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# **Programme of the 19th International Students Conference “Modern Analytical Chemistry”**

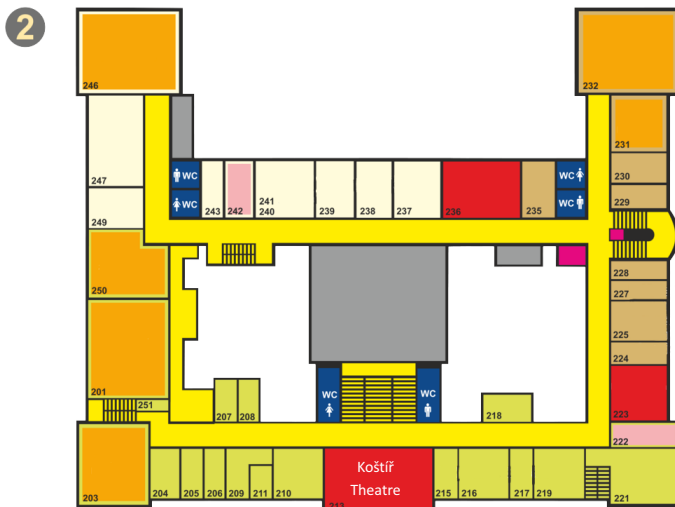
Prague, 14—15 September 2023



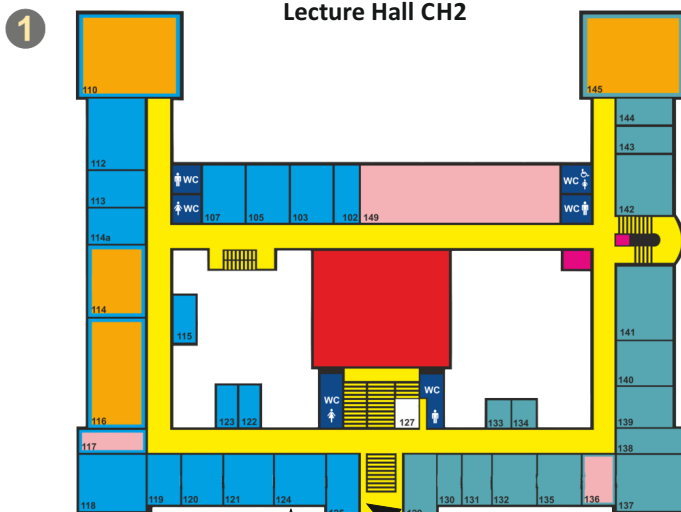
**FACULTY OF SCIENCE**  
Charles University

Prague 2023

# How to Find?



Lecture Hall CH2



Conference  
Office

Registration

Main entrance

## General Information

The **conference is held** at the Institute of Chemistry, Faculty of Science, Charles University (Hlavova 8, 128 43 Prague 2) in the lecture hall CH2 (Košíř Theatre).

The **registration** is located at the entrance to the building. It will be open on Thursday, September 14 from 8:30 to 9:00. Contact the organizers in advance for later registration.

**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.

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

**Coffee breaks** take place in front of the lecture hall.

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

There is a **WiFi network** in the building; use your eduroam account to connect.

## Sponsors

The organizers of 19th International Students Conference “Modern Analytical Chemistry” gratefully acknowledge the generous sponsorship of following companies:



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## Programme

### Thursday, September 14, 2023

- 8:30–9:00 **Registration of participants**
- 9:00–9:15 **Opening ceremony, welcoming address**
- Session 1** • chairperson: Mr Michal Zelenský
- 9:15–9:30 Ms Aneta Chabowska (Gdańsk University of Technology, Poland): *Determination of bisphenols and their derivatives in baby diaper samples*
- 9:30–9:45 Ms Kateřina Černá (Charles University, Czech Republic): *Comparison of new LC stationary phases in the separation of triazoles*
- 9:45–10:00 Ms Seyedehelahe Bagherimetkazini (University of Regensburg, Germany): *Tyrosine oxidation behavior using electrochemistry, capillary electrophoresis, and mass spectrometry*
- 10:00–10:15 Mr Jaromír Vyhnanovský (Charles University, Czech Republic): *Photochemical vapor generation as an introduction technique for analytical atomic spectrometry and its mechanistic aspects*
- 10:15–10:30 Ms Marcelina Rusin (Jagiellonian University, Poland): *Development of a capillary electrophoresis method for the analysis of human milk oligosaccharides*
- 10:30–10:45 **Coffee Break**
- Session 2** • chairperson: Ms Seyedehelahe Bagherimetkazini
- 10:45–11:00 Mr Alexander Dushkov (Bulgarian Academy of Sciences, Bulgaria): *Analysis of the ibotenic acid, muscimol and ergosterol content of an Amanita muscaria hydroalcoholic extract and an evaluation of its cytotoxic effect against a panel of healthy and cancerous lung cell lines in vitro*
- 11:00–11:15 Ms Sára Hermochová (University of Chemistry and Technology Prague, Czech Republic): *Electrochemical visualization of fingerprints using poly(phenazine) dyes on the brass cartridges*
- 11:15–11:30 Mr Ivan Kopal (Institute of Photonics and Electronics, Czech Academy of Sciences, Czech Republic): *Unveiling the dynamics of individual molecules in chemical reactions: Insights from advanced scattering methods*

- 11:30–11:45 Mr Kamil Brzuzy (Nicolaus Copernicus University in Toruń, Poland): *Development of procedure for biogenic amines determination*
- 11:45–12:00 Ms Lucie Pražáková (Charles University, Czech Republic): *Electrochemistry oxidation of pharmaceuticals*
- 12:00–12:15 Mr Sali Muriqi (University of Pardubice, Czech Republic): *Investigation of burdock tea: spectroscopic and electrochemical study*
- 12:15–13:00 **Lunch**
- Presentation of Sponsors**
- 13:00–13:15 Ing. Marta Václavíková, Ph.D. (ALS Czech Republic): *ALS environmental laboratory, (how) do you know us?*
- 13:15–13:30 Ing. Martin Klimiček (Optik Instruments): *Revolutionizing Analysis with next-gen FTIR and Raman technologies.*
- 13:30–13:45 Mgr. Ondřej Kuchler (ECOM): *Modern approach for analytical and preparative liquid chromatography by ECOM manufacturer*
- 13:45–13:55 Ing. Václav Helán (2THETA ASE): *Electrochemistry as a complement or in competition to spectral methods*
- 13:55–14:05 Ing. Petra Hájková (Analytika): *Analytika Ltd., Czech manufacturer of reference materials for laboratories*
- Session 3** • chairperson: Mr Karol Kubacki
- 14:05–14:20 Ms Ewelina Kowa (Jagiellonian University, Poland): *Development of matrix-match calibration standards for quantitative LA-ICP-MS analysis of specimens with calcareous skeleton*
- 14:20–14:35 Ms Karolina Mermer (Jagiellonian University, Poland): *Smart fluorimetric system for the determination of antibiotics*
- 14:35–14:50 Ms Nicolette Viktorová (Slovak University of Technology in Bratislava, Slovakia): *Determination of bioplasticizers in water samples by a new SPME-GC-MS/MS method*
- 14:50–15:05 **Coffee Break**

- Session 4** • chairperson: Mr Kamil Brzuzy
- 15:05–15:20 Ms Simona Sedláčková (Charles University, Czech Republic): *Peptide detection by soft X-ray atmospheric pressure photoionization mass spectrometry*
- 15:20–15:35 Ms Kristýna Jelšíková (Charles University, Czech Republic): *Development of electroanalytical methods for detection of bile acids*
- 15:35–15:50 Ms Anna Jelínková (Charles University, Czech Republic): *LC-MS analysis of short-chain fatty acids using derivatization reaction*
- 15:50–16:05 Ms Ewelina Czyz (Charles University, Czech Republic): *Supported liquid-solid phase extraction using wetted nanofiber discs as a simple approach for extraction of water contaminants*
- 16:05–16:20 Ms Alexandra Hadbavnicková (Charles University, Czech Republic): *Increasing the overall vapour generation efficiency of zinc*

### Friday, September 15, 2023

- Session 5** • chairperson: Mr Peter Čambal
- 9:00–9:15 Mr Mikuláš Vlk (Charles University, Czech Republic): *Advancing biomolecular analysis by cyclic ion mobility-mass spectrometry*
- 9:15–9:30 Mr Tomáš Lener (Charles University, Czech Republic): *Authentication of two eighteen century juniper-containing drug remains by HPLC MS/MS and GC MS*
- 9:30–9:45 Mr Lukáš Cudlman (Charles University, Czech Republic): *A deep dive into the diversity of triacylglycerol estolides and fatty acids in the skin lipidome of newborns*
- 9:45–10:00 Ms Barbara Niemiec (AGH University of Science and Technology, Poland): *Carbon-black paste electrodes modified with transition metal oxides in environmental analysis*
- 10:00–10:15 Ms Swati Banerjee (Charles University, Czech Republic): *Utilizing MS-cleavable cross-linkers for improved identification of protein-protein interaction*
- 10:15–10:30 Ms Valerie Smeliková (University of Chemistry and Technology Prague, Czech Republic): *The consequences of helium-induced defects in graphene for its potential use as a chemical sensor*
- 10:30–10:45 **Coffee Break**

**Session 6** • chairperson: Mr Alexander Dushkov

- 10:45–11:00 Ms Alicja Chromiec (Jagiellonian University, Poland): *Application of the SPME/HPLC-MS/MS method in the study of post-mortem redistribution of citalopram*
- 11:00–11:15 Ms Eva Pospíšilová (University of Chemistry and Technology Prague, Czech Republic): *Voltammetric determination of 2-aminoindane in oral fluid*
- 11:15–11:30 Ms Simona Adamová (Charles University, Czech Republic): *Determination of size and concentration of nanoparticles using single particle ICP-MS*
- 11:30–11:45 Ms Zuzanna Gralak (Nicolaus Copernicus University in Toruń, Poland): *New procedure for free amino acids determination in food samples*
- 11:45–12:00 Mr Michal Zelenský (Charles University, Czech Republic): *Characterization of laser treated polycrystalline boron doped diamond electrodes with various sp<sup>3</sup>/sp<sup>2</sup> carbon ratio*
- 12:00–12:15 Mr Peter Čambal (Charles University, Czech Republic): *Sensing of dopamine on mechanically polished {110}-oriented single-crystal boron doped diamond electrodes*

12:15–13:00 **Lunch****Session 7** • chairperson: Ms Barbara Niemiec

- 13:00–13:15 Ms Egzontina Shabani (University of Pardubice, Czech Republic): *Extraction of membrane enzyme Cers2 from biological samples for protein profiling by MALDI-MS and immunoblotting*
- 13:15–13:30 Ms Denisa Folprechtová (Charles University, Czech Republic): *Evaluation of amylose tris(3-chloro-5-methylphenylcarbamate) as a chiral stationary phase under normal-phase liquid chromatography and supercritical fluid chromatography conditions*
- 13:30–13:45 Ms Katarína Molnárová (Charles University, Czech Republic): *Glycopeptide enrichment on polyaniline-coated stationary phase in hydrophilic interaction liquid chromatography mode*
- 13:45–14:00 Ms Dominika Osiecka (Gdańsk University of Technology, Poland): *Application of Deep Eutectic Solvents in extraction of Maillard reaction products from plant-based meat substitutes for analysis with LC-MS/MS*



- 14:00–14:15 Ms Anna Sałdan (Jagiellonian University, Poland):  
*Application of gas chromatography for examination of disperse dyes*
- 14:15–14:30 Ms Alice Šimonová (Charles University, Czech Republic):  
*Studying the interactions between selected active pharmaceutical ingredients and liposomes by capillary electrophoresis*
- 14:30–14:45 **Coffee Break**
- Session 8 • chairperson: Ms Eva Pospíšilová**
- 14:45–15:00 Ms Eva Bláhová (Charles University, Czech Republic):  
*Study of the voltammetric behaviour of 7 $\beta$ -hydroxycholesterol on boron-doped diamond electrode*
- 15:00–15:15 Ms Zuzana Vosáhlová (Charles University, Czech Republic):  
*Hydrophilic interaction liquid chromatography for analysis of biologically active compounds*
- 15:15–15:30 Mr Paweł Stelmaszczyk (Jagiellonian University, Poland):  
*Development of electrochemical sensors based on screen-printed electrodes for the rapid detection of MDMA in drug samples*
- 15:30–15:45 Mr Natan Horáček (Charles University, Czech Republic):  
*Analysis of mass spectra of monoterpenes using modern statistical methods*
- 15:45–16:00 Mr Karol Kubacki (Jagiellonian University, Poland):  
*Lithium determination using a smartphone as a detector*
- 16:00–16:15 **Closing ceremony**

## Lunch

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

### Group A (room 117)

Seyedehelahe Bagherimetkazini  
Peter Čambal  
Aneta Chabowska  
Ewelina Czyz  
Alexander Dushkov  
Václav Helán (veg.)  
Sára Hermochová  
Ivan Kopal  
Sali Muriqi  
Barbara Niemiec  
Dominika Osiecka  
Eva Pospíšilová  
Egzontina Shabani (veg.)  
Valerie Smelikova  
Nicolette Viktoriová

### Group B (room 47)

Kateřina Černá  
Lukáš Cudlman  
Denisa Folprechtová  
Nathan Horáček  
Kristýna Jelšíková  
Tomáš Lener  
Katarína Molnárová  
Simova Sedláčková  
Alice Šimonová  
Mikuláš Vlk  
Zuzana Vosáhlová  
Jaromír Vyhnanovský  
Michal Zelenský

## Menu

### Thursday, September 14, 2023

- chicken gratin steak with ham and cheese, French fries
- *vegetarian*: fried cauliflower, potatoes

### Friday, September 15, 2023

- chicken fried steak, fries, cucumber
- *vegetarian*: vegetable salad with roasted cheese, dressing

# How to Find?

