are marked with a symbol  in the programme.

Each session is chaired by one selected conference participant. The task of the **chairperson** is to introduce each presenter, supervise the timing, and moderate and stimulate discussion after each presentation.

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

The **lunches** are served in room 047, 110 or 117 (please, see details on page 10).


The **get-together party** will be held in room 110, on Thursday, September 16 from 18:30.

Keep in mind: Now in the Czech Republic, the obligation to cover the mouth and nose with a respirator or other protective device without an exhalation valve applies to all means of public transport and inside of public buildings (university included).

Programme

Thursday, September 16, 2021

- 8:30–9:00 **Registration of participants**
- 9:00–9:15 **Opening ceremony, welcoming address**
- Session 1** • chairperson: Martin Baroch
- 9:15–9:30 Simona Baluchová (Charles University, Czech Republic): *Effect of surface orientation and doping level on the electrochemical behaviour of single crystal boron-doped diamond electrodes*
- 9:30–9:45 Justyna Lipińska (AGH University of Science and Technology, Poland): *Modification of the surface of carbon electrodes with thin layers*
- 9:45–10:00 Eva Jeníková (Charles University, Czech Republic): *Optimization of photochemical vapor generation of tellurium for analytical atomic spectrometry* (P-140)
- 10:00–10:15 Alicja Bosacka (Maria Curie-Skłodowska University, Poland): *FTIR/ATR technique in the analysis of divinylbenzene-silica composite* (P-115)
- 10:15–10:30 Jaromír Vyhnánovský (Charles University, Czech Republic): *Novel photochemical vapor generation of rhenium for its ultratrace determination* (P-200)
- 10:30–10:45 **Coffee Break**
- Session 2** • chairperson: Karolina Mermer
- 10:45–11:00 Szymon Wójcik (AGH University of Science and Technology, Poland): *Voltammetric profiling of honey with the use of quadruple disk metallic electrodes*
- 11:00–11:15 Markéta Procházková (Masaryk University, Czech Republic): *Quantum dot luminescent probe for caspase-3/7 imaging inside cells* (P-158)
- 11:15–11:30 Paweł Jacek Hać (Gdańsk University of Technology, Poland): *PTR-MS and electronic nose application for volatile fraction analysis of cigar tobacco* (P-188)
- 11:30–11:45 Helena Hrušková (Masaryk University, Czech Republic): *Epitachophoretic preconcentration of proteins* (P-170)
- ~~11:45–12:00 Dominik Straszak (Medical University of Lublin, Poland): *Analytical methods in the identification and isolation of 2-aminoimidazoline-2 derivatives* (P-43)~~
- 12:00–12:15 Alice Šimonová (Charles University, Czech Republic): *Validation of capillary electrophoresis method for determination of monosaccharides found in glycopeptides* (P-96)

12:15–12:30  Aleksandra Anna Liczbińska (Gdańsk University of Technology, Poland): *Potential of novel atomic emission techniques as a tool for investigation of the possibilities of using industrial waste as additives in construction materials* (P-102)

12:30–13:15 **Lunch**

Session 3 • chairperson: Pavel Dvořák

13:15–13:30 Johannes Eidenschink (University of Regensburg, Germany): *Investigation of the oxidation behaviour of cysteine by means of electrochemistry hyphenated to capillary electrophoresis and mass spectrometry* (P-50)

13:30–13:45 Karolina Mermer (Jagiellonian University, Poland): *Simple automated Lab-In-Syringe system for determination of lithium in water and pharmaceutical samples*

13:45–14:00 Hussam AL Saoud (Bialystok University of Technology, Poland): *Characterization and functionalization of biosilica composite* (P-1)


14:00–14:15 Kristýna Jelšíková (Charles University, Czech Republic): *Development of analytical methods for detection of triazole pesticides based on HPLC with diode array or electrochemical detection*

14:15–14:30 Martyna Jurczyk (Gdańsk University of Technology, Poland): *Synthesized membranes for ultrasound-assisted solvent extraction of porous membrane packed solid samples* (P-205)

14:30–14:45 Pavel Dvořák (Charles University, Czech Republic): *Development of new methodologies for rapid determination of oxidizable and reducible organic compounds using batch injection analysis* (P-66)

14:45–15:00 **Coffee Break**

Session 4 • chairperson: Alicja Bosacka

15:00–15:15  Dmitry Karpitsky (Saint-Petersburg State University, Russian Federation): *Development of approaches for obtaining the chromatographic profiles of phenolics and amino acids of biotechnological *Iris sibirica* L. raw plant material* (P-164)

15:15–15:30 Filip Vymyslický (Charles University, Czech Republic): *Abacavir: comparison of oxidation mechanisms* (P-73)

15:30–15:45 Paweł Stelmaszczyk (Jagiellonian University, Poland): *New effective method of extraction of “date-rape drugs” from blood samples* (P-121)

15:45–16:00 Krzysztof Klewicz (Gdańsk University of Technology, Poland): *Evaluating the use of silicone wristband to measure of personal exposure to flame retardants*

- 16:00–16:15 Barbora Štádlerová (Charles University, Czech Republic): *Comparison of radiation sources for atomic fluorescence spectrometry* (P-152)
- 16:15–16:30 Kaja Kalinowska (Gdańsk University of Technology, Poland): *Application of chromogenic dye in biogenic amines determination using spectrophotometry* (P-62)
- 16:30–16:45 **Coffee Break**
- Session 5** • chairperson: Anton Korban
- 16:45–17:00 Małgorzata Gołąb (Jagiellonian University, Poland): *Challenges in the separation of neutral and hydrophobic compounds using the micellar electrokinetic capillary chromatography* (P-216)
- 17:00–17:15 Anna Górská (AGH University of Science and Technology, Poland): *Highly sensitive atorvastatin determination on glassy carbon electrode modified with carbon nanofibers and cobalt*
- 17:15–17:30 Barbora Rumlová (Charles University, Czech Republic): *A new method for double bond characterization in lipids by ultraviolet photodissociation mass spectrometry* (P-193)
- 17:30–17:45 Chintankumar Padariya (Gdańsk University of Technology, Poland): *Selenium enrichment in broccoli sprouts as an initial step in the preparation of Certified Reference Material* (P-182)
- 17:45–18:00 Lenka Benešová (Charles University, Czech Republic): *Simultaneous determination of cholesterol and its precursor 7-dehydrocholesterol using electrochemical methods*
- Sponsors' Presentation**
- 18:00–18:15 Peter Barath, Ph.D. (CEO at Metrohm Czech Republic)
- 18:15 **Get-Together Party**

Friday, September 17, 2021

- Session 6** • chairperson: Simona Baluchová
- 9:00–9:15 Nikola Lenar (AGH University of Science and Technology, Poland): *The comparison of potassium selective electrodes with high electrical capacity mediation layers*
- 9:15–9:30 Kateřina Čokrtová (Charles University, Czech Republic): *On-line labelling of monosaccharides for capillary electrophoresis*
- 9:30–9:45 Radosław Porada (AGH University of Science and Technology, Poland): *Mercury and zeolite electrodes for voltammetric determination of niacin – a comparative study*
- 9:45–10:00 Michael Killinger (Masaryk University, Czech Republic): *Bioluminescence determination of caspase-3/7 in single osteosarcoma cells* (P-56)
- 10:00–10:15 Alicja Sączuk (Gdańsk University of Technology, Poland): *Evaluation of the potential of Microwave Plasma–Atomic Spectrometry for trace elements leaching assesment from the concrete matrix with sewage sludge ash additives* (P-91)
- 10:15–10:30 Simona Sedláčková (Charles University, Czech Republic): *Use of atmospheric pressure chemical ionization and photoionization mass spectrometry in proteomics*
- 10:30–10:45 **Coffee Break**
- Session 7** • chairperson: Johannes Eidenschink
- 10:45–11:00 Karolina Pietrzak (Maria Curie-Skłodowska University, Poland): *Solid state ion-selective electrode based on silver nanoparticles* (P-85)
- 11:00–11:15 Paulina Augustyniak (Gdańsk University of Technology, Poland): *Application of advanced spectroscopic methods in the assessment of the leachability degree of hazardous elements from the matrix of cellular concrete* (P-227)
- 11:15–11:30 Katarína Molnářová (Charles University, Czech Republic): *Separation of glycopeptide isomers using hydrophilic interaction liquid chromatography*
- 11:30–11:45  Anna Kuźniewska (Nicolaus Copernicus University in Toruń, Poland): *Spectrometry approach in study of cytokines by application matrix-assisted laser desorption/ionization* (P-19)
- 11:45–12:00 Andrea Vernerová (Charles University, Czech Republic): *UHPLC-MS/MS method for determination of inflammatory biomarkers in gingival crevicular fluid*
- 12:00–12:15 Anna Maria Wróblewska (Warsaw University of Technology, Poland): *Employment of the hyphenated techniques with ICP-MS detection for monitoring the formation of the anticancer drug targeted delivery systems based on gold nanoparticles*

- 12:15–12:30 Dominika Błońska (Nicolaus Copernicus University in Toruń, Poland): *Determination of antibiotic resistance using different analytical methods* (P-6)
- 12:30–13:15 **Lunch**
- Session 8** • chairperson: Paweł Hać
- 13:15–13:30 Anton Korban (Charles University, Czech Republic): *The perspectives of Relative Response Factors tabulation while alcoholic products analysis with GC-MS* (P-234)
- 13:30–13:45 Ewelina Maślak (Nicolaus Copernicus University in Toruń, Poland): *Short-incubation method for rapid identification of bacterial pathogens via MALDI TOF MS technique* (P-24)
- 13:45–14:00 Magdalena Fabjanowicz (Gdańsk University of Technology, Poland): *Application of ultrasound-assisted solvent extraction of porous membrane packed liquid samples for polyphenols determination in wine samples* (P-31)
- 14:00–14:15 Martin Baroch (Charles University, Czech Republic): *Challenges in estimation of surface area of porous electrode materials*
- 14:15–14:30 Jacek Maria Sikorski (Warsaw University of Technology, Poland): *A CE-ICP-MS/MS method for the determination of superparamagnetic iron oxide nanoparticles under simulated physiological conditions*
- 14:30–14:45 Michal Augustín (Charles University, Czech Republic): *Voltammetric investigation of the interaction between low-molecular weight double-stranded DNA and nitenpyram and its electrochemically generated metabolites*
- 14:45–15:00 **Coffee Break**
- Session 9** • chairperson: Helena Hrušková
- 15:00–15:15  Nemanja Koljančić (Slovak University of Technology in Bratislava, Slovak Republic): *On the optimization of critical parameters for flow modulated comprehensive two-dimensional gas chromatography in the analysis of chiral compounds in wine samples* (P-126)
- 15:15–15:30 Marta Choińska (Charles University, Czech Republic): *3D printed materials for the electrochemical determination of biologically active compounds* (P-222)
- 15:30–15:45 Michal Zelenský (Charles University, Czech Republic): *Comparison of dopamine sensing on H-terminated as-grown and chem-mechanically polished boron doped diamond electrodes*
- 15:45–16:00 Daria Janiszewska (Nicolaus Copernicus University in Toruń, Poland): *Identification of the mechanisms of antibiotic resistance on the basis of specific m/z values* (P-13)

- 16:00–16:15 Linda Sagapova (Charles University, Czech Republic): *Chemical vapor generation of cadmium: detector comparison* (P-134)
- 16:15–16:30 Aleksandra Kramarz (Gdańsk University of Technology, Poland): *Application of deep eutectic solvents in analytical chemistry* (P-210)
- 16:30–16:45 **Coffee Break**
- Session 10** • chairperson: Szymon Wójcik
- 16:45–17:00 Aliaksandra Kharoshka (University of Chemistry and Technology Prague, Czech Republic): *Analytical strategies for carotenoids determination in vegetables* (P-216)
- 17:00–17:15 Sofiia Tvorynska (Charles University, Czech Republic): *Construction and application of the amperometric uric acid biosensors based on the covalent immobilization of uricase by different strategies* (P-145)
- 17:15–17:30 Anna Wójtowicz (Jagiellonian University, Poland): *Spectroscopic techniques for the analysis of biological forensic samples* (P-193)
- 17:30–17:45 Anna Banaszekiewicz (Gdańsk University of Technology, Poland): *Novel analytical approach for real-time monitoring of volatile Maillard reaction products emitted from the sugar-amino acid model system using proton transfer reaction mass spectrometry* (P-80)
- 17:45–18:00 **Closing ceremony**

Lunch

The lunches are served in rooms number 117, 047, or 110. Please, respect the following distribution of participants in groups.

Group A (room 117)

Al-Saoud, Mr (veg.)
Baluchová, Ms
Błońska, Ms
Bosacka, Mrs
Eidenschink, Mr
Fabjanowicz, Mrs (veg.)
Gołąb, Ms
Janiszewska, Ms (veg.)
Lenar, Ms (veg.)
Lipińska, Mrs (veg.)
Maślak, Ms
Mermer, Ms
Padariya, Mr (veg.)
Padariya, Mrs (veg.)
Pietrzak, Ms
Sikorski, Mr
Stelmaszczyk, Mr
Wójtowicz, Ms
Wróblewska, Ms

Group B (room 47)

Augustín, Mr
Augustyniak, Mrs
Banaszkiewicz, Mrs
Górska, Ms
Hać, Mr
Hrušková, Ms
Choińska, Mrs
Jelšíková, Ms
Jeníková, Ms
Jurczyk, Ms
Kalinowska, Ms
Kharoshka, Ms
Killinger, Mr (veg.)
Klewicz, Mr
Kramarz, Ms
Molnárová, Ms
Porada, Mr
Procházková, Mrs
Rumlová, Ms
Saczuk, Ms
Štádlarová, Ms
Šimonová, Mrs (veg.)
Tvorynska, Ms
Vernerová, Ms
Wójcik, Mr

Group C (room 110)

Baroch, Mr
Benešová, Ms
Čokrtová, Ms
Dvořák, Mr
Korban, Mr
Sedláčková, Ms
Vyhnanovský, Mr
Vymyslický, Mr
Zelenský, Mr

Menu

Thursday, September 16, 2021

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

Friday, September 17, 2021

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

Sponsors

The organizers of 17th International Students Conference “Modern Analytical Chemistry” gratefully acknowledge the generous sponsorship of following companies:



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