

# SUNDAY, SEPTEMBER 4<sup>TH</sup>

## REGISTRATION

16:00 – 20:00

ATRIUM FACULTY OF SOCIAL STUDIES

## WELCOME PARTY

17:00 – 20:00

ATRIUM FACULTY OF SOCIAL STUDIES

# MONDAY, SEPTEMBER 5<sup>TH</sup>

## OPENING CEREMONY (Hall P31)

8:00-8:30

KANICKÝ, MATĚJKA

## SURFACE-ENHANCED RAMAN SPECTROSCOPY (Hall P31)

CHAIR: MATĚJKA

8:30 – 9:15

PL 1: Y. OZAKI

Chiral-label-free SERS and TERS strategies for chiral discrimination

9:15 – 9:35

OL 1: B. VLČKOVÁ

SERS and SERRS spectroscopy as a tool for probing and monitoring plasmon catalysed decarboxylation of Ru(II)-dicarboxybipyridine complexes

9:35 – 9:55

OL 2: M. PROCHÁZKA

New approaches in plasma-assisted nanostructured platforms for surface-enhanced Raman scattering (SERS) spectroscopy

9:55 – 10:15

OL 3: J. PÁSZTOR

Molecular spectroscopy NICOLET 1992-2022

10:15 – 10:35

OL 4: S. BERUS

The integration of a handheld Raman device and a SERS-based sensor for spectral recognition of vaginal fluids alterations

10:35 – 11:05

COFFEE BREAK (ATRIUM FACULTY OF SOCIAL STUDIES)

Explanatory notes:



Plenary lecture



Student lecture



Social events



Poster session



Invited lecture



Lunch/coffee

## MONDAY, SEPTEMBER 5<sup>TH</sup>

### PARALLEL SESSION

#### RAMAN SPECTROSCOPY & IR SPECTROSCOPY 1 (Hall P31)

CHAIR: JOHNSON

11:05 – 11:35	IL 1: E. KOČIŠOVÁ	Drop coating deposition Raman (DCDR) spectroscopy for sensitive detection of biologically important molecules
11:35 – 12:05	IL 2: A. BARTH	Structure and interactions of amyloid- $\beta$ peptide aggregates unraveled by novel infrared spectroscopy approaches
12:05 – 12:25	OL 5: P. MOJZEŠ	Raman microscopy survey of intracellular purine inclusions: New paradigm of biocrystallization in eukaryotes
12:25 – 12:45	OL 6: V. PROFANT	Raman optical activity as a promising tool for mononucleotide g-quadruplexes studies
12:45 – 13:05	OL 7: M. LIBÁNSKÝ	Fluorescence-free material identification with new XTR technology from Metrohm
13:05 – 14:45	LUNCH (MU RECTORATE)	

## MONDAY, SEPTEMBER 5<sup>TH</sup>

### PARALLEL SESSION

#### ICP-MS/OES (Hall P51)

CHAIR: MATOUŠEK

11:05 – 11:35	IL 3: M. CORTE-RODRIGUEZ	In-vivo and in-vitro studies on metal release (ions and nanoparticles) from dental implants using single-cell and single-particle ICP-MS
11:35 – 11:55	OL 8: F. GELMAN	Analysis of PTFE micro-particles by ICP-QMS operated in a single-particle mode
11:55 – 12:15	OL 9: M. GODULA	iCAP TQe ICP-MS: For samples where single quadrupole performance isn't enough
12:15 – 12:35	OL 10: J. DOBEŠ	Isotopic tools for uranium ores dating: application of uranium-lead and lead-lead dating systems
12:35 – 12:55	OL 11: J. VYHNANOVSKÝ	Photochemical vapor generation of rhodium and rhenium - on the way towards real sample analyses
13:05 – 14:45	LUNCH (MU RECTORATE)	

## MONDAY, SEPTEMBER 5<sup>TH</sup>

### PARALLEL SESSION

#### RAMAN SPECTROSCOPY & IR SPECTROSCOPY 2 (Hall P31)

CHAIR: BARTH

14:45 – 15:15	IL 4: R. BETTENCOURT DA SILVA	Identification of microplastics by micro-FTIR: Validation and uncertainty evaluation
15:15 – 15:35	OL 12: M. HÁKOVÁ	Microplastics analysis by agilent 8700 LDIR
15:35 – 15:55	OL 13: K. BOTUROVÁ	Spectroscopic characterization of humic acids in chernozems
15:55 – 16:15	OL 14: J. ŠTUBŇA	Identification of gemstones in watch by Raman spectroscopy
16:15 – 18:15	POSTER SESSION (AUDITORIUM OF FACULTY OF SOCIAL STUDIES)	
19:30 – 22:00	BRNO OBSERVATORY (SEE DETAILS IN SOCIAL PROGRAMME)	

## MONDAY, SEPTEMBER 5<sup>TH</sup>

### PARALLEL SESSION

#### SPECIATION ANALYSIS 1 (Hall P51)

CHAIR: FELDMANN

14:45 – 15:15	IL 5: G. SCHLEMMER	Instrumental Analysis in 30 minutes: bridging the techniques
11:15 – 15:35	OL 15: T. MATOUŠEK	Simultaneous ultratrace speciation analysis of arsenic and germanium in natural water
15:35 – 15:55	OL 16: K. CHIBA	Speciation analysis of Gd-based contrast agents in river water using HPLC-ICP-MS
15:55 – 16:15	OL 17: P. NOMNGONGO	Miniaturised liquid phase extraction of butyl and phenyltins in sediment samples using deep eutectic solvent: Optimisation and HPLC-ICP-MS analysis
16:15 – 18:15	POSTER SESSION (AUDITORIUM OF FACULTY OF SOCIAL STUDIES)	
19:30 – 22:00	BRNO OBSERVATORY (SEE DETAILS IN SOCIAL PROGRAMME)	

## TUESDAY, SEPTEMBER 6<sup>TH</sup>

AAS 1 (Hall P31)

CHAIR: DĚDINA

8:30 – 9:20

PL 2: E. FLORES

Advances and trends in sample preparation for analytical spectrometry

9:20 – 9:50

IL 6: E. BEINROHR

High resolution continuum source AAS for determination of nonmetals

9:50 – 10:10

OL 18: V.  
CYPRICHOVÁ

Study of distribution of zinc in ZnO nanoparticles in soil colloids (extracted from samples collected at various agricultural and forest sites in Slovakia) by sequential centrifugation and flame AAS

10:10 – 10:40

IL 7: M. ARRUDA

What metals/speciome can tell us about bioanalytics applied to health and plant science

10:40 – 11:10

COFFEE BREAK (ATRIUM OF FACULTY OF SOCIAL STUDIES)

## TUESDAY, SEPTEMBER 6<sup>TH</sup>

### PARALLEL SESSION

#### AAS 2 (Hall P31) CHAIR: FLORES

11:10 – 11:40	IL 8: Z. ZHU	Plasma induced chemical vapor generation: a new green and efficient sample introduction method for atomic spectroscopy
11:40 – 12:10	IL 9: J. DĚDINA	Employing laser induced fluorescence and selected ion flow tube mass spectrometry to understand what happens in hydride atomizers
12:10 – 12:30	OL 19: F. SIMON	An improved method for the determination of PFAS using HR-CS-GFMAS via GaF detection
12:30 – 12:50	OL 20: Z. KOWALEWSKA	Spectral aspects in determination of fluorine via GaF, CaF and SrF molecules using high-resolution continuum source molecular absorption spectrometry
12:50 – 14:30	LUNCH (MU RECTORATE)	

## TUESDAY, SEPTEMBER 6<sup>TH</sup>

### PARALLEL SESSION

#### RAMAN SPECTROSCOPY & IR SPECTROSCOPY 3 (Hall P51) CHAIR: KOČIŠOVÁ

11:10 – 11:40	IL 10: I. NĚMEC	Promising molecular-based materials for nonlinear optics – spectroscopic, diffraction and optical study
11:40 – 12:10	IL 11: M. JOHNSON	Nanoscale infrared spectroscopy studies of cellulose
12:10 – 12:30	OL 21: P. MATĚJKA	Nanosopic techniques related to molecular vibrations
12:30 – 12:50	OL 22: J. HORÁK	Chemistry at the nanoscale – AFM meets IR spectroscopy
12:50 – 14:30	LUNCH (MU RECTORATE)	

## TUESDAY, SEPTEMBER 6<sup>TH</sup>

### PARALLEL SESSION

#### SPECIATION ANALYSIS 2 (Hall P31)

CHAIR: DONARD

14:30 – 15:00	IL 12: J. FELDMANN	Elemental speciation from metals, metalloids to non-metals in environmental science: successes and problems
15:00 – 15:20	OL 23: A. RAAB	Arsenic and rice ( <i>Oryza sativa</i> L.)
15:20 – 15:40	OL 24: A. ORLOWSKA	Comparison of mobile phases for cation exchange HPLC-ICP OES
15:40 – 16:00	OL 25: A. KAŇA	Selenium transformation by food-grade microorganisms
16:00 – 16:20	OL 26: J. PROCH	Determination of metals and metalloids species using self-designed hyphenated systems based on detection by optical emission spectrometry
16:20 – 16:40	OL 27: V. MUELLER	Mass balance analyses of PFAS in soil, snowmelt and ski waxes
16:45 – 18:45	POSTER SESSION (AUDITORIUM OF FACULTY OF SOCIAL STUDIES)	

## TUESDAY, SEPTEMBER 6<sup>TH</sup>

### PARALLEL SESSION

#### LUMINESCENCE SPECTROSCOPY (Hall P51)

CHAIR: NĚMEC

14:30 – 15:00	IL 13: S. LIS	Inorganic nanoluminophores containing Ln ions and their multifunctionalized systems focused on sensor & analytical applications
15:00 – 15:30	IL 14: V. SVOBODA	Ultrafast time-resolved probes of chirality during photochemical reactions
15:30 – 15:50	OL 28: D. MATOUŠEK	FTIR-FPA and FTIR-QCL microscopy: Breakthrough techniques in infrared imaging
15:50 – 16:10	OL 29: P. LUBAL	The optical chemosensor array for analysis of halides or small biological molecules
16:45 – 18:45	POSTER SESSION (AUDITORIUM OF FACULTY OF SOCIAL STUDIES)	

## WEDNESDAY, SEPTEMBER 7<sup>TH</sup>

### PARALLEL SESSION

#### MASS SPECTROMETRY (Hall P31)

CHAIR: WAGNER

8:30 – 9:00	IL 15: J. ČÁSLAVSKÝ	IRMS on the tides of the past
9:00 – 9:20	OL 30: A. KOHOUTOVÁ	Stopping efficiency simulation of cryogenic gas stopping cell
9:20 – 9:40	OL 31: E. BULSKA	Fluoroproteomics uncovers the effects of fluorinated drugs
9:40 – 10:00	OL 32: M. VIDO	Structural characterization of hydrophobic hyaluronan derivatives by comprehensive 2D-LC-MS
10:00 – 10:20	OL 33: J. KUČERA	The first AMS laboratory in the Czech Republic installed at the Nuclear Physics Institute of the CAS, Řež
10:40 – 11:10	COFFEE BREAK (ATRIUM OF FACULTY OF SOCIAL STUDIES)	

## WEDNESDAY, SEPTEMBER 7<sup>TH</sup>

### PARALLEL SESSION

#### MICROWAVE PLASMA (Hall P51)

CHAIR: PISONERO

8:30 – 9:00	IL 16: M. BOROWSKA	Optical emission spectrometry coupled with microwave induced plasma – new applications in analytical- and nano-chemistry
9:00 – 9:20	OL 34: I. MACHADO	Microwave plasma atomic emission spectrometry for metallomics of bioactive rhenium compounds
9:20 – 9:40	OL 35: B. CIEŚLIK	Heavy metals fractions analysis in sewage sludge ash obtained on laboratory scale and from industrial origin
9:40 – 10:00	OL 36: A. RAGYÁK	Time travel with honeys - The MP-AES analysis coupled with AMS age determination of Hungarian acacia samples
10:00 – 10:20	OL 37: A. MOLLO	Advances in mercury determination by CV – MIP OES with nitrogen plasma, in drinking and surface water
10:20 – 10:40	OL 38: Z. SAJTOS	Time travel with honeys - The MP-AES analysis coupled with AMS age determination of Hungarian rape, sunflower and multifloral samples
10:40 – 11:10	COFFEE BREAK (ATRIUM OF FACULTY OF SOCIAL STUDIES)	

## WEDNESDAY, SEPTEMBER 7<sup>TH</sup>

### PARALLEL SESSION

#### SPECIAL SPECTROSCOPY 1 (Hall P31)

CHAIR: KANTNEROVÁ

11:10 – 11:40	IL 17: P. NEUGEBAUER	High frequency rapid scan electron spin resonance spectroscopy
11:40 – 12:00	OL 39: A. OPÍČHAL	Data analysis from catcher foil experiment for cross-sections measurement of $^{40}\text{Ar} + ^{144}\text{Sm}$ reaction
12:00 – 12:20	OL 40: M. JIRUŠ	Mechanical and gamma-absorption properties of selected heat resistant materials used in development of sealed reaction chambers
12:20 – 12:40	OL 41: P. LIŠKA	Correlative high-resolution optical and chemical imaging of $\text{CsPbBr}_3$ nanocrystals
12:40 – 14:30	LUNCH (MU RECTORATE)	
15:00	EXCURSION (SEE DETAILS IN SOCIAL PROGRAMME)	

## WEDNESDAY, SEPTEMBER 7<sup>TH</sup>

### PARALLEL SESSION

#### SPECIAL PLASMA SPECTROSCOPY (Hall P51)

CHAIR: BOROWSKA

11:10 – 11:40	IL 18: J. PISONERO	GD- and LA-ICP- (TOFMS): two powerful spectroscopy techniques for fast high spatially resolved analysis
11:40 – 12:10	IL 19: Z. WEISS	Excitation in a glow discharge and an inductively coupled plasma: similarities and differences
12:10 – 12:30	OL 42: J. KRATZER	Next generation of dielectric barrier discharge atomizers for ultratrace element analysis
12:40 – 14:30	LUNCH (MU RECTORATE)	
15:00	EXCURSION (SEE DETAILS IN SOCIAL PROGRAMME)	

# THURSDAY, SEPTEMBER 8<sup>TH</sup>

LA-ICP-MS (Hall P31)

CHAIR: KANICKÝ

8:00 – 8:50

PL 3: D. GUENTHER

Recent developments in laser ablation and inductively coupled plasma mass spectrometry

8:50 – 9:10

OL 43: B. WAGNER

Comparative analysis of inks from the Chopin's manuscript Impromptu in a flat major, Op. 29: a proof of concept for a non-invasive image-based investigations of written cultural heritage

9:10 – 9:30

OL 44: M. KUČHYNKA

Bioimaging of elements and proteins by LA-ICP-MS in medicine and pharmaceutical research

9:30 – 9:50

OL 45: K. SOBEK

Imaging of chemical and structural processes in minerals

9:50 – 10:15

COFFEE BREAK (ATRIUM OF FACULTY OF SOCIAL STUDIES)

## THURSDAY, SEPTEMBER 8<sup>TH</sup>

### PARALLEL SESSION

#### LA-ICP-MS 2 (Hall P31)

CHAIR: GUENTHER

10:15 – 10:45	IL 20: O. DONARD	Transient signal potential in atomic spectrometry for advanced speciation and laser ablation
10:45 – 11:15	IL 21: D. SCHAUMLOFFEL	
11:15 – 11:35	OL 46: L. KRONLACHNER	Depth-resolved elemental and molecular analysis of polymeric composites using chemometric evaluation
11:35 – 11:55	OL 47: P. NEČAS	Application of spectroscopic methods in research of geochemical processes in the Upper Silesian coal basin
11:55 – 12:15	OL 48: M. BURŠÍKOVÁ	Evaluation of the element content in geological units and its importance in the environment evaluation – spectroscopy study
12:15 – 14:00	LUNCH (MU RECTORATE)	

## THURSDAY, SEPTEMBER 8<sup>TH</sup>

### PARALLEL SESSION

#### MÖSSBAUER SPECTROSCOPY 1 (Hall P51)

CHAIR: MIGLIERINI

10:15 – 10:45	IL 22: V. PROCHÁZKA	Mössbauer spectroscopy in gamma-optics, gamma-optics in Mössbauer spectroscopy
10:45 – 11:05	OL 49: V. HEGER	Thermally induced solid-state reaction of $\text{Fe}_2(\text{SO}_4)_3$ with NaCl or KCl : a route to $\beta\text{-Fe}_2\text{O}_3$ synthesis
11:05 – 11:25	OL 50: P. NOVÁK	Lamb-Mössbauer factor determination of powders by resonance Mössbauer spectroscopy
11:25 – 11:45	OL 51: J. KOPP	Nanoscopic techniques related to molecular vibrations
11:45 – 12:05	OL 52: S. VYHNÁLEKOVÁ	Speciation analysis of iron in the biological matrix of filamentous fungi using Mössbauer spectrometry
12:15 – 14:00	LUNCH (MU RECTORATE)	

## THURSDAY, SEPTEMBER 8<sup>TH</sup>

### PARALLEL SESSION

#### MÖSSBAUER SPECTROSCOPY 2 (Hall P31)

CHAIR: KOPÁNI

14:00 – 14:30	IL 23: M. MATULOVÁ	Application of spectroscopic techniques for speciation analysis of Iodine, Selenium and iron used in studies of processes in the near- and far-field regions of spent nuclear fuel disposal system
14:30 – 14:50	OL 52: S. LISNÍKOVÁ	Nickel-iron and zinc-iron bimetal oxalates: preparation, characterization and thermal decomposition to spinel ferrites
14:50 – 15:10	OL 53: M. MIGLIERINI	Mössbauer spectrometry of metallic alloys
15:10 – 15:30	OL 54: D. GREY	Mössbauer spectroscopy study of tin-containing metallic glasses
15:30 – 16:00	COFFEE BREAK (ATRIUM OF FACULTY OF SOCIAL STUDIES)	

## THURSDAY, SEPTEMBER 8<sup>TH</sup>

### PARALLEL SESSION

#### ICP-MS/OES 2 (Hall P51)

CHAIR: HOLÁ

14:00 – 14:20	OL 55: D. MILDE	Approaches to evaluation of measurement uncertainty in ICP-MS analysis
14:20 – 14:40	OL 56: L. NYABA	Seasonal variation of drinking water quality and human health risk assessment: a case study in rural village of the eastern cape
14:40 – 15:00	OL 57: J. KARASIŃSKI	High precision measurements of lead isotope ratio without matrix separation
15:00 – 15:20	OL 58: T. MUNONDE	Magnetic Fe <sub>3</sub> O <sub>4</sub> @Mg/Al-layered double hydroxide adsorbent for preconcentration of trace metals in water matrices
15:30 – 16:00	COFFEE BREAK (ATRIUM OF FACULTY OF SOCIAL STUDIES)	

## THURSDAY, SEPTEMBER 8<sup>TH</sup>

### PARALLEL SESSION

#### MÖSSBAUER SPECTROSCOPY 3 (Hall P31)

CHAIR: PROCHÁZKA

16:00 – 16:30	IL 24: M. ŠEBESTA	Some perspective spectroscopic techniques for analysis of nanoparticles used in studies with soils, plants and filamentous fungi
16:30 – 17:00	IL 25: M. KOPÁNI	Application of analytical techniques in the study of biological systems
17:00 – 17:20	OL 59: M. URÍK	Speciation of iron in microbial biomass and natural ochric precipitates as affected by fungal activity
19:00	CONFERENCE DINNER (POUPĚ BREWERY)	

## THURSDAY, SEPTEMBER 8<sup>TH</sup>

### PARALLEL SESSION

#### SPECIALSPECTROSCOPY 2 (Hall P51)

CHAIR: NEUGEBAUER

16:00 – 16:30	IL 26: K. KANTNEROVÁ	Unravelling new isotopic dimensions of nitrous oxide by quantum cascade laser absorption spectroscopy
16:30 – 17:00	IL 27: F. LIGMAJER	Tunable optical metasurfaces based on vanadium dioxide
17:00 – 17:20	OL 60: D. KRÁLOVIČ	The process of photopolymerization of acrylated soybean oil based epoxides investigated by positron annihilation lifetime spectroscopy
19:00	CONFERENCE DINNER (POUPĚ BREWERY)	

## FRIDAY, SEPTEMBER 9<sup>TH</sup>

### LASER INDUCED BREAKDOWN SPECTROMETRY (Hall P31)

CHAIR: GALBÁCS

9:00 – 9:30	IL 28: P. POŘÍZKA	Complementarity of laser-induced breakdown spectroscopy and laser ablation inductively coupled plasma mass spectrometry in cancer tissues analysis
9:30 – 10:00	IL 29: J. LASERNA	Understanding the correlation of LIBS and acoustic measurements of rock and soil found in the traverse of Perseverance rover across the Jezero crater, Mars
10:00 – 10:20	OL 61: K. NOVOTNÝ	Laser induced breakdown spectroscopy imaging of uranium ores
10:20 – 10:40	OL 62: Y. DEGUCHI	LIBS applications of online monitoring and 2D/3D mappings for advanced control of industrial processes
10:40 – 11:10	COFFEE BREAK (ATRIUM OF FACULTY OF SOCIAL STUDIES)	

## FRIDAY, SEPTEMBER 9<sup>TH</sup>

### LASER INDUCED BREAKDOWN SPECTROMETRY (Hall P31)

CHAIR: LASERNA

11:10 – 11:40	IL 30: G. GALBÁCS	Nanoparticles in plasma spectroscopy: detection and signal enhancement in gaseous, liquid and solid samples
11:40 – 12:10	IL 31: J. KAISER	Enhancing the sensitivity of laser-induced breakdown spectroscopy for the detection of nanoparticle-labeled cancerous tissues
12:10 – 12:30	OL 63: P. KOLEČKÁŘ	Polychromator ORCA ( Optimized Rowland Circle Alignment )
12:30 – 12:50	OL 64: D. HAHN	Aerosol analysis with laser-induced breakdown spectroscopy: Sampling approaches and recent applications
12:50 – 13:10	ESAS-CSSC 2022 CLOSING CEREMONY	
13:10 – 14:30	LUNCH (MU RECTORATE)	