STARSS

6th STARSS Conference on Separation Science

17. – 19. Oct. 2022

Hradec Králové

CHARLES UNIVERSITY
Faculty of Pharmacy
in Hradec Králové

About the conference

STARSS project is approaching its end after more than five years. A few more months remain before it will be concluded. The major objective of the project was to create a strong team of researchers enabling significant progress in the field of the separation science. The annual STARSS conferences have always been a good opportunity to bring people from several Czech and European institutions in Hradec Kralove where we have met face to face for a few days in order to inform each other about the progress in the research. It is clear that the focus of these conferences has been on the exchange in scientific information. However, an integral part of our previous conferences has also included informal meetings when we had time to talk about issues sometimes even completely outside of science perhaps with a drink and food. Social part of conferences is simply indispensable. I trust that this conference will be at least as interesting as all the previous ones. Its program is rich and includes presentations by renowned "icons" of separation science from both abroad and the Czech Republic, as well as talks given by students and postdocs. Such "cross-pollination" will certainly be uplifting for all involved. I wish all those who attend this conference a pleasant stay in Hradec Králové and enjoyable conferencing.

Prof. František Švec

Link to the conference website:
https://portal.faf.cuni.cz/Projects/STARSS/Events/6th-STARSS-conference/

About STARSS

Project name: Establishment of Specialized Team for Advanced Research on Separation Science (STARSS)

The European Social Fund (ESF) and the European Regional Development Fund (ERDF),

Operational Program Research, Development and Education PO1.SC1.IP1

Reg. No. CZ.02.1.01/0.0/0.0/15_003/0000465

Research team

Key foreign expert researcher:	Prof. František Švec
Project guarantor:	Prof. Petr Solich
Principal team manager:	Prof. Lucie Nováková
Expert in the field of LC methods:	Prof. Dalibor Šatínský
Expert in the field of sample preparation:	Assoc. Prof. Hana Sklenářová
Expert in the field of SIA/SIC:	Assoc. Prof. Petr Chocholouš

Other team members:
Early Stage Researchers, 5 at postdoc positions, 4 at Ph.D. positions

For further details and questions contact principal team manager: novakoval@faf.cuni.cz or visit our web site: https://portal.faf.cuni.cz/Projects/STARSS/

Strategic partnership

REQUIMTE, Portugal	Prof. Marcela Segundo
University of the Balearic Islands, Spain	Prof. Manuel Miró
School of Chemistry, University of Melbourne, Australia	Prof. Spas Kolev
Université de Genève	Dr. Davy Guillarme

EUROPEAN UNION
European Structural and Investment Funds
Operational Programme Research,
Development and Education

MINISTRY OF EDUCATION, YOUTH AND SPORTS

František Švec

František Švec worked in the Institute of Macromolecular Chemistry of the Czechoslovak Academy of Sciences in Prague before accepting position at the Cornell University and later at the University of California, Berkeley. He was also Facility director at the Molecular Foundry of the Lawrence Berkeley National Laboratory. Prof. Švec authored close to 520 scientific publications that produced more than 26000 citations and has an h-index close to 100. He edited 2 books and authored 75 patents. He is editor-in-chief of the Journal of Separation Science and Separation Science Plus. He received numerous awards and distinctions for his pioneering work with organic polymer monolithic structures. He currently serves as the key foreign expert researcher in the STARSS project.

Petr Solich

Professor Petr Solich obtained his Ph.D. in 1985 at Charles University, Faculty of Pharmacy in Hradec Králové, Czech Republic. His research interests are automation of analytical procedures; flow methods (Flow Injection Analysis, Sequential Injection Analysis and Sequential Injection Chromatography); chromatographic methods (mainly application of nanofibres as stationary phase) and development of modern sample-preparation methods, with application to pharmaceutical, environmental and bioanalytical analysis. He has published more than 280 research papers with about 6500 citations (h-index 43) and has been responsible for more than 25 research grants. He is project guarantor of the STARSS project.

Lucie Nováková

Lucie Nováková has been a Full Professor in Analytical Chemistry at the Charles University, Faculty of Pharmacy in Hradec Králové, Department of Analytical Chemistry, the Czech Republic, since 2019. Her research is oriented towards separation techniques, namely ultra-high performance liquid chromatography, supercritical fluid chromatography, and their coupling to mass spectrometry. She is involved in a broad scope of research projects focused on pharmaceutical analysis, doping control, plant analysis, and bioanalytical methods. An important part of her research also lies in the sample preparation step, where the focus is put on the current trends enabling facilitation, miniaturization, and reduction of time and sample requirements. She extended her scientific experience during fellowships at world-recognized universities, such as the University of Geneva and Vrije Universiteit Brussel, beyond others. She authored two books on HPLC theory and practice and nine book chapters. She published over 140 peer-reviewed scientific articles and review papers with more than 4500 citations and an h-index of 37. She is also widely involved in teaching and education activities, such as HPLC and SFC training courses, seminars, and conferences. Currently, she is Vice-dean for external and international relations of the Faculty, the principal team manager of the STARSS project and the head of the research program in the EFSA-CDN project, both OP RDE projects.

About Faculty of Pharmacy in Hradec Králové, Charles University

The Faculty of Pharmacy, with its seat in the town of Hradec Králové, was established by a government decree in 1969. This Faculty of Pharmacy has continued in the old and long-time tradition of the education of pharmacy at Charles University.

The research activities at the Charles University Faculty of Pharmacy involve all aspects of contemporary pharmaceutical sciences. A wide range of theoretical and experimental approaches are employed to study both new as well as established pharmaceuticals, predominantly small molecules of organic origin, with capacity of ameliorating pathological processes in human body.

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Jaroslav Roh

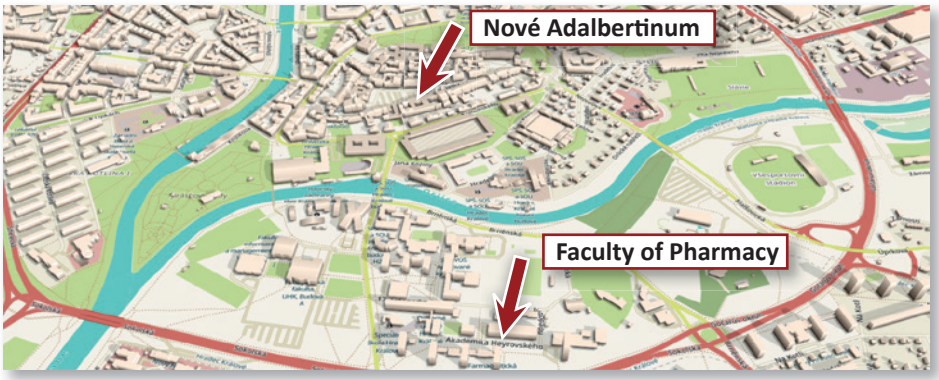
Jaroslav Roh is an Associate Professor of Pharmaceutical Chemistry at the Charles University, Faculty of Pharmacy in Hradec Králové, Department of Organic and Bioorganic Chemistry, the Czech Republic. In February 2022, he was appointed Dean of the Faculty after serving for four years as Vice--Dean for Research and Doctoral Studies. He is the chairman of the Scientific Council of the Faculty of Pharmacy, Charles University and member of the Scientific Councils of other five academic institutions. His research is directed towards two areas of medicinal chemistry. Firstly, he deals with the medicinal chemistry of dexrazoxane analogues and other topoisomerase IIbeta inhibitors as potential cardioprotective agents. The second direction focuses on the medicinal chemistry of potential anti-tuberculosis drugs. He published 48 peer-reviewed scientific articles and review papers with more than 1000 citations and his h-index is 19. He is also involved in teaching and education activities, he has mentored 6 Ph.D. students (2 finished) and more than 20 diploma students.

Venue Nové Adalbertinum

Wifi
Name: **NA_hotel**
Password: **nahotel2022**

Reception
Phone: +420 495 063 111
Email: recepce@noveadalbertinum.cz

Map of Hradec Králové



Nové Adalbertinum

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Faculty of Pharmacy

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Akademika Heyrovského 1203
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Czech Republic

DAY 1 Monday 17. 10. 2022

08:00 – 09:00	**REGISTRATION**
09:00 – 09:20	**Welcoming address** Prof. Petr Solich, Prof. František Švec, Prof. Lucie Nováková Assoc. Prof. Jaroslav Roh, the dean of the Faculty of Pharmacy Faculty of Pharmacy, Charles University, Hradec Králové, Czech Republic

SESSION I: IMPORTANCE OF SEPARATION SCIENCE FOR CLINICAL APPLICATIONS
Chairperson: Prof. František Švec

09:20 – 10:00	**L-01: UHPSFC/MS as a powerful tool for high-throughput lipidomic quantitation in cancer screening** Prof. Michal Holčapek, University of Pardubice, Czech Republic
10:00 – 10:40	**L-02: Selected ion flow tube mass spectrometry, SIFT-MS, analyses of volatile metabolites in exhaled breath** Prof. Patrik Španěl, J. Heyrovský Institute of Physical Chemistry, Prague, Czech Republic
10:40 – 11:10	**Coffee-break and discussion**

SESSION II: BIOPHARMACEUTICALS
Chairperson: Prof. Lucie Nováková

11:10 – 11:50	**L-03: Simplifying the characterization of complex biopharmaceutical products through the use of ultra-short columns or multi-isocratic elution mode** Dr. Davy Guillarme, University of Geneva, Switzerland
11:50 – 12:20	**L-04: Analysis of therapeutic proteins by multidimensional LC: How far can we go?** Dr. Valentina D´Atri, University of Geneva, Switzerland
12:20 – 12:40	**L-05: pyroLC: online thermal decomposition of proteins as a tool for ultra-fast bottom-up proteomics** Dr. Juraj Lenčo, Charles University, Hradec Králové, Czech Republic
12:40 – 13:00	**L-06: RPLC-UV and HILIC-UV characterization of home-made ramucirumab-based antibody-drug conjugate** Denis Naplekov, Charles University, Hradec Králové, Czech Republic
13:00 – 14:00	**Lunch**

DAY 1 Monday 17. 10. 2022

SESSION III: 2D SEPARATIONS
Chairperson: Assoc. Prof. Jiří Urban

14:00 – 14:40	**L-07: What can we expect from LC x LC compared to conventional 1D-LC** Prof. Sabine Heinisch, Université Claude Bernard Lyon 1, Lyon, France
14:40 – 15:20	**L-08: Modelling of analyte profiles and band broadening generated by interface loops used in multi-dimensional liquid chromatography** Prof. Ken Broeckhoven, Vrije Universiteit Brussel, Belgium
15:20 – 15:50	**L-09: Off-line LC x SFC in the prospect of upgrading natural or recycled products** Dr. Karine Faure, Université Claude Bernard Lyon 1, Lyon, France
15:50 – 16:20	**L-10: Two-dimensional liquid chromatographic separations of complex samples of industrial products and intermediates** Assoc. Prof. Petr Česla, University of Pardubice, Czech Republic
16:20 – 16:50	**Coffee-break and discussion**

SESSION IV: IMPORTANCE OF STEROIDS
Chairperson: Prof. Marcela Segundo

16:50 – 17:30	**L-11: An image of the future of steroid biochemistry** Prof. Ruth Andrew, University of Edinburgh, UK
17:30 – 18:00	**L-12: Ecdysterone metabolism: A holistic view on compound identification for doping control** Prof. Maria Kristina Parr, Freie Universität Berlin, Berlin, Germany
18:00 – 18:30	**L-13: New liquid chromatography-tandem mass spectrometry method for targeted profiling of steroids in mouse plasma** Taťána Gazárková, Charles University, Hradec Králové, Czech Republic
18:30 – 19:30	**Welcome drink**

Michal Holčapek

Michal Holčapek is a Professor at the University of Pardubice, Department of Analytical Chemistry. He received his Ph.D. in analytical chemistry from the same university in 1999. His research focus is mass spectrometry and its coupling with liquid chromatography or supercritical fluid chromatography, applied mainly in lipidomic analysis and cancer biomarker research. He obtained several scientific awards, for example, the Herbert J. Dutton Award (2022, American Oil Chemists' Society) and the Power List of 100 most influential people in the analytical sciences (2020, 2015 and 2013, The Analytical Scientist). He is a coauthor of 145 articles in peer-reviewed international journals, h-index 45, a contributing editor of Trends in Analytical Chemistry, a member of editorial advisory boards of Analytical and Bioanalytical Chemistry, and Lipids. He was coeditor of the books Handbook of Advanced Chromatography/Mass Spectrometry Techniques (Academic Press and AOCS Press, 2017) and Extreme Chromatography: Faster, Hotter, Smaller (American Oil Chemical Society, 2011), editor of topical collections in Analytical Chemistry, Analytical and Bioanalytical Chemistry, and Journal of Chromatography A, former head of Czech Mass Spectrometry Section and national representative in International Mass Spectrometry Foundation (2005-13). He is one of the founding members of the Lipidomics Standards Initiative and a vice-president for conferences in the International Lipidomics Society.

Patrik Španěl

Patrik Španěl graduated in plasma physics at Charles University, Prague and obtained Ph.D. in ion physics at Innsbruck University, Austria. Currently, he is Head of the Department of Chemistry of Ions in Gaseous Phase and Chairman of the Board of the J. Heyrovsky Institute of Physical Chemistry, Czech Academy of Sciences, Prague and a visiting professor at Imperial College London. He and his colleagues research ion chemistry for quantifying volatile trace compounds in the air and develop mass spectrometry instrumentation based on the kinetics of ion-molecule reactions. They also participate in interdisciplinary studies ranging from atmospheric environment via food science to exhaled breath analysis. He is a co-author of more than 300 publications cited more than 12000 times (h-index 60).

Davy Guillarme

Davy Guillarme holds a Ph.D. degree in analytical chemistry from the University of Lyon. He is now senior lecturer and research associate at the University of Geneva. He authored more than 300 journal articles related to pharmaceutical analysis. His expertise includes HPLC, UHPLC, HILIC, LC–MS, SFC, SFC–MS, multidimensional LC, analysis of proteins, mAbs and ADCs. He is an associate editor of Journal of chromatography B and editorial advisory board member of several journals (Trends in Analytical Chemistry, Journal of Chromatography A, Journal of Separation Science, LC–GC North America,…). He was the recipient of the LC-GC emerging leader award in chromatography in 2013 and the jubilee medal from the chromatographic society in 2018. He was also elected as one of the world's most influential analytical scientists by „Analytical Scientist" magazine in in 2013, 14, 15, 17, 19, 20 and 2021.

Valentina D'Atri

Valentina D'Atri holds a Ph.D. degree in Industrial and Molecular Biotechnologies from the University of Naples "Federico II", Italy. She is currently Research and Teaching Fellow in the Analytical Sciences Department of the School of Pharmaceutical Sciences at the University of Geneva, Switzerland. Her interests and research activities focus on the development of cutting-edge LC–MS analytical workflows for the detailed characterization of innovative therapeutic drugs such as biopharmaceutical proteins (monoclonal antibodies, antibody-drug conjugates, bi/tri-specific antibodies, Fc-fusion proteins), therapeutic oligonucleotides (ASO, siRNA), and viral vectors (AAV). She has currently authored/co-authored +50 publications including articles and book chapters.

Juraj Lenčo

Juraj Lenčo received his Master's degree in Pharmacy in 2002. He spent six months at the University of Vienna, where he prepared his diploma thesis, and additional three months during his Ph.D. study. In 2007 he received his Ph.D. in Medical Biology for his research at the University of Defense, Faculty of Military Health Sciences. He spent 15 months at Lombardi Cancer Center at Georgetown University, Washington DC as a postdoctoral fellow in the group of Prof. Goldman. In 2017 he joined the STARSS team at the Faculty of Pharmacy in Hradec Králové. Since his first stay at the University of Vienna, his primary research interest has been proteomics and its applications to various biological and clinical questions. His main research focus is currently analytical proteomics and the development of specific proteomic techniques. He has supervised the completion of 4 PhD degrees and has authored 54 papers. He received three research grants and a travel grant. He has presented several invited talks at conferences, workshops, and a meeting at WHO in Geneva. In 2014, he received a Dean's Award for significant research at the Faculty of Military Health Sciences, and in 2015 and 2018, he received Josef Chmelík Award for the best Czech proteomic publication. In 2019, he was elected to the Proteomic Section of the Czech Society for Biochemistry and Molecular Biology board.

Denis K. Naplekov

Denis K. Naplekov graduated from Faculty of Pharmacy of Belgorod State University in Russia in 2017 with a Master's degree. In a period from 2018 to the first half of 2019 he worked as an R&D specialist at Abbott affiliate in Russia. He has authored and co-authored 10 papers in total, dedicated to development of ophthalmic formulations with controlled drug release. He obtained a qualification of 'teacher researcher' in the second half of 2019 and simultaneously started the doctoral studies at Faculty of Pharmacy in Hradec Králové. In 2021 he joined STARRS team. Currently, his research interest is focused on reversed phase and hydrophilic interaction liquid chromatography of biopharmaceuticals and antibody-drug conjugates.

Sabine Heinisch

Sabine Heinisch is a researcher at the University of Lyon. Her research mainly focuses on method development in UHPLC, SFC and LC x LC, and the hyphenation of these techniques with high resolution mass spectrometry. She has authored 6 book chapters and over 80 publications. Her expertise covers pharmaceutical and environmental fields.

Ken Broeckhoven

Ken Broeckhoven has a Master's degree and Ph.D. in chemical engineering from the Vrije Universiteit Brussel (VUB), Brussels, Belgium, where he currently is an associate professor in chemical engineering and bio-engineering sciences. He is also the head of the Department of Chemical Engineering at the VUB. His research mainly focuses on the fundamental aspects of chromatographic separation methods (diffusion, mass transfer, eddy--dispersion, extra-column band broadening, kinetic performance), in both liquid and supercritical fluid chromatography. In 2019, he received the LCGC Emerging Leader in Chromatography Award. He is a part of the organizing and scientific committee of the HTC-conference series, a biennial conference in Ghent that focusses on hyphenated techniques in chromatography.

Karine Faure

Karine Faure is CNRS researcher at Institute of Analytical Sciences (ISA), University of Lyon, France. Her research focus on two-dimensional liquid chromatography used for analytical or preparative purposes. Her academic and industrial projects mostly relate to the upgrading of natural products or recycled products. Her current interest concerns the development of two-dimensional LC x SFC for the analysis of complex samples. She is a board member of the French Association for Separation sciences and president of the Lyon section, gathering 100 chromatographers from academia and industry.

Petr Česla

Petr Česla is associate professor at the University of Pardubice, Faculty of Chemical Technology, where he received Ph.D. in 2007 and finished habilitation in 2016. His research activities include development of liquid phase separation techniques – mainly two-dimensional liquid chromatography, capillary electrophoresis, optimization procedures, and data processing. He has been acting as principal investigator of several projects funded by Czech Science Foundation, focused on two-dimensional LC and CE separations. The latest ongoing project is focused on the fraction transfer process in 2D LC and development of active modulation. He published over 45 original research articles in peer-reviewed journals with more than 940 citations and H-index 17. He also co-authored one book and three book chapters.

Ruth Andrew

Ruth Andrew holds a Chair in Pharmaceutical Endocrinology at the University of Edinburgh and directs the Clinical Research Facility Mass Spectrometry Core. After qualifying as a pharmacist in 1990, she studied for a Ph.D. in the field of pharmaceutical analysis, using gas chromatography mass spectrometry as an approach to profile catecholamines in hypertension. In 1994, she joined the Endocrinology Unit in the University of Edinburgh to develop further interests in mass spectrometry and establish its use in steroid profiling in cardiovascular disease. Since then Ruth has investigated the regulation of glucocorticoid metabolism and her group has focussed on the role of hepatic 5α-reductase in diabetes and in dynamic methods to quantify these metabolic pathways in vivo using stable isotope tracers. She leads a team specialising in small molecule quantitative analysis in support of translational medicine, most recently investigating the use of mass spectrometry imaging in steroid analysis. She takes an active role in teaching both Honours students (Endocrine Physiology and Pharmacology, Clinical Biochemistry) and post-graduate students. Ruth contibutes to University governance though acting on the University Post-graduate appeals committee. She is the General Secretary of the Society for Endocrinology and acts on grant panels for the Chief Scientist Office, FWO (Flanders), and the Commonwealth Commission. She is a Reviews Editor for the British Journal of Pharmacology, a Specialty Chief Editor for Systems Endocrinology (Frontiers in Endocrinology) and an Associate Editor with Talanta.

Maria Kristina Parr

Prof. Maria Kristina Parr studied food chemistry at the University of Bonn and obtained her doctoral degree (Dr. rer. nat.) from the Institute of Pharmacy, Martin-Luther University Halle-Wittenberg, Germany. She was working as researcher for 14 years in the Anti-Doping Laboratory in Cologne, Germany, in different fields of research including method development, analysis of nutritional supplements and counterfeit drugs for doping substances (esp. anabolic steroids and stimulants), synthesis of steroidal reference substances and metabolites, investigations on metabolism, designer steroid identification and characterization. In 2012 she got her habilitation (Venia Legendi in Pharmaceutical Chemistry) at the University of Bonn. In the same year she was appointed full professor for Pharmaceutical Analysis at Freie Universitaet Berlin. The main research focus of her group is mass spectrometric analysis hyphenated to different chromatographic separation techniques with main focus of analyzing active ingredients in drugs, dietary supplements and counterfeit or black-market products, protein and antibody characterization, anti-doping research, quality management, and analytical quality by design. Investigations in drug metabolism, determination of endogenous and xenobiotic compounds by GC-, LC- and SFC-MS(/MS) and drug-drug interactions play an important role in her research activities. With Maria Parr's long history in anti-doping research, primary focus of the group is on steroids and other performance enhancing drugs. She published more than 160 papers in the field of pharmaceutical analysis, bioanalysis and metabolism.

Taťána Gazárková

Taťána is currently a Ph.D. student in the research group of Prof. Lucie Nováková at Charles University and Visiting PhD research student in the MS Imaging group of Prof. Ruth Andrew at University of Edinburgh. She is also a member of STARSS project at the PhD position at the Department of Analytical Chemistry, Faculty of Pharmacy in Hradec Králové, Charles University. Her research in Bioanalysis at Charles University is focused on simultaneous determination of targeted endogenous steroids in mouse and human plasma using high-throughput chromatographic methods coupled with mass spectrometry detection. Her further research interests cover (1) investigation of fundamental aspects of SFC, such as the effect of column history on the stability of retention times and the effect of make-up solvent composition on MS response, and (2) use of MALDI-MSI in bioanalytical applications. Taťána deepened her knowledge of chromatography techniques during her two month internship in the research group of Prof. Susann Teneberg at University of Gothenburg. In the future, she would like to implement her newly-gained practical knowledge of MALDI-Imaging into her research of targeted steroid profiling.

DAY 2: Tuesday 18. 10. 2022

08:00 – 09:00	**REGISTRATION**

SESSION V: SUPERCRITICAL FLUID CHROMATOGRAPHY AND EXTRACTIONS
Chairperson: Assoc. Prof. Radim Kučera

09:00 – 09:30	**L-14: Supercritical fluid extraction and chromatography in life science applications** Prof. Charlotta Turner, Lund University, Lund, Sweden
09:30 – 10:00	**L-15: Supercritical fluid chromatography – tandem mass spectrometry for analysis of vitamin D metabolites in biological samples** Dr. Margareta Sandahl, Lund University, Lund, Sweden
10:00 – 10:30	**L-16: The effect of make-up solvent composition on responses in SFC-MS: Electrospray vs UniSpray** Dr. Kateřina Plachká, Charles University, Hradec Králové, Czech Republic
10:30 – 11:00	**L-17: UHPSFC-MS/MS versus 2D-UHPLC-MS/MS in chiral separation of Propranolol and its Hydroxy Metabolites** Lukas Harps, Freie Universität Berlin, Berlin, Germany
11:00 – 11:30	**Coffee-break and discussion**

SESSION VI: COLUMN TECHNOLOGY
Chairperson: Prof. Dalibor Šatínský

11:30 – 12:10	**L-18: Hypercrosslinked monolithic stationary phases in proteomics** Assoc. Prof. Jiří Urban, Masaryk University, Brno, Czech Republic
12:10 – 12:40	**L-19: Guidelines for tuning the macropore structure of monolithic columns for high-performance liquid chromatography** Dr. Sebastiaan Eeltink, Vrije Universiteit Brussel, Belgium
12:40 – 13:10	**L-20: Strategies and chemistry in column development** Assoc. Prof. Michal Kohout, University of Chemistry and Technology, Prague, Czech Republic
13:10 – 14:30	**Lunch**

SESSION VII: RETENTION MECHANISMS AND STATIONARY PHASES
Chairperson: Prof. Spas Kolev

14:30 – 15:00	**L-21: Understanding the mechanism, advantages and limitations of hydrophilic interaction liquid chromatography** Prof. David McCalley, University of West England, UK
15:00 – 15:30	**L-22: Study of molecular structures through retention mechanisms in liquid chromatography: New trends and applications** Dr. Jean-Christophe Garrigues, Paul Sabatier University - Toulouse III, Toulouse, France
15:30 – 16:00	**L-23: Problems of stationary phases in SFC** Prof. Lucie Nováková, Charles University, Hradec Králové, Czech Republic

DAY 2: Tuesday 18. 10. 2022

16:00 – 16:30	**L-24: The chromatographic behaviour of pharmaceuticals on stationary phases based on metal oxides** Assoc. Prof. Radim Kučera, Charles University, Hradec Králové, Czech Republic
16:30 – 17:00	**Coffee-break and discussion**

SESSION VIII: SAMPLE PREPARATION AND APPLICATIONS

Chairperson: Assoc. Prof. Hana Sklenářová

17:00 – 17:30	**L-25: Glucosinolate profiling in Brassicaceae family: instrumental analysis and biological application** Dr. Iva Pavlovic, Palacký University, Olomouc, Czech Republic
17:30 – 18:00	**L-26: Flow programming for the development of online solid-phase extraction** Assoc. Prof. Petr Chocholouš, Charles University, Hradec Králové, Czech Republic
18:00 – 18:30	**L-27: Automated tandem homogeneous liquid-liquid extraction and centrifugation-less deproteination for complex sample analysis on HPLC** Dr. Burkhard Horstkotte, Charles University, Hradec Králové, Czech Republic
19:00 – 22:00	**Conference dinner**

Charlotta Turner

Charlotta Turner is a Professor in Analytical Chemistry at Lund University in Sweden. Her research is interdisciplinary, including analytical chemistry, supercritical fluid technology, and sustainable development aspects. She has more than 20 years of experience on the fundamentals of supercritical fluids in separation processes. Her current research focus is on the development of fast, selective, and bias-free separation methods using carbon dioxide expanded green solvents. An important inspiration is the enhanced use of biomass and industrial byproducts as sources of high-value compounds for use in food, health and environmental applications. Charlotta Turner has published over 100 scientific articles, review papers and book chapters. She has received the Swedish King Carl XVI Gustaf's award for environmental science (2005), the SSF Ingvar Carlsson Award for returning postdocs (2006), the AOCS Herbert J. Dutton Award for her work on lipid analysis (2015) and the Svante Arrhenius Award for her work on green and sustainable chemistry (2017). She is also awarded with Excellent Teacher Practitioner (ETP, 2017). Charlotta Turner is an elected fellow of the Royal Engineering Science Academy (IVA) and the Royal Physiographic Society of Lund, in Sweden.

Margareta Sandahl

Margareta Sandahl is a Senior lecturer in Analytical Chemistry at Lund University in Sweden. She has more than 20 years' teaching experience in chromatography with a research focus on supercritical fluid chromatography. Her research involves development of green, rapid and selective methods for targeted and non-targeted approaches aiming for chemical quantification and characterization of complex samples. Application areas of interest involve chemical analysis of technical lignin samples, organic tracer molecules in atmospheric aerosols and vitamin D metabolites in biological samples.

Kateřina Plachká

Kateřina received her PhD in Analytical Chemistry in 2020 from the Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic. She is a member of the STARSS project since 2017, firstly as a postgraduate student and now at postdoctoral position. Her research focuses on the supercritical fluid chromatography, especially on the fundamental and practical aspects of SFC-MS hyphenation, long-term usage of SFC stationary phases, and SFC applicability in different fields such as pharmaceutical analysis and bioanalysis. She is also dealing with the optimization and validation of new analytical methods using LC-MS and sample preparation methods for pre-treatment of urine and plasma. She extended her experience in a field of sample preparation methods, ion mobility mass spectrometry, and SFC during her fellowships at University Toulouse III, University Geneva, and Free University of Berlin, respectively.

Lukas Harps

Lukas Harps is a Ph.D. student in Professor Parr's working group at the Institute of Pharmacy in Berlin, Germany. After he studied pharmacy in Kiel at Christian-Albrechts-University, he did an internship at Bayer Healthcare Pharmaceuticals in the Analytical Development department. Here, he had the chance to experiment with HPLC systems and first time, he heard of supercritical fluid chromatography. Two years later, he started his PhD in which he did research on the metabolism of propranolol using chiral 2D-HPLC-MS/MS and SFC--MS/MS. Also, optimising biosynthesis protocols of metabolites driven by fission yeasts became part of his work.

Jiří Urban

Jiří Urban received a Ph.D. in 2007 at the University of Pardubice, Czech Republic, where he worked until 2016. During 2009 - 2011 he followed post--doctoral research at the University of California, Berkeley, USA. In 2017 he moved to the Department of Chemistry, Masaryk University, Brno, Czech Republic, where he became an Associate Professor in 2018. His research utilizes polymer monoliths to develop multifunctional miniaturized analytical systems. Additionally, he uses multivariate data analysis to optimize HPLC separation and focuses on developing new experimental setups for two-dimensional liquid chromatography.

Sebastiaan Eeltink

Sebastiaan Eeltink received his Ph.D. degree in Chemistry in 2005 from the University of Amsterdam, The Netherlands for his dissertation "Packed and monolithic capillary columns for LC". After his PhD he conducted 2 years of post-doctoral research in at the University of California, Berkeley, USA, and he was a guest scientist in the Molecular Foundry (Department of Energy-funded nanoscience research facility) in the Lawrence Berkeley National Laboratory. In 2007 he joined Dionex (a manufacturer of high-tech analytical instruments, currently Thermo Fisher Scientific) and conducted research on packed and monolith column technology for ultra-high-pressure LC, two-dimensional LC, and nanoLC-mass spectrometry. In 2009 Sebastiaan established his research group at the Vrije Universiteit Brussel (Belgium), where is he is current full professor in the Department of Chemical Engineering. S. Eeltink is (co-) author of over 100 peer-reviewed publications on chromatography in international scientific journals and 3 patents on spatial 3D-LC

Michal Kohout

Michal received his Ph.D. in organic chemistry from the University of Chemistry and Technology Prague in 2009. After a post-doc stay with Prof. Wolfgang Lindner at the Institute of Analytical Chemistry at the University of Vienna, he returned to UCT Prague. Currently, he works there as an associate professor of organic chemistry, and since 2018 also as the head of the group of Smart Organic Materials. Michal's research is focused on the design and synthesis of functional materials, such as photosensitive and magnetic liquid crystals, multimodal chiral stationary phases for simultaneous use in chiral separation and organocatalysis as well as achiral/chiral ion exchange stationary phases for liquid chromatography. His main aim is to create a laboratory, where combined power of organic chemistry, analytical chemistry, and physics is used to create smart compounds and materials useful in our daily life.

David McCalley

David McCalley is Professor of Bioanalytical Science at the University of the West of England, U.K. In 2019, 2015 and 2013, he was named as one of the world's 100 most influential analytical scientists by ‚Analytical Science' magazine. He was awarded the Silver Jubilee medal of the Chromatographic Society in 2008. He serves on the Editorial Board of the Journal of Chromatography A and the magazine LC.GC, and has been a member of the Scientific Committee of a number of conferences including the HPLC 2013 symposium in Amsterdam and the 2016 ISC symposium in Cork. In the past five years, he has given invited lectures in Cannes, Cambridge MA, Princeton, Geneva, Helsinki, London, San Francisco, Cork, Paris, Prague, Lake Balaton. Sandefjord San Diego and Manchester. Professor McCalley's research is directed towards the understanding of the fundamental mechanisms of separation that occur in liquid and gas chromatography. These studies in LC have included the effects of pressure and temperature on retention and efficiency, mixed mechanisms for strongly basic compounds, performance of superficially porous packings, and overloading effects in both reversed-phase and hydrophilic interaction chromatography. Applications have included monoclonal antibodies, peptides, natural products, steroids, pharmaceuticals and clinically relevant compounds using both UV detection and mass spectrometry. His h-index is 43.

Jean-Christophe Garrigues

Jean-Christophe Garrigues is a CNRS Associate Researcher at IMRCP Laboratory, Toulouse University, France. Member of the SMODD team, he works in two research areas: the development of new supramolecular materials for sample preparation and the development of property/structure models, through the analysis of retention mechanisms and chemometrics. He joined the CNRS and the IMRCP laboratory after its Ph.D. obtained in 1997. He is co-founder of Innovchem Company, which develops sample preparation and water purification green materials. From 2017 to 2020, he has been president of the French group for separative sciences (AFSEP) which organizes scientific meetings, a national congress every two years (SEP congress) and is associated with international analytical congresses.

Radim Kučera

Radim Kučera is an associate professor at the Department of Pharmaceutical Chemistry and Pharmaceutical Analysis, Faculty of Pharmacy in Hradec Králové, Charles University. He obtained his Ph.D. degree in Pharmaceutical Analysis in 2006. His research interests are aimed at utilizing various separation techniques (HPLC, GC, CE) in the field of drug analysis. Currently, he deals with chiral separations of born cluster compounds using HPLC, SFC and CE. He also focused on the possible use of metal-based stationary phases for the separation of drugs and their related compounds as well as in the sample preparation.

Iva Pavlović

Iva Pavlović obtained her Ph.D. in plant biology at the Ruđer Bošković Institute in Zagreb, Croatia. She is employed at the Palacký University Olomouc as postdoctoral junior researcher since 2018. Iva is focused on studying plant metabolism and physiology by application of analytical and biological skills. She has experience in quantitative and qualitative analysis of plant specialized metabolites and phytohormones. She is developing methods for isolation, purification and targeted LC-MS analysis. Also, she has wide experience in plant biology that includes gene expression analysis (PCR, qPCR), microscopy, and protein biochemistry (recombinant protein production, protein purification techniques, western blots, enzymatic assays and kinetics).

Petr Chocholouš

Petr Chocholouš received his Ph.D. in Pharmaceutical Analysis from Charles University, where he was Dalibor Šatínský and Petr Solich postgraduate student. He spent seven months at the University of Washington as a postdoctoral fellow, where he worked under the supervision of the father of Flow Analysis – prof. Jarda Růžička. He is an Associate Professor at the Faculty of Pharmacy, Charles University. His research interests have spanned a wide range of topics in Flow Analysis and related methods. His career started in 2002 with the born of Sequential Injection Chromatography (SIC), utilizing various monolithic or particle-packed columns for multi-component analysis, when the gradual development eliminates the manifold's weak points and broads the separation capabilities closer to HPLC. He has long-term experience with Flow Analysis to develop miniaturized and automated flow instruments for liquid chromatography, online SPE, and characterization of new SPE sorbents. The methods typically target pharmaceutical analysis, bioanalysis, and oceanography.

Burkhard Horstkotte

Burkhard Horstkotte is an assistant professor at the Charles University, Faculty of Pharmacy in Hradec Králové at the Department of Analytical Chemistry. He studied Environmental Engineering at the Hamburg University of Applied Sciences (HAW), Germany, and performed his Diploma thesis, at the Helmholtz Research Institute Geesthacht, on soil decontamination by cavitation. Hereafter, he was working 3 years at the Federal Research Center for Fisheries in Hamburg, Germany, in an EU-project on Real-time PCR. He carried out his dissertation at the University of the Balearic Islands, Spain in Analytical Chemistry developing automated methods for bioprocess monitoring and environmental analysis based on flow techniques and CE. During a 3-year Postdoc contract from the CSIC in Spain at the Mediterranean Institute for Advanced Studies (IMEDEA), Department of Global Change research, we developed flow analyzers for oceanographic and environmental applications. Since 2012, he was working as EU-supported postdoc of academic status at his current institution. His research interests are the development of new approaches of automated sample pretreatment using flow techniques and their coupling to advanced detection and separation techniques for oceanographic, environmental, and bioanalytical applications and instrumental developments for these analyzers including the use of 3D printing for analytical applications. He is co-inventor of the automation technique Lab-In-Syringe, took part in 5 research cruises, is author of 65 peer reviewed papers (sum IF 258, h-index 23), and 2 national patents and has co-supervised 4 PhD theses plus 2 on-going as well as several experimental works of visiting students and postdocs. He has hold 28 lectures on international conferences and received the Young Researcher Award from the Japanese Association of Flow Injection Analysis in 2015.

DAY 3: Wednesday 19. 10. 2022

WORKSHOPS: FACULTY OF PHARMACY

08:00 – 10:30	**W1: Supercritical fluid extraction of polar and nonpolar compounds from Eucalyptus sp.** Laboratory 916, 8th floor, Faculty of Pharmacy Dr. Veronika Pilařová, Charles University, Hradec Králové, Czech Republic
08:00 – 10:30	**W2: MetAmino® Kit – simple and easy sample preparation method for your LC-MC or GC-MS analysis** Student's Laboratory, 3rd floor, Faculty of Pharmacy Ing. Jana Volková, Chromservis, Czech Republic
10:30 – 11:00	**Coffee-break and discussion**
11:00 – 13:30	**W3: Who will help you with sample prep and liquid handling?** Student's Laboratory, 4th floor, Faculty of Pharmacy Dr. Martina Riesová, Waters, Prague, Czech Republic
13:30 – 14:30	**Lunch**
14:30 – 17:00	**W4: Practical application of nanofibers for advanced extraction approaches in chromatography** Student's Laboratory no. 524, 4th floor, Faculty of Pharmacy Prof. Dalibor Šatínský, Dr. Ivona Lhotská Charles University, Hradec Králové, Czech Republic
17:00 – 18:00	**Coffee-break and discussion**

Veronika Pilařová

Veronika Pilařová, Ph.D. is a post-doctoral researcher as a team member of the STARSS project at the Department of Analytical Chemistry, Faculty of Pharmacy in Hradec Králové, Charles University. She graduated from Pharmacy and received her Ph.D. in Pharmaceutical Analysis under the supervision of Prof. L. Nováková in 2017. She extended her knowledge during short fellowships at Oslo University, Norway, and Umeå Plant Science Centre, Sweden, and several long-term internships, including a post-doctoral fellowship (more than 18 months in total) in prof. C. Turner's Green Chemistry Group, Lund University, Sweden. Nowadays, her research is mainly focused on supercritical fluids, including fundamental aspects, supercritical fluid extraction as a tool for the isolation of biologically active compounds from various matrices, and supercritical fluid chromatography. She is also dealing with the optimization of new methods in sample preparation based on the current trends and new analytical methods using SFC-MS and LC-MS. Currently, she is the author/co-author of 20 publications.

Jana Volková

Jana graduated in chemistry at the University of Pardubice in 2008. Since then she worked as a Scientific Researcher at the Institute of Industrial Chemistry and in Centre for Ecology, Toxicology and Analytics . She recently joined Chromservis as an application and product specialist.

Martina Riesová

Martina Riesova has position of Application support and Account Manager for chromatography consumables at Czech subsidiary of Waters Corporation. She has joined Waters 3 years ago, thereby switching from a scientific role in the separation science to the world of sales. Her interest in basis of separation techniques persists from the days of her PhD studies and subsequent research position within the Group of Chromatography and Electromigration Methods, Faculty of Science, Charles University, where she was focused on theory and predictions of electrophoretic separations.

Dalibor Šatínský

Dalibor Šatínský is head of the Department of Analytical Chemistry, Faculty of Pharmacy in Hradec Králové, Charles University. He obtained PhD degree in Pharmaceutical Analysis in 2003 followed by full Professor in 2020. His research interests are automation in flow methods, focused on chromatography separations and the development of novel sample extraction techniques including on-line SPE. He is involved in a wide scope of research projects being focused on pharmaceutical analysis, food and food supplements analysis, mycotoxins and contaminants monitoring in food and environmental, and bioanalytical applications. Since 2016, his domain of expertise focuses on using of nanofibers for extractions in chromatography systems (on-line SPE and column-switching). He has published over 120 scientific articles with about 2400 citations. Currently, he is an expert in the field of HPLC, extractions and sample preparation methods of the European STARSS project (CZ.02.1.01/0.0/0.0/15_003/0000465 - 2017-2022). More details can be found at the scientific profile: https://portal.faf.cuni.cz/Profile/Satinsky-Dalibor/

Ivona Lhotská

Ivona is a postdoc researcher at the Faculty of Pharmacy, Charles University. Her research is focused on the development of analytical methods involving extraction on advanced polymer sorbents, such as molecularly imprinted polymers or nanofibrous polymers. She deals with the preparation and modification of new materials, and especially their applications as extraction sorbents, e.g. optimization of on-line solid phase extraction in HPLC column-switching system.

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