

EuCheMS-DAC Study Group / Task Force Annual Report for 2013-2014

Study Group / Task Force Name: **Bioanalytics Study Group**

Study Group / Task Force Members and Affiliations:

Head of Study Group: George Horvai – Hungarian Chemical Society

Wolfgang Buchberger – ex officio

Hendrik Emons –IRMM-JRC, European Commission

Guenter Gauglitz – Gesellschaft Deutscher Chemiker (GDCh)

Jan Labuda – Slovak Chemical Society

Jose M. Pingarron – Spanish Royal Society of Chemistry

Raluca-Ioana van Staden – Romanian Chemical Society

Jacobus Frederick van Staden – South African Chemical Institute

Objectives:

The aim of the Bioanalytics study group is to search ways for bringing closer the analytical and bioanalytical chemistry community. This is still a formidable task because a community of bioanalytical chemists does not appear to have formed yet. A sign of change is that four analytical journals (Anal. Chem., Analyst, Talanta and ABC) published in 2003 more than five hundred bioanalytical papers from European authors.

New university chairs have been recently called “bioanalytical” and been taken by young analytical chemists (e.g., VU Amsterdam/Somsen, Tübingen/Lammerhofer, Gothenburg/Ewing). A new chair was opened for “effect based analytics” (C. Huhn, Tübingen) to study complex biological systems.

In the pharmaceutical industry the fast growing business with biosimilars gave a push to bioanalytical method development. This will very likely increase the need for bioanalytical chemists trained according to the rigorous quality assurance principles of traditional analytical chemistry. Therefore we can expect growing interest for our societies by bioanalytical chemists. (*See attachments BioA1 and BioA2* about the “European Bioanalysis Forum” and the US “Pharmaceutical and BioScience Society” (4000 members!)).

Activities and Outputs in 2013-2014:

Professor Labuda has worked as a task group chairman on the finalization of the “Bioanalytical Methods” chapter of the Orange Book of IUPAC. He also participated in preparing the new Slovak textbook on Analytical Chemistry (650 pp) with a special subchapter on Bioanalytical Methods. The Handbook of Spectroscopy has been published by Wiley with six chapters on bioanalysis (Eds. G. Gauglitz and D.S.Moore).

Conferences have been organized by different society members where bioanalytical topics had important role (*see attachments BioA3-BioA5*).

Activities planned for 2014-2015:

The next ROICAC conference will be held in Romania and the next ISC conference in Austria (*see attachments BioA6 and BioA7*).

Professor Labuda is leaving DAC to become chairman of the IUPAC Analytical Division.

Other particular activities have not yet been reported. DAC should consider, however, to build closer ties to European professors of bioanalytical chemistry and to the European Bioanalysis Forum. DAC should also discuss that recent trends in bioanalysis show increasing importance of separations, MS and NMR. In some countries these fields have their own societies, more or less independently from other analytical chemists.

Report submitted by: George Horvai

Date submitted: 11 August 2014.

European Bioanalysis Forum

<http://www.europeanbioanalysisforum.eu/index.php>



EBF was founded in 2006 at the initiative of 12 pharmaceutical companies, all of them having bioanalytical lab activities in Europe. The goal of bringing these companies together was to implement a platform for discussions of science, day-to-day procedures, business tools, technologies and last but not least regulatory issues. EBF currently hosts two types of internally-organized meetings:

Working group meetings:

Twice a year EBF brings together representatives all member companies to discuss subjects well prepared in advance. The topics range from procedural to regulatory often resulting in internal benchmarking or surveys. Next to these 'general' meetings, topic specific specialists meetings are also organized. In 2008 EBF started a subgroup that focuses on issues related to LIMS systems. Further an Interest Group Macromolecules (EBF-IGM) was founded in 2008 to provide a platform for scientific exchange and harmonization of specific aspects for the bioanalysis of large molecules.

All member companies assign one representative to these closed meetings.

Open meetings (symposium):

EBF organizes annual symposia to involve the bioanalytical community (pharma, academia, CRO, instrument providers, regulatory, etc.). It is the intention of the EBF to inform our business partners about the discussion held and agreements achieved and to open the forum for challenging procedures or techniques as well as for new regulatory requirements.

EBF has also reached out to participate in international scientific meetings representing the bioanalytical voice of the European Pharma industry. EBF intends to stimulate further harmonization of industry practices in bioanalysis, to bring a common understanding of the interpretation of regulatory issues and more clarity to the implementation of procedures in order to achieve best practices in the world of bioanalysis. Selective examples of EBF's active participation are: 2008 AAPS/FDA meeting, 2007, 2008 and 2009 Boston APA meeting, [2009 CVG](#) meeting and [2009 AAPS/NBC](#).

The European Bioanalysis Forum (EBF) is an organisation comprised of global and European R&D based pharmaceutical companies and contract organisations with operational activities in the EU. The membership shares a common vision to advance our understanding of topical concerns through discussion of scientific, technological and regulatory issues of bioanalytical interest.

- R&D based Pharma companies and CROs can become member.
- Member should have BA operation in Europe dealing with Regulated Bioanalysis.
- Can contribute to EBF in those capacities (active participation to open and strategy meetings, active members of topic teams etc)

Each company assigns 1 representative and one deputy to the EBF.

- The representative is single point, represents their company on EBF matters internally.
- The deputy replaces the representative when he/she cannot attend. Active participation in EBF is mandatory for representative/deputy. Failure to actively participate for 1 full year (absence from strategy meeting, failure to actively participate in teams) suspends membership.
- As EBF is a non-profit organisation, EBF does not support any business development activities beyond the activities contractually agreed as part of sponsoring of EBF conferences, does not present at single vendor meetings, does not participate in purely for profit conferences, does not allow advertisements of members or invites, requests that any public use of the brand and logo is approved by the SC.
- Member should have senior empowerment in own company on BA matters

To apply for membership download and fill the application form and address your request to one of the Steering Committee members: [EBF Member Company Application Form](#).

The Steering Committee can be emailed at: info@europeanbioanalysisforum.eu

Two new EBF publications

How the bioanalytical scientist plays a key role in interdisciplinary project teams in the development of biotherapeutics - a reflection of the European Bioanalysis Forum

Sherrri Dudal, Roland F Staack, Daniela Stoellner, Marianne Scheel Fjording, Eva Vieser, Marie-Hélène Pascual, Margarete Brudny-Kloeppel, Michaela Golob

[Bioanalysis, May 2014, Vol. 6, No. 10, Pages 1339-1348.](#)

EBF recommendation for stability testing of anti-drug antibodies; lessons learned from anti-vaccine antibody stability studies

Susanne Pihl, Lydia Michaut, Jenny Hendriks, Ralf Loebbert, Janka Ryding, Martin Nemansky, Laurent Vermet, Arjen Companjen

[Bioanalysis, May 2014, Vol. 6, No. 10, Pages 1409-1413.](#)



**EBF 7th Open Meeting
Beyond the Horizon - Painting a new landscape**

Hesperia Tower Conference Center
Barcelona, Spain
November 19-21 2014

[GENERAL ABOUT PROGRAM](#) [SPEAKERS](#) [POSTERS](#) [TRAVEL & LODGING](#) [YSS](#)

Introduction

In the program outline we identified 5 major themes where we want to travel with you beyond the horizon. For each theme we provide a few *program topics*. In the spirit of a true Forum, we will build an agenda reflecting your interest, contributions and engagement. Depending on your submissions, some *program topics* will become a plenary or a breakout session, or may qualify for an integrated small workshop.

1. Technology improvements:

- *Miniaturisation in sampling and analysis: updates on micro sampling technologies and micro/capillary/nano-LC/MS,*
- *Bioanalysis below the pg/mL: The next level of sensitivity for potent drugs or micro dosing*
- *Immunoassays for biomarkers*
- *New Technologies in large molecule analysis*
- *Automated sample analysis in a regulated environment*

2. The regulatory landscape:

- *Moving beyond a "one size fits all" approach, incl. feedback from EBF Focus workshop "Taking Tiered Approach to the next level"*
- *Harmonization of BMV: how can we help to paint a new landscape?*

3. Enhancements in Bioanalytical Processes:

- *Pre-GLP bioanalysis: a breeding pond for new bioanalytical applications*
- *Ensuring "end to end robustness" of bioanalytical assays*
- *Ensuring Data integrity and smart e-(raw)data management*
- *Validation and implementation clinical analyzers in support of drug development*
- *Bioanalysis of biosimilars - a follow up*
- *And ...of course...Consult the Doctor*

4. Building bridges within Bioanalysis: connecting the dots for peptide and protein bioanalysis

- *Hybrid Bioanalysis of biologics, bringing LBA and LC-MS/MS together*

- Protein bioanalysis using immunoextraction and HRMS, multiplexing
- LBA + Chromatographic assays in support of drug development of peptide and proteins: 1+1=3?

5. Building bridges outside bioanalysis:

What lies beyond the horizon? (e.g. novel study design, bedside monitoring, Integrated PK-PD-IG (bio)analysis



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Details of the sessions

Day 1 - Wednesday 19 NOV 2014

PLENARY SESSIONS

08:30 08:40 Welcome

08:40 10:20 Large molecules - LBA or LC-MS? Why and when

08:40 09:00 **Roland Staack (Hoffmann-La Roche)**

Protein Quantification by LBA or LC-MS: Key Criteria for the Definition of the Bioanalytical Strategy

09:00 09:20 **Barry van der Strate & Nico van de Merbel (PRA Health Sciences)**

Can 1+1 be 3? The combination of LBA and LC-MS to look beyond the horizon of large molecule quantification

09:20 09:40 **Rand Jenkins (PPD, Inc.)**

Immunogenicity assessments, an important aspect of biotherapeutic drug development: Can LC-MS technology be applied to complement traditional LBA-based approaches?

09:40 10:00 **Ronald de Vries (Janssen R&D)**

Combined use LBA + LC-MS/MS in drug development of a 4kDa peptide: 1+1=3 or where complementary data made a difference

10:00 10:20 **Panel Discussion**

10:20 11:00 Coffee break

11:00 12:40 Large molecules - LBA and LC-MS! How

11:00 11:20 **Matt Barfield (GlaxoSmithKline, on behalf of EBF TT-43)**

How to develop Antibody Drug Conjugates – Recommendations from TT43 and survey results

11:20 11:40 **Charlotte Hagman (Novartis)**

Characterization of Antibody-Drug Conjugates using Affinity Enrichment and High-Resolution Mass Spectrometry

11:40 12:00 **Fabio Garofolo (Algorithme Pharma Inc)**

Recent Trends in Antibody-Drug Conjugate (ADC) Bioanalysis: Total Antibody Quantification by HRMS

12:00 12:20 **Ravindra Chaudhari (Thermo Fisher Scientific)**

Highly Sensitive and Robust Workflow for Therapeutic Monoclonal Antibody Analysis from Complex Matrices

12:20 12:40 **TBD**

12:40 14:00 Lunch break

14:00 15:20 Looking Beyond the Horizon

14:00 14:20 **Philip Timmerman (Janssen R&D)**

Making the impossible possible

14:20 14:40 **John Varaklis (Abbott)**

Beyond the Horizon: Convergence of Data-enabled Health Solutions and Clinical Development Models

- 14:40 15:00 **Zsofia Berke (AstraZeneca)**
Analytical Comparison Between Point-of-Care Uric Acid Testing Meters
- 15:00 15:20 **Daniela Stoellner (Novartis, on behalf of EBF TT-20)**
How the bioanalytical scientist plays a key role in interdisciplinary project teams in the development of biotherapeutics – a reflection of the European Bioanalysis Forum

15:20 16:00 Tea break

16:00 17:45 Scientific or Regulated Validation? AKA Tiered Approach

- 16:00 16:20 **Philip Timmerman/Steve White (on behalf of EBF)**
EBF proposals on balancing Scientific vs. Regulated Validation
- 16:20 16:40 **David Jones (MHRA)**
Title to be announced
- 16:40 17:00 **Hans Stieltjes (Janssen R&D)**
Tiered Approach for Bioanalysis of Drugs and their Metabolites: Examples of the Use of Qualified Assays at Janssen R&D during the past decade
- 17:00 17:20 **Iain Love (Huntington Life Sciences)**
A Tiered Approach to Bioanalysis: From Concept to Practice
- 17:20 17:45 **Panel discussion**

18:00 19:00 Cocktail reception

SPOTLIGHT WORKSHOP

11:00 12:40 Spotlight on e-Data: towards a common standard

- 11:00 11:20 **Gerhard Noelken (Allotrope)**
Allotrope: An open ecosystem for seamless data management and exchange for Bioanalysis
- 11:20 11:40 **Peter Esch (Novartis)**
Electronic Raw Data in a GLP Environment – Swiss AGIT Working Group Guidelines
- 11:40 12:00 **TBD**
- 12:00 12:20 **TBD**
- 12:20 12:40 **TBD**

Day 2 - Thursday 20 NOV 2014

PARALLEL SESSIONS 1

08:30 10:10 LC-MS Applications for Large Molecules

- 08:30 08:50 **Benno Ingelse (MSD)**
Application of LC-MS for characterization and bioanalysis of therapeutic antibodies
- 08:50 09:10 **Ludovicus Staelens (UCB BioPharma)**
Internal standard approaches in quantification of proteins by LC-MS/MS
- 09:10 09:30 **Richard Kay (LGC)**
Supercharging reagents - revving up peptide LC-MS analyses.
- 09:30 09:50 **Vincent Trinh (inVentiv Health Clinical)**
Insulin Glargine: From the Immunoassays to the More Specific LC-MS/MS Assay
- 09:50 10:10 **Erin Chambers (Waters Corporation)**
Getting More with Less: Improving Sensitivity and Reducing Sample Consumption in LC/MS Assays for Endogenous and Injected Glucagon, 6 insulins, and Teriparatide

10:10 11:00 Coffee break

11:00 12:40 Diversity of the Bioanalytical Landscape

- 11:00 11:20 **Ann Lévesque (inVentiv Health Clinical)**
Determination of Testosterone in Plasma instead of Serum: When is it needed? Is it accepted?

- 11:20 11:40 **Susan Pang (LGC)**
The development of robust cortisol assays for sports-based applications
- 11:40 12:00 **Vincenzo Pucci (Merck)**
Merck global bioanalytical strategy to ensure data quality in the discovery space and successful LC-MS/MS methods transfer to preclinical GLP and clinical bioanalytical groups
- 12:00 12:20 **Guido Dallman (Biocrates Life Sciences AG)**
Pre-analytics - What metabolomics can learn from clinical chemistry
- 12:20 12:40 **TBD**

12:40 14:00 Lunch break

14:00 15:40 Low, Lower, Lowest

- 14:00 14:20 **William van Dongen (TNO Triskelion)**
Nano-UPLC and Chip-based LC-MS methods for the sensitive determination of therapeutic monoclonal antibodies in serum
- 14:20 14:40 **Paul Rainville (Waters Corporation)**
Integration of microfluidics with High Resolution Mass Spectrometry (HRMS) for DMPK Studies
- 14:40 15:00 **Tom Verhaeghe (Janssen R&D)**
LC-MS/MS as an enabler for a broader application of microdose studies in drug development; the Janssen experience
- 15:00 15:20 **Adrian Pereira (GlaxoSmithKline)**
Validation of a clinical assay with LLoQ of 350 fg/mL by Liquid Chromatography + Accelerator Mass Spectrometry in support of dermal dosing
- 15:20 15:40 **Marie Croft (Xceleron)**
Tiered validation of LC+AMS Assays: Recommendations for best practices

15:40 16:15 Tea break

16:15 17:55 Bioanalytical Assay Robustness

- 16:15 16:35 **Steve White (GlaxoSmithKline)**
Measuring assay robustness across the life cycle of a bioanalytical method
- 16:35 16:55 **Amanda Wilson (AstraZeneca, on behalf of EBF TT-41)**
EBF Topic Team-41; Processed Sample Reproducibility and Stability
- 16:55 17:15 **Graeme Smith (Huntington Life Sciences)**
An industry consensus towards baseline assignment – where do we draw the line?
- 17:15 17:35 **Luc Bouchard (inVentiv Health Clinical)**
Importance of End-to-End Robustness when dealing with Glucuronide Metabolites
- 17:35 17:55 **Susanne Pihl (Lundbeck, on behalf of EBF TT-47)**
EBF recommendation on practical management of critical reagents for ligand-binding assays

18:00 19:00 Cocktail reception

PARALLEL SESSIONS 2

08:30 10:10 Day to Day Challenges and Automation in Bioanalysis

- 08:30 08:50 **Raymond Farnen (Celerion)**
Integrating automated systems for regulated bioanalysis
- 08:50 09:10 **Christophe Zickler (Novartis)**
Automated bioanalysis of PK, PD and immunogenicity in a GLP/GCLP regulated environment
- 09:10 09:30 **Craig Stovold (LGC)**
Assessing Carryover in the Immunoassay Laboratory
- 09:30 09:50 **Matt Bentley (Eurofins Pharma Bioanalysis Services)**
Practical solutions to the optimisation of drug tolerance in ADA method Development
- 09:50 10:10 **Gert Hendriks (PRA Health Sciences)**
Matrix effects in lipemic plasma: practical solutions to additional issues in bioanalytical method development and validation

10:10 11:00 Coffee break**11:00 12:40 Immunoassays for Biomarkers**

- 11:00 11:20 **Dominique Gouty (BioAgilytix)**
Selecting the right strategy for Biomarkers
- 11:20 11:40 **Karen Elsby (AstraZeneca)**
The MULTiple trials of generating a SINGLE data set: taking biomarker assays through the clinical phases
- 11:40 12:00 **James Lawrence (Huntington Life Sciences)**
Adapting Commercial Immunoassay Kits for Pre-Clinical Biomarkers: Challenges and Solutions.
- 12:00 12:20 **Jo Goodman (MedImmune)**
The changing face of the immunoassay landscape for soluble target engagement biomarkers quantification
- 12:20 12:40 **Marianne Scheel Fjording (Novo Nordisk)**
Gold, Silver, Bronze

12:40 14:00 Lunch break**14:00 15:40 New Technologies and Applications in Large Molecule Bioanalysis**

- 14:00 14:20 **Michael Przybylski (University of Konstanz)**
Online SAW-Biosensor-Mass Spectrometry: Simultaneous Detection, Structure Determination and Affinity Quantification of Protein-Ligand Interactions
- 14:20 14:40 **Robert Nelson (NovImmune SA)**
Evaluating multiple technology platforms in the development of large molecule bioanalytical assays
- 14:40 15:00 **Clare Kingsley (LGC)**
Ultrasensitivity immunoassays
- 15:00 15:20 **Nick Pearson (CiToxLAB)**
Quantifying short RNA molecules in a regulatory environment
- 15:20 15:40 **Ashleigh Wake (Intertek Life Sciences)**
Alternative Methods to LC-MSMS and Immunochemistry Based Method in Bioanalysis

15:40 16:15 Tea break**16:15 17:55 Biosimilars**

- 16:15 16:35 **Joseph C. Marini (Janssen R&D, on behalf of AAPS LBABFG)**
Recommendations from the AAPS LBABFG Biosimilars Action Program Committee on the Development and Validation of PK and ADA assays for Biosimilar Drug Development
- 16:35 16:55 **Martin Ullmann (MerckSerono)**
Biosimilars - Korean experience
- 16:55 17:15 **Timo Piironen (Syrinx Bioanalytics)**
Challenges and strategies of developing and validating immunogenicity assays for biosimilars
- 17:15 17:35 **James Munday (Covance)**
The use of PK, PD and ADA bioanalysis for evaluation of the overall Immunogenicity of biosimilars and the bioanalytical challenges for determining if there are equivalent safety risks.
- 17:35 17:55 **Panel Discussion**

18:00 19:00 Cocktail reception**Day 3 - Friday 21 NOV 2014****PLENARY SESSIONS**

08:30 09:00 Consult the Doctor

- 08:30 08:45 **Martijn Hilhorst (PRA Health Sciences)**
Selectivity issues during the determination of resolvin E1 in human plasma
- 08:45 09:00 **Matt Barfield (Glaxo SmithKline)**

Issues with transferring Gyrolab preclinical assays to human.

09:00 10:40 "Honey I Shrunk the Sample"

- 09:00 09:20 **Kirsty Jackson-Addie (AstraZeneca)**
Pushing the Boundaries of Microsampling – Realising and Understanding the Full Potential
- 09:20 09:40 **Jo Goodman (MedImmune)**
One Mouse, One PK: the Magic of Capillary Microsampling in Combination with the Gyrolab TM Assay Platform
- 09:40 10:00 **Beena Punnamootil (Chimera Biotec)**
LBA testing in the fraction of a drop: Case studies for ultra-sensitive assays in 1 to 5 microliter sample volume
- 10:00 10:20 **Vera Hillewaert (Janssen R&D)**
Assessment of capillary microsampling of blood in a healthy volunteer study
- 10:20 10:40 **EBF speaker (on behalf of EBF)**
Feedback from EBF Liquid Microsampling Consortium

10:40 11:15 Young Investigator Award

- 10:40 10:45 **Introduction**
- 10:45 11:15 **Presentation by the 2014 Young Investigator Award winner**

11:15 11:55 Coffee & Snack break

11:55 12:55 The Regulatory Landscape

- 11:55 12:15 **TBD ()**
Update from Harmonization, emerging Guidance and other international meetings
- 12:15 12:35 **Akiko Ishii (National Institute of Health Science)**
Japan LBA guideline
- 12:35 12:55 **Margarete Brudny-Kloppel (Bayer Pharma AG, on behalf of EBF)**
Feedback from China Days knowledge exchange meeting

12:55 13:55 Diversity of the Bioanalytical Techniques

- 12:55 13:15 **Gérard Hopfgartner (University of Geneva)**
Quantification of endogenous and exogenous metabolites in small samples using parallel narrow bore to capillary LC with fast polarity switching MRM
- 13:15 13:35 **Jim Settlage (inVentiv Health Clinical)**
Using Supercritical Fluid Chromatography coupled with Tandem Mass Spectrometry to Provide Easier Solutions to Old Problems and New Solutions to Previously Unsolved Problems
- 13:35 13:55 **Johannes Stanta (Covance)**
Comparing time-of-flight mass spectrometry with triple quadrupole mass spectrometry for small molecule, peptide and oligonucleotide bioanalysis

13:55 14:00 Plans for 2015 / Close Out

Pharmaceutical and BioScience Society (US, San Francisco Bay Area, >3000 members)

About Us:

CACO Pharmaceutical & BioScience Society (CACO-PBSS) is a non-profit professional organization of scientists and other professionals in various pharmaceutical and life science fields, working in diverse organizations such as the biotechnology and pharmaceutical industries, instrumentation and analytical product suppliers, universities, government laboratories and contract research organizations. Our root in analytical chemistry, mass spectrometry, drug metabolism and pharmacokinetics is still reflected in some of the programs we organize. While our 3000+ members are largely concentrated in the San Francisco Bay Area and the San Diego Area, we also have members residing in other biotech / pharmaceutical clusters in North America.

Mission Statement:

The mission of CACO-PBSS is to promote the exchange of scientific and technical ideas and to provide educational and growth opportunities in the fields of pharmaceutical / life science and related disciplines. We foster interactions and disseminate information through seminar luncheons, targeted workshops (short courses), expert forums, vendor shows, and job opening announcements.

Local Chapters:

We currently have the following two local chapters under the PBSS umbrella, though other local chapters may be established in the future. The upcoming events are shown in the Event Calendar table. Please click on the following links to go to the website of the chapter of your interest, where you can sign up for the free membership and mailing list, and register for the upcoming events.

- [The San Francisco Bay Area Chapter \(CACO-San Francisco Bay Area\)](#)
- [The San Diego Chapter \(CACO-San Diego\)](#)

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Contact us:

[Click here](#), or email to info@pbss.org

Mailing address: PO Box 2342, South San Francisco, CA 94083-2342.

Pharmaceutical & BioScience Society, International (PBSS)

About Us:

Pharmaceutical & BioScience Society, International (PBSS) is a non-profit professional organization of scientists and other professionals in the life science sector, working in diverse organizations such as the biotechnology and pharmaceutical industries, instrumentation and scientific product suppliers, academia, government laboratories and contract research organizations. Through its four member organizations (CACO-PBSS San Francisco Bay Area, CACO-PBSS San Diego Area, Boston-PBSS, and Vancouver-PBSS), PBSS has 4000+ members and covers the largest life science clusters in North America.

Mission Statement:

The mission of PBSS is to promote the exchange of scientific ideas while providing educational and growth opportunities in the fields of pharmaceutical / life science related disciplines. We foster interactions and disseminate information through seminar luncheons, targeted workshops (short courses), expert forums, minisymposia, vendor shows, as well as well as career opportunity announcements.

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Report to DAC on conferences in Slovakia and Romania

2013-2014

The XIIIth conference with international participation „PRESENT STATE AND PERSPECTIVES OF ANALYTICAL CHEMISTRY IN PRACTISE“ held on **1st – 4th June, 2014 in Bratislava**, Slovak Republic, and organized by the Institute of Analytical Chemistry, Slovak University of Technology in Bratislava in cooperation with the Department of Analytical Chemistry, Faculty of Natural Science, Charles University in Prague, the Professional Groups for Analytical Chemistry of the Slovak Chemical Society and the Czech Chemical Society, has covered **Bioanalytical chemistry** by several sessions including clinical analysis and bioanalytical applications, food analysis and others.

An International Workshop: “Challenges in Food Chemistry”, 31 May-1 June, 2013, Constantza, Romania was organized by Romanian Chemical Society and Ovidius University of Constantza. Papers on food analysis were presented.

Eurachem – Romania – organized numerous workshops on validation and accreditation.

An International Conference: Chimia 2014 – New trends in applied chemistry, 23-24 May, 2012, Constantza, Romania was organized by Romanian Chemical Society, Ovidius University of Constantza, Numerous sessions on **bioanalysis, environmental analysis and food analysis were organized**. Two plenary and two keynote lectures on the field of analytical chemistry were presented.

The 3rd International Conference on Analytical and Nanoanalytical Methods for Biomedical and Environmental Sciences, June 13-15, 2014, Brasov, Romania. The conference was organized by University Transilvania Brasov in cooperation with Romanian Society of Chemistry and International Romanian Chapter of American Chemical Society. More than 100 lectures and posters from Romania, Portugal, France, USA.

French-Romanian Workshop “Journee Franco-Roumaine”, 15 June, 2014, Brasov, Romania with more than 80% lectures on sensors and bioanalysis.

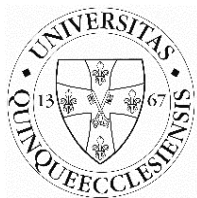


30TH INTERNATIONAL SYMPOSIUM ON MICROSCALE BIOSEPARATIONS

PÉCS, HUNGARY APRIL 27 – MAY 1, 2014



PROGRAMS



30TH INTERNATIONAL SYMPOSIUM ON MICROSCALE BIOSEPARATIONS


**PÉCS, HUNGARY
APRIL 27 – MAY 1, 2014**

PROGRAM



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TENSI CONGRESS



University of Pécs, Institute of Bioanalysis
and
Department of Analytical and Environmental Chemistry

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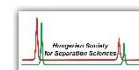
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Regional Library and Centre for Learning



Welcome to the 30th International Symposium on MicroScale Bioseparations – MSB 2014

On behalf of the scientific and organizing committees, we welcome you at the thirtieth symposium in the series of the traditional MSB symposia, which is organized in Pécs, Hungary between April 27 and May 1, 2014. The previous HPCE – *High Performance Capillary Electrophoresis* – conferences, started in Boston, in 1989, is followed by the successful MSB – *MicroScale Bioseparations* – series. This year, University of Pécs, the first university of Hungary – founded in 1367 – is the host for the participants. MSB 2014 aims at bringing together innovative academics and industrial professionals in the field of microscale bioseparations and analyses to a common forum.

The symposium traditionally focuses on fundamental aspects of separations on the microscale or down to nanoscale. The scientific areas of the symposium cover the application of microscale separations for (bio)analytical measurements in life science research, (bio)pharmaceuticals development, forensics, toxicology, doping analyses, food safety and authenticity and keeping our environment clean and sustainable.

Recent innovations and the state-of-the-art technologies have dramatically promoted the detection and measurement ability for microscale bioanalysis. Since it is still difficult to tackle specific problem for application, we believe that the MSB symposium provides an ideal environment for researchers to discuss theoretical hypotheses and practical experiences covering theory, tools, technology and methodologies.

The Organizing Committee wishes that the scientific program, covering broad areas in the field, will contribute to your scientific interest.

The organizers want to thank you for your contribution and hope that you will enjoy the scientific presentations, personal contacts and informal discussions.

Ferenc Kilár, University of Pécs, Hungary
Chairman

Attila Felinger, University of Pécs, Hungary
Co-Chairman

András Guttman, University of Pannonia, Hungary
Co-Chairman

<http://www.msb2014.org>

VENUE

The symposium will be held at the
Regional Library and Centre for Learning
7622 Pécs, Universitas utca 2

REGISTRATION

Registration Desk

Sunday, April 27	09:30 – 18:00
Monday, April 28	08:00 – 18:00
Tuesday, April 29	08:00 – 16:30
Wednesday, April 30	08:00 – 16:30
Thursday, May 1	08:30 – 12:00

On-site registration fees:

Academic participants	550 EUR
Industrial participants	650 EUR
Student*	300 EUR
Daily ticket	100 EUR
Accompanying participant	200 EUR

*Students are required to show a valid student ID.

GENERAL INFORMATION

Badges

Please, wear your name badge in order to gain admittance to the meetings, workshops, and social functions. Your name badge and final program must be picked-up at the registration desk.

Oral presentations

The Authors are requested to upload their presentations 30 minutes before the session. The session chair will introduce your presentation and guide the discussion. A monitor will be available to follow the length of your lecture and also the discussion time-period. Please, adhere to the time for the lecture in order to provide sufficient time for the discussion.

Official Language

English

Poster Setup/Teardown

The poster session will be held in the Hall of the Centre for Learning.

All posters are to remain up during the entire Conference. This will give additional time for attendees.

Setup Times:

Monday, April 28: 08:00- 12:00

Take-down Times

Thursday, May 1: 08:00-12:30

Date and Time of Poster Sessions:

Monday, April 28

Posters 01 through 25

Tuesday, April 29

Posters 26 through 50

Wednesday, April 30

Posters 51 through 76

Instructions on the design and layout of your poster as well as guidelines to sizing can be found on the MSB2014 website: <http://www.msb2014.org/index.php?page=author-instructions>

On your assigned day, please plan to spend the entire session at your poster for questions and discussion. The poster session is an important part of the program, with an expectation for dialogue and debate. Please, refer to the conference program for your assigned day and poster number.

All posters must be removed by 12:30 PM on Thursday, May 1st.

You are responsible for your poster. All posters left after 12:30 will be disposed. Please remove your poster promptly.

Science café



During the 30th International Symposium on MicroScale Bioseparations, we will be holding 1 hour luncheons per day, to learn about the advances in commercial MicroScale Bioseparations products. This is a great opportunity to re-fuel with a healthy lunch, while learning about new applications, products and services from leading suppliers developing analytical solutions. Science Cafe is open to all registered delegates, and no advance registration is required. Lunch is complimentary, supported by the companies providing the presentations that day. The Cafe will open daily after the morning sessions. Please attend - learn, re-fuel and support our generous sponsors.

Internet

Complimentary WI-FI Internet access is being made available to all MSB delegates in the Centre for Learning.

Please, use the following accesses

SSID: TK-CONFERENCES

Username: MSB2014

Password: Pecs-MSB2014

or

SSID: EDUROAM

This access is available for those, who have admittance to this Network within Europe.

Social events

April 27, 2014 Sunday, 18:00

Welcome Reception – Regional Library and Centre for Learning (Conference venue)

April 29, 2014 Tuesday, 19:00

Concert of the Pannon Philharmonic Orchestra – Kodály Center (7622 Pécs, Breuer M. sétány 4.)

Bartók Béla: Hungarian sketches

Franz Doppler: Double Flute Concerto

Antonín Dvořák: Symphony no. 9 in E minor ('From the New World'), op. 95

Conductor: András Vass

Soloists: Judit Tímár – flute

Gabriella Codeluppi-Szabó – flute

Bartók's Hungarian Sketches lines up five characteristic movements, which are orchestral adaptations of his various piano pieces. The peaceful atmosphere of the Evening in Transylvania, the clumsiness of the Bear Dance, or the *tilinkó* sounds of the Swineherd Dance of Ürög record impressions of different landscapes. In Dvorak's Symphony No.9, the composer's experiences from his American tour are reflected. The two large-scale work frames Doppler's Double Flute Concerto, composed in graceful, Viennese-like style by the renowned flutist for himself and his brother, who was an excellent flute player, too. As soloists, the Pannon Philharmonic's artists can be cheered to.

Duration: appr. 2 hours

April 30, 2014 Wednesday, 19:00

Symposium Dinner – Bartók Hall of Hotel Palatinus City Center (7621 Pécs, Király u. 5.)

Accommodation:

Hotel Corso****	Pécs, Koller u. 8.	Tel.: +36 72 421 900
Hotel Palatinus City Center***superior	Pécs, Király u. 5.	Tel.: +36 72 889 400
Hotel Fordan*** (old name: Hotel Fórum)	Pécs, Bajcsy-Zs. u. 14-16.	Tel.: +36 72 333 166

Optional programs:

Sightseeing in Pécs – April 30, 2014 Wednesday, 13:30

Price: 30 EUR/person

3-hour sightseeing with English speaking guide, visiting Széchenyi square, the Cathedral, the Cella Septichora, the Synagoge and the Zsolnay Cultural Quarter. The tour includes a 40 min. ride with a small DOTTO train.

Entrance fees to the Cathedral, Cella Ceptichora and Zsolnay Exhibition in Zsolnay Cultural Quarter are included in the price.

Winetasting dinner in Villány – April 28, 2014 Monday, 18:30

Price: 50 EUR/person

Hungary is famous for its great wines. One of the best-known historical wine-districts in Hungary is the Villány Wine-route, which is 25 km from Pécs. During the program our guests will get to know the production of red wine, visit a winecellar, and taste the local culinary specialities and prize-winning wines. The price includes transfer by bus from the conference venue, dinner (local culinary specialities), wine-tasting (6 types of wine), unlimited wine at dinner, traditional local live-music and transfer back to the city center. Duration: appr. 4-5 hours.

Arnold O. Beckman Medal and Award
for
**Outstanding Scientific Achievements in the Field of Electrodriven Separation
Techniques**



This annual award recognizes outstanding contributions to the field of electrodriven separation techniques and comprises a Medal, \$5,000 prize, a book honoring the 100 year anniversary of Dr. Arnold O. Beckman (Arnold O. Beckman: One Hundred Years of Excellence), and reimbursement of reasonable travel expenses to the MicroScale Bioseparation (MSB) symposium at which the award will be presented. A nominee must have made an outstanding career achievement supported by a significant lifelong body of work in the field of electrodriven separations and technologies with particular consideration given to developments of new methods, techniques, and high impact applications. This award is presented once per

year at the North American and European MSB conferences, respectively. The award is presented during a Special Award Plenary Session following the Lecture from the recipient.

The history of Beckman Coulter is one of innovation, beginning with Dr. Arnold O. Beckman's solution for determining the precise measurement of pH in lemon juice - the acidimeter, or pH meter. From a small operation in the rear of a garage in Pasadena, Calif., to its position today as a world leader in clinical diagnostics and life science research, Beckman Coulter owes its success to three men of vision who revolutionized science and medicine: Arnold O. Beckman, Ph.D, and brothers Wallace and Joseph Coulter. The Arnold O. Beckman Medal and Award for Outstanding Achievements in the Field of Electrodriven Separations is one way the company continues to celebrate the spirit of scientific innovation.

The awardee in 2012: **Professor Pier Giorgio Righetti**

The awardee in 2013: **Professor Wilhelm Einar Stellan Hjertén**

Program

April 27, 2014 Sunday

WORKSHOPS

CONFERENCE ROOM

10:00

WS-1

Drahos, László

How can mass spectrometry help chromatographers?

This 3 hour long workshop will focus on mass spectrometry with special attention to hyphenated techniques (HPLC-MS, GC-MS).

Topics covered in this tutorial lecture are: mass spectrometry introduction; ionization methods (EI, CI, electrospray, APCI, APPI) and how to select them; analysers; tandem mass spectrometry; spectrum interpretation; and proteomics. HPLC-MS will be discussed in detail: various ion chromatogram types; limitations and compromises needed for hyphenation. Several applications demonstrating the utility of mass spectrometry combined with chromatography will also be shown.

Duration: ca. 3 hours (with breaks)

14:00

WS-2

Kutter, Jörg Peter

Microfluidic devices in the life sciences: basics and applications

Microfluidics is the enabling technology behind the idea of lab-on-a-chip (LOC) systems, i.e., systems that combine all the necessary functions to perform a chemical or biochemical reaction or protocol in miniaturized format on a small piece of silicon, glass or polymer.

To arrive at such systems, a toolbox of required functional elements needs to be at the designer's/developer's disposal, i.e., channels, pumps, valves, mixers, reactors, injectors, electrodes, sensors, detectors – to name but a few.

This workshop will take a closer look at design challenges and material and fabrication issues of some selected functional elements, but also discuss the unique pros and cons of the miniaturized format with respect to performance, reproducibility and longevity.

We will then focus on a number of examples where LOCs are being developed to tackle problems in medical diagnostics, biochemical assays, cell-based analysis, drug development, drug metabolism studies, or in forensic settings. A special emphasis will also be on miniaturized separation devices in this context.

The workshop is mainly aimed at researchers who have not previously worked with microfluidics or LOCs themselves, but are interested in getting an "appetizer".

Duration: ca. 3 hours (with breaks)

18:00

WELCOME RECEPTION

HALL

April 28, 2014 Monday

9:00 OPENING CEREMONY

AUDITORIUM 1-2

9:15 BECKMAN MEDAL AWARD CEREMONY

Plenary session 1

Chairman: *Ferenc Kilár*

AUDITORIUM 1-2

9:25 PL-1 *Karger, Barry L.*

Separation science – a fifty year perspective and the future

10:10 PL-2 *Kitamori, Takehiko*

Single molecule ELISA in Extended-Nano Fluidic Device

10:55 Coffee break

PARALLEL SESSIONS

AUDITORIUM 1		AUDITORIUM 2	
	1 – Proteins Chairman: <i>Herbert Lindner</i>		2 - Sample preparation Chairman: <i>Frantisek Foret</i>
11:20	KN-01 <i>Ouyang, Y., Thompson, B., Begley, M., Landers, James P.</i> A laser printed, rotation-driven microdevice (RDM) in polyester with passive valve flow control for protein quantitation and cell counting	KN-02 <i>Kanemori, Koichi; Ota, Hiroya; Kawai, Takayuki; Naito, Toyohiro; Kubo, Takuya; Otsuka, Koji</i> Strategies for improving detectability of capillary electrophoresis	
11:50	L-01-1 <i>Nehmé, Reine; Nehmé, Hala; Benedetti, Hélène; Routier, Sylvain; Morin, Philippe</i> Capillary electrophoresis for miniaturization enzymatic assays on kinases of signaling pathways	L-02-1 <i>Yang, Kaiguang; Li, Qinran; Liu, Jinxiang; Li, Senwu; Zhang, Lihua; Liu, Jianxi</i> Protein imprinted materials for the target protein capture in the proteomic sample	
12:10	L-01-2 <i>Hjertén, Stellan</i> The coupling between the optimal experimental conditions for the purification of proteins and the formulation of a novel type of antibioticum with an extremely high selectivity	L-02-2 <i>Lu, Chia-Ming; Lin, Lie-Chwen; Tsai, Tung-Hu</i> Application of microdialysis in pre-clinical pharmacokinetic study	

12:30 SCIENCE CAFÉ

Vendor Seminars



Characterizing monoclonal antibodies: How LC (MS) and CE (MS) can complement each other

Speakers: *Gerard Rozing* (Rozing.com Consulting) and *Tom van de Goor* (Agilent Technologies)

13:30 POSTER SESSION 1 with coffee break

PARALLEL SESSIONS

AUDITORIUM 1		AUDITORIUM 2	
3 – Novel instrumental techniques 1 Chairman: <i>James P. Landers</i>		4 - Chiral analysis 1 Chairman: <i>Bezhan Chankvetadze</i>	
14:30	KN-03 <i>Foret, Frantisek; Tycova, Anna; Kleparnik, Karel</i>	KN-04	<i>Fanali, Salvatore</i>
15:00	L-03-1 <i>do Lago Claudimir L.; Vidal Denis T. R.; Francisco, Kelliton J. M.; Bezerra, Vagner</i>	L-04-1	<i>Kasicka, Václav; Koval, Dusan; Sazelova, Petra; Severa, Lukas; Vavra, Jan; Adriaenssen, Louis; Tepy, Filip</i>
15:20	L-03-2 <i>van de Goor, Tom</i>	L-04-2	<i>Wang, Tingting; Feng, Ying; Chankvetadze, Bezhan; Jiang, Zhengjin; Crommen, Jacques</i>
	Extended electrospray needle for CE-MS separations		Application of core-shell silica based chiral stationary phases in nano-LC and CEC
	Detection of monoalkyl carbonates by CE-MS/MS		Capillary electrophoretic chiral analysis and determination of helix inversion barrier of HELQUATS using sulfated cyclodextrins as stereoselectors
	Rethinking the Proteomics strategy for LC/MS - Scaling for optimal results		Enantioseparation of beta-blockers with different cyclodextrins in aqueous and non-aqueous CE with special emphasis on enantiomer affinity patterns

PANEL DISCUSSION

16:00	PD-1 <i>Righetti, Pier Giorgio</i>	The Trimurti of electrokinetic methodologies: a chronicle
Round Table discussion on the present and future possibilities of separation science		
Moderator	<i>Gyula Vigh</i>	
Participants	<i>Stellan Hjertén, Barry L.Karger, Pier Giorgio Righetti</i>	

April 29, 2014 Tuesday

PLENARY SESSION 2

Chairman: *Attila Felinger*

AUDITORIUM 1

9:00 PL-3 *Yates, III J.R.; Pankow, S.; Bamberger, C.; Wang, Y.; Fonslow, B.; Han, X.* Using microscale separations and mass spectrometry to understand the biological mechanisms of diseases

9:45 PL-4 *Wirth, Mary J.; Wu, Zhen; Zhang, Ximo* LCMS of proteins using slip flow capillaries

10:30 Coffee break

Parallel sessions

5 – Hyphenated techniques

Chairman: *Gerard Rozing*

11:00 KN-05 *Lindner, Herbert H.*
Qualitative and quantitative analysis of protein modifications using Sheathless Capillary Electrospray Mass Spectrometry (CESI-MS)

11:30 L-05-1 *Bonvin, Grégoire; Rudaz, Serge; Schappler, Julie*
In-spray supercharging of intact proteins by capillary electrophoresis-mass spectrometry using a sheath liquid interface

11:50 L-05-2 *Benavente, Fernando; Ortiz-Villanueva, Elena; Gimenez, Estela; Yilmaz, Fatma; Barbosa, Jose; Sanz-Nebot, Victoria*
"Plug-and-play" C18-silica monolithic microcartridges for the analysis of neuropeptides by on-line solid phase extraction capillary electrophoresis

12:10 L-05-3 *Huynh Suong T.N.; Averseng Olivier; Basset Christian; Vidaud Claude; Hagège Agnès*
CE- ICP/MS for screening proteins targeted by uranium

6 - Chiral analysis 2

Chairman: *Salvatore Fanali*

KN-06 *Chankvetadze, Bezhana*
Recent studies on enantiomer separation mechanisms in capillary electrophoresis

L-06-1 *Scriba, Gerhard K. E.; Heinemann, Stefan, H.; Schönherr, Roland; Zhu, Qingfu*
Stereospecific capillary electrophoresis assay for methionine sulfoxide reductase enzymes

L-06-2 *Péter, Antal; Ilisz, István; Gecse, Zsanett; Lindner, Wolfgang*

High-performance liquid chromatographic enantioseparation of unusual amino acids

L-06-3 *Szökő, Éva; Wagner, Zsolt; Jakó, Tamás; Zachar, Gergely; Csillag, András; Tábi, Tamás*

Chiral analysis of amino acid neurotransmitters and neuromodulators

12:30 SCIENCE CAFÉ

Vendor Seminars



Capillary electrospray ionization-mass spectrometry (CESI-MS) for protein and peptide analysis: a promising alternative tool to nanoLC-ESI-MS?

Speakers: *Herbert Lindner* and *Guinevere Kammeijer*

13:30 POSTER SESSION 2 with coffee break

PARALLEL SESSIONS

7 – Glycomics Chairman: <i>Károly Vékey</i>		8 – Theory and methodologies Chairman: <i>Attila Felinger</i>	
14:30	KN-07 <i>Guttman, András; Váradi, Csaba; Guttman, Miklós; Lee, Kelly</i> Comparative glycoprofiling of HIV gp120 immunogens by capillary electrophoresis and MALDI-MS	KN-08 <i>Estrada, Roy T.; Vigh, Gyula</i> Method and solid phase reagent for labeling of analytes	
15:00	L-07-1 <i>Rizzi, Andreas; Michael, Claudia; Sic, Sinisa; Gimenez-Lopez, Estela</i> Quantitative profiling of glycans released from proteins using stable-isotope-coded glycan labeling and shape-selective HPLC hyphenated to MS	L-08-1 <i>Ibrahim, Amal; Allison, Stuart A.; Cottet, Hervé</i> Extracting information from the ionic strength dependence of the electrophoretic mobility using the 'slope-plot'	
15:20	L-07-2 <i>Engel, Nicole; Weiss, Victor U.; Wenz, Christian; Rüfer, Andreas; Kratzmeier, Martin; Glück, Susanne; Marchetti-Deschmann, Martina; Allmaier, Günter</i> Lectin affinity enrichment in combination with microchip capillary gel electrophoresis for sensitive and selective glycoprotein analysis	L-08-2 <i>Horvatovich, Péter; Mitra Vikram; Christin Christin; Hoefsloot Huub; Amilde Age; Suits Frank; Bischoff Rainer</i> Current challenges in development of retention time alignment algorithms	
15:40	L-07-3 <i>Kammeijer, Guinevere S.M.; Jansen, Bas C.; Mayboroda, Oleg A.; Hensbergen, Paul J.; Wuhrer, Manfred</i> Sialic acid linkage analysis on glycopeptides using CE-ESI-MS/MS	L-08-3 <i>Dziomba, Szymon; Olędzka, Ilona; Bączek, Tomasz; Bekasiewicz, Adrian; Prahł, Adam; Kowalski, Piotr</i> Pseudo-isotachophoresis vs. pH-mediated stacking using hydrodynamic sample injection method in micellar electrokinetic chromatography	

19:00 CONCERT at the Kodály Center

April 30, 2014 Wednesday

Plenary session 3

Chairman: *András Guttman*

AUDITORIUM 1

9:00	PL-5	<i>Viovy, Jean-Louis; Venzac, Bastien; Champ, Jerome; Cisse, Ismail; Bockelmann, Ulrich; Descroix, Stephanie; Malaquin, Laurent</i>	Putting artefacts to work: turning DNA separation problems into ultra-portable and sensitive lab-on-chip DNA detection solution
9:45	PL-6	<i>Marko-Varga, György</i>	Improving patient outcome by strategic technology development in the healthcare sector

10:30 **Coffee break**

PARALLEL SESSIONS

		9 – Microfluidics Chairman: <i>Jörg Kutter</i>	10 – Sample preparation Chairman: <i>Koji Otsuka</i>
11:00	KN-09	<i>Musheev, Michael U.; Kanoatov, Mirzo; Krylov, Sergey N.</i> Unusual behavior of DNA in a uniform electric field	KN-10 <i>Lämmerhofer, Michael</i> Analysis of oxidized phospholipids as biomarkers of oxidative stress
11:30	L-09-1	<i>Sola, Laura, Chiari, Marcella</i> Modulation of electroosmotic flow and capillary surface properties in capillary electrophoresis using charged polymer coatings	L-10-1 <i>Weiss; Victor U.; Lehner, Angela; Dehalu, Vincent; Linsinger, Thomas; Marchetti-Deschmann, Martina; Allmaier, Günter</i> Detection of glutaraldehyde cross-linked gelatin nanoparticles in liquid food matrix via fluorescence labeling, immunoprecipitation and chip electrophoresis
11:50	L-09-2	<i>Taverna, Myriam; Pereiro, Iago; Mesbah, Kiarach; Hiraoui, Mohamed; Oukacine Farid; Malaquin, Laurent; Viovy, Jean-Louis; Smadja, Claire; Descroix, Stephanie</i> Efficient preconcentration and separation of amyloid peptides: toward a miniaturized diagnostic tool	L-10-2 <i>Leclercq, Laurent; Jin, Xiaoyun; Cottet, Herve</i> Determination of polycation log D distributions by micellar and microemulsion electrokinetic chromatography
12:10	L-09-3	<i>Járvás Gábor; Guttman András; Foret Frantisek</i> Numerical modeling of microfabricated CE-ESI-MS nebulizer interface	L-10-3 <i>Tavares, Marina FM; Farah, Joao PS; Dias, Luis G</i> Optimizing MEKC separations: surfactant selectivity revisited

12:30 **SCIENCE CAFÉ**

13:30 POSTER SESSION 3 with coffee break

PARALLEL SESSIONS

11 – Novel instrumental techniques 2 Chairman: Michael Lämmerhofer		12 – Proteomics Chairman: Norberto Guzman	
14:30	KN-11 <u>Svec, Frantisek</u> Hypercrosslinking: a new route to porous polymer monoliths in capillaries and thin layers with enhanced surface area, reactivity, and chromatographic	KN-12	Tóth Eszter; Ozohanics, Oliver; Bobály, Balázs; Gömör, Ágnes; Drahos, László; <u>Vékey, Károly</u> Microscale protein isolation/enrichment using RP-HPLC
15:00	L-11-1 <u>Shimizu, Hisashi; Liu, Yilin; Morikawa, Kyojiro; Smirnova, Adelina; Mawatari, Kazuma; Kitamori, Takehiko</u> Development of femtoliter scale LC using extended-nano channel toward separation of proteins with million plate numbers	L-12-1	<u>Fleurbaij Frank; Heemskerk Anthonius A. M.; Klychnikov Oleg; Mayboroda Oleg A.; Kuijper Ed J.; van Leeuwen, Hans C.; Hensbergen Paul J.;</u> A next generation mass spectrometry platform for the rapid identification of (multi)-drug resistant <i>Gram-negative</i> bacteria
15:20	L-11-2 <u>Preisler, Jan; Tomalova, Iva; Bednarik, Antonin; Foltynova, Pavla; Kanicky, Viktor; Vaculovic, Tomas</u> New detection approaches for microscale separations based on laser desorption mass spectrometry	L-12-2	<u>Panic-Jankovic, Tanja; Detlef, Pietrowski; Gorshkov, Mikhail; Laskay, Ünige Anna; Mitulović, Goran</u> Improving prediction of IVF success: looking for putative biomarkers in IVF-media upon embryo cultivation
15:40	L-11-3 <u>Matysik, Frank M.; Grundmann, Marco; Mark, Jonas P.</u> Novel approaches for the study of ultrasmall samples by fast capillary electrophoresis-mass spectrometry	L-12-3	<u>Mitulović Goran; Tretter, Verena; Stefanits, Harald; Schmid, Rainer</u> Use of alcohols as mobile phases for enhanced peptide separation and improved sequence coverage
16:00	L-11-4 <u>Nixdorf, Suzana L.; Marques, Leticia A.; Almeida, Marian B.; Hirooka, Elisa, Y.</u> Evaluation of a “home- made” mini stir bar for fluoxetine determination in human plasma by PDMS SBSE/HPLC-UV applying experimental design	L-12-4	<u>Janáky, Tamás; Virók, Dezső; Simon, Dóra; Gyebrovski, Andrea; Bozsó, Zsolt; Fülöp, Livia; Verdier, Yann; Busa-Fekete, Róbert; Penke, Botond</u> Rational design of peptides against Alzheimer’s disease: a proteomic approach

19:00 Symposium Dinner

Hotel Palatinus

May 1, 2014 Thursday

PARALLEL SESSIONS

13 – Affinity CE Chairman: <i>Sergey N. Krylov</i>		14 – Novel instrumental techniques 3 Chairman: <i>Frantisek Svec</i>	
9:00	KN-13 <i>Guzman, Norberto A.</i>	KN-14	<i>Jönsson, Alexander; Bllaci, Loreta; Kjellström, Sven; Lemos, Sandra; Eliasson, Lena; Friend, James R.; Yeo, Leslie Y.; Nilsson, Staffan</i>
	Assessment of the effect of food supplements in acute-on-chronic diseases by monitoring biomarkers of inflammation using immunoaffinity capillary electrophoresis		SAW-MALDI MS: open chip for biomolecule sample handling - painful cell experiments?
9:30	L-13-1 <i>Shimura, Kiyohito; Nagai, Toshihiko</i>	L-14-1	<i>Kelly, Ryan T.; Wang, Chenchen; Hallfors, Nicholas G.; Rausch, Sarah J.; Smith, Richard D.; Tang, Keqi</i>
	Direct coupling of affinity chromatography and capillary isoelectric focusing in a single capillary		Hydrodynamic sample injection for high throughput, quantitative zone electrophoresis in microchips and capillaries
9:50	L-13-3 <i>Haselberg, Rob; Dominguez, Vega Elena; Somsen, Govert W.; de Jong, Gerhardus J.</i>	L-14-2	<i>Nagy, Andrea; Gáspár, Attila</i>
	Affinity capillary electrophoresis-mass spectrometry: isoform-selective assessment of protein-protein interactions		Packed multi-channels for parallel chromatographic separations in microchip
10:10	PRESENTATION OF POSTERS NOMINATED FOR AWARD	L-14-3	<i>Moldovan, Radu; Dascăl, Gabriel; Tălmăciu, Mona; Gavriș, Ioana; Bodoki, Ede; Oprean, Radu</i>
			Approaches to chiral separation prediction on immobilized polisaccharide chiral stationary phases

10:30 *Coffee break*

PLENARY SESSION 4

Chairman: *Ferenc Kílár, Attila Felinger, András Guttman*

AUDITORIUM 1

11:00 PL-7 *Bergquist, Jonas*

Why do we lose it? Analytical insights into human neuromuscular degeneration

11:45 Student and Poster Awards

12:00 MSB 2015 Invitation

12:10 Closing the Symposium

Farewell with lunch

LIST OF POSTERS

(Alphabetical order of the first Author)

- P-01** INCREASING THE SPEED OF CAPILLARY GEL ELECTROPHORESIS OF PROTEINS
van Angeren, Jordy
- P-02** DETERMINATION OF BINDING CONSTANTS AND THE INFLUENCE OF THE CYCLODEXTRIN CAVITY SIZE FOR THE EMO ON THE SEPARATION OF AMINO COMPOUNDS BY CE
Aranyi, Anita; Ilisz, István; Péter, Antal; Fülöp, Ferenc; Scriba, Gerhard
- P-03** HPLC-MS BASED MONITORING OF STEROID CONTAMINANTS IN LAKE BALATON
Avar, Péter Ágoston; Pápai, Zoltán; Maász, Gábor; Takács, Péter; Pirger, Zsolt; Márk, László
- P-04** COMPARISON OF PORE SIZE DISTRIBUTION OF RP-HPLC STATIONARY PHASES WITH THE MOLECULAR THEORY OF SIZE-EXCLUSION CHROMATOGRAPHY
Bacskey, Ivett; Sepsey, Annamária; Felinger, Attila
- P-05** PREDICTION OF PEPTIDE AND GLYCOPEPTIDE SEPARATION FROM GLYCOPROTEIN DIGESTS IN CAPILLARY ELECTROPHORESIS-MASS SPECTROMETRY
Barroso, Albert; Giménez, Estela; Benavente, Fernando; Barbosa, José; Sanz-Nebot, Victoria
- P-06** TEMPERATURE DEPENDENCE OF THE RETENTION FACTORS OF RESORCINARENE BASED CAVITANDS ON C8 AND C18 REVERSED STATIONARY PHASES
Bartó, Endre; Prauda, Ibolya; Kilár, Ferenc; Felinger, Attila; Kiss, Ibolya
- P-07** EFFECTS OF CLARY SAGE OIL AND ITS MAIN COMPONENTS LINALOOL AND LINALYL ACETATE ON THE PLASMA MEMBRANE OF CANDIDA ALBICANS: AN IN VIVO EPR STUDY
Blaskó, Ágnes; Gazdag, Zoltán; Gróf, Pál; Máté, Gábor; Pesti, Miklós
- P-08** PREPARATIVE CAPILLARY ISOTACHOPHORESIS USED IN MULTIDIMENSIONAL SEPARATIONS OF PROTEINS
Bodor, Róbert; Masár, Marián
- P-09** CE WITH LED INDUCED FLUORESCENCE DETECTION A LOW COST TOOL FOR THE ANALYSIS IN FOOD CHEMISTRY
Boutonnet, Audrey; Morin, Arnaud; Ong-Meang, Varravaddheay; Couderc, Francois
- P-10** ADVANCED LIQUID CHROMATOGRAPHY TECHNIQUES FOR PROTEOMIC ANALYSIS
Cacciola, Francesco; Donato, Paola; Dugo, Paola; Mondello, Luigi
- P-11** EVALUATION OF THE INTERACTION OF MAGNETIC NANOPARTICLES WITH SMALL MOLECULES
Cacho, Carmen; Ševčík, Juraj; Petr, Jan
- P-12** IMMOBILIZED MONOLITHIC ENZYMIC REACTORS FOR ONLINE DIGESTION OF PROTEINS SECRETED BY DEVELOPING HUMAN-EMBRYOS
Chen, Wei-Qiang; Obermayr, Philipp; Černigoj, Urh; Vidič, Jana; Barut, Miloš; Panić-Janković, Tanja; Gorshkov, Mikhail; Mitulović, Goran
- P-13** APPLICATION OF LC- MS/MS IN BETA-LACTAMS DEGRADATION STUDIES
Cielecka-Piontek, Judyta; Zalewski, Przemysław; Robert, Skibiński
- P-14** GREENER APPROACH TO THE STABILITY STUDIES BASED ON HPLC-DAD METHOD IN DETERMINATION OF CEFEPIME
Cielecka-Piontek, Judyta; Garbacki, Piotr; Zalewski, Przemysław; Anna, Jelińska
- P-15** A NEW MOLECULARLY IMPRINTED POLYMER FOR THE EXTRACTION OF GLYPHOSATE IN WATER
Claude, Bérengère; Puzio, Kinga; Nehmé, Reine; Grellet, Emeline; Amalric, Laurence; Berho, Catherine; Morin, Philippe
- P-16** LIF DETECTION METHOD ON PDMS CHIPS
Csóka, Balázs; Hähner, Tamás; Kilár, Ferenc

- P-17** **APPLICATION OF CONVENTIONAL AND COMBINATORIAL CARBOHYDRATE CHEMISTRY FOR GLYCOMICS APPLICATIONS**
Donczó, Boglárka; Guttman, András
- P-18** **MATRIX-COMATRIX SYSTEMS FOR MALDI-TOF MS ANALYSIS OF BACTERIAL ENDOTOXIN PROFILES**
Dörnyei, Ágnes; Kilár, Anikó; Sándor, Viktor; Kilár, Ferenc; Kocsis, Béla
- P-19** **FIRST INSIGHTS OF PTERIDINES ANALYSIS BY CE-MS**
Drouin, Nicolas; Schappler, Julie; Rudaz, Serge
- P-20** **PHOSPHOPEPTIDE ENRICHMENT ON A MONOLITHIC COLUMN CONTAINING SUPERFICIALLY IMMOBILIZED NANO TiO₂**
Fichtenbaum, Andreas; Pungor, András; Nagy, Zoltán; Černigoj, Urh; Vidič, Jana; Barut, Miloš; Mitulović, Goran
- P-21** **CHARACTERIZATION OF ORGANIC SULFUR COMPOUNDS IN FOSSIL FUELS USING FLOW MODULATED COMPREHENSIVE TWO-DIMENSIONAL GAS CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY DETECTOR**
Franchina, F.A.; Machado, M.E.; Zini, C.; Caramao, E.B.; Tranchida, P.Q.; Cacciola, F.; Mondello, L.
- P-22** **THEORETICAL PRINCIPLES OF CAPILLARY ISOTACHOPHORESIS IN MOVING-BOUNDARY SYSTEMS**
Gebauer, Petr; Malá, Zdena; Boček, Petr
- P-23** **MICRO-BORE SIZE-EXCLUSION CHROMATOGRAPHY OF HUMIC SUBSTANCES ISOLATED FROM ENVIRONMENTAL SOURCES**
Góra, Róbert; Bielčíková, Natália; Rohárik, Pavol; Hutta, Milan
- P-24** **APPLICATION OF NOVEL CORE-SHELL TYPE POLYSACCHARIDE-BASED CHIRAL STATIONARY PHASE FOR SEPARATION OF ENANTIOMERS IN NANO LIQUID CHROMATOGRAPHY**
Gumustas, Mehmet; Ozkan, Sibel A.; Chankvetadze, Lali; Chankvetadze, Bezhan
- P-25** **COPPER(II) AND PHENOL BIOSORPTION BY CELL SURFACE TREATED CANDIDA TROPICALIS IN AQUEOUS SUSPENSION**
Honfi, Krisztina; Pernyeszi, Tímea; Kilár, Ferenc
- P-26** **MODELING OF SEPARATION EFFICIENCIES OF LARGE BIOMOLECULES IN LIQUID CHROMATOGRAPHY**
Horváth, Krisztián; Lukács, Diána; Hajós, Péter
- P-27** **EVALUATING THE INTEGRATION OF CE, ESI AND MASS SPECTROMETRY FOR THE QUANTITATIVE ANALYSIS OF AMINO ACIDS IN THE CATIONIC METABOLOME**
Hudson, John C.; Thorn, Jim
- P-28** **CAPILLARY ELECTROPHORETIC ENANTIOSEPARATION OF β²-AMINO ACIDS USING MODIFIED CYCLODEXTRINES AS CHIRAL SELECTORS**
Ilisz, István; Grecsó, Nóra; Misicka, Aleksandra; Tymecka, Dagmara; Péter, Antal
- P-29** **ANALYSIS OF NMDA MODULATORS WITH CE-LIF IN DIFFERENT BIOLOGICAL SAMPLES**
Jakó, Tamás; Szabó, Eszter; Zachar, Gergely; Tábi, Tamás; Csillag, András; Szökő, Éva
- P-30** **POTENTIAL UTILIZATION OF VIOLET LASER FOR CE-LIF DETERMINATION OF FLAVINS – QUALITY ASPECTS AND APPLICATION FOR FOODSTUFF TESTING**
Jaworska, Malgorzata; Moczulski, Marcin; Anuszevska, Elzbieta
- P-31** **CONTROL SYNTHESIS OF GO/Fe₃O₄/Au/PEG COMPOSITES FOR THE HIGHLY SELECTIVE ENRICHMENT OF N-LINKED GLYCOPEPTIDES FROM BIOLOGICAL SAMPLES**
Jiang, Bo; Yang, Kaiguang; Zhang, Lihua; Liang, Zhen; Zhang, Yukui
- P-32** **NEW ADVANCES IN CAPILLARY ELECTROPHORESIS ANALYSIS OF CARBOHYDRATES: PSEUDOSTATIONARY AND MONOLITHIC PHASES**
Kerékgyártó, Márta Zsuzsa; Krenkova, Jana; Foret, Frantisek; Guttman, András

- P-33** **MASS SPECTROMETRY OF ENDOTOXINS FROM WHOLE-CELL LYSATES**
Kilár, Anikó; Sándor, Viktor; Dörnyei, Ágnes; Kilár, Ferenc; Kocsis, Béla
- P-34** **OPTIMIZATION OF THE EXTRACTION PROCEDURE OF STEROID HORMONES FROM HUMAN URINE SAMPLES BEFORE MEKC SEPARATION IN THE CONTEXT OF ANTI-DOPING RESEARCH**
Kowalski, Piotr; Olędzka, Ilona; Dziomba, Szymon; Bączek, Tomasz
- P-36** **DYNAMIC SORPTION STUDIES: IMMOBILIZATION OF SPIRULINA PLATENSIS CELLS**
Kőnig-Péter, Anikó; Csudai, Csaba; Felinger, Attila; Kilár, Ferenc; Pernyeszi, Tímea
- P-35** **PREPARATION AND ANALYSIS OF PAHs IN OILS, BY GC-MS**
Kőnig-Péter, Anikó; Poór, Viktória; Tímea, Dergez; Gábor, Lilla; Armbruszt, Simon; Kilár, Ferenc
- P-37** **MONOLITHIC MACROPOROUS CRYOGELS WITH IMMOBILIZED LECTINS FOR GLYCOPROTEIN ANALYSIS**
Krenkova, Jana; Foret, Frantisek
- P-38** **EVALUATION OF THE MASS-TRANSFER PROPERTIES IN CHROMATOGRAPHIC COLUMNS PACKED WITH SUB-2- μ m PARTICLES**
Lambert, Nándor; Felinger, Attila
- P-39** **MICROSOMES AND DRUGS ON-LINE INCUBATION MONITORED BY CAPILLARY ELECTROPHORESIS COUPLED TO MASS SPECTROMETRY**
Langmajerová, Monika; Řemínek, Roman; Glatz, Zdeněk
- P-40** **ANALYSIS OF LYSOZYME-STABILIZED COPPER NANOCLUSTERS BY CAPILLARY ELECTROPHORESIS**
Lin, Yen-Hsiu; Lin, Shun-Wen; Chuang, Chung-Ching; Hsieh, You-Zung
- P-41** **HYDROPHILIC BORONIC ACID FUNCTIONAL CORE-SHELL PARTICLES FOR PH-RESPONSIVE RECOGNITION OF GLYCOPROTEINS BASED ON 'THIOL-ENE' CHEMISTRY**
Liu, Jianxi; Yang, Kaiguang; Zhang, Lihua; Zhang, Yukui
- P-42** **CAN LC-MS-MS BE USED IN HORSE MEAT DETECTION?**
Lock, Stephen
- P-43** **EXPLORING THE SENSITIVITY DIFFERENCES FOR TARGETED PEPTIDE QUANTIFICATION IN THE LOW FLOW RATE REGIME**
Lock, Stephen; Hunter, Christie; van Soest, Remco; Thorn, Jim
- P-44** **ALLERGEN DETECTION IN WINE BY LC/MS/MS**
Lock, Stephen; Sage, Ashley
- P-45** **METHOD DEVELOPMENT FOR THE ANALYSIS OF CARBOXYLIC ACIDS AS A PART OF A METABOLOMIC TOOLBOX FOR A HUMAN EMBRYO VIABILITY ASSESSMENT**
Madr, Ales; Svobodova, Katerina; Cela, Andrea; Crha, Igor; Glatz, Zdenek
- P-46** **STRUCTURE OF COLITOSE-CONTAINING O-POLYSACCHARIDES FROM THE LIPOPOLYSACCHARIDES OF PROTEUS MORGANII O34 (8662/64), ESCHERICHIA COLI O111 AND S. ENTERICA SV. ADELAIDE O35**
Makszin, Lilla; Blaskó, Ágnes; Péterfi, Zoltán; Berente, Zoltán; Kilár, Ferenc; Kocsis, Béla
- P-47** **FUUL-FORMAT ISOTACHOPHORESIS – A TECHNIQUE FOR HIGHLY VERSATILE, SENSITIVE AND SELECTIVE CE-ESI MS ANALYSES**
Malá, Zdeňka; Gebauer, Petr; Boček, Petr
- P-48** **DETECTION AND CHARACTERIZATION OF DIFFERENT CONFORMERS IN A THERAPEUTIC ANTITHROMBIN BY CE AND CE-ESI-MS**
Marie, Anne-Lise; Schappler, Julie; Saller, Francois; Urbain, Remi; Borgel, Delphine; Rudaz, Serge; Taverna, Myriam; Tran, N Thuy
- P-49** **CAROTENOID PROFILE DETERMINATION OF DIFFERENT KINDS OF PUMPKINS (CUCURBITACEAE)**
Marton, Krisztina; Turcsi, Erika; Kilár, Ferenc; Deli, József

- P-50** **MULTIPLE SWITCHING DEVICE FOR COMPLEX AND ACCELERATED HPLC SYSTEMS**
Mayrhofer, Hans; Mitulović, Goran; Schmid, Rainer
- P-51** **μLC-MS FOR QUANTITATIVE ANALYSIS OF ANILINE LABELED N-GLYCANS**
Michael, Claudia; Rizzi, Andreas
- P-52** **DETERMINATION OF BINDING AND THERMODYNAMIC CONSTANTS OF BOVINE SERUM ALBUMIN - SALICYLIC ACID INTERACTION USING CAPILLARY ELECTROPHORESIS**
Michalcova, Lenka; Glatz, Zdenek
- P-53** **IN-CAPILLARY ELECTRICAL CELL LYSIS FOR FAST BETA-GALACTOSIDASE QUANTIFICATION USING CAPILLARY ELECTROPHORESIS**
Nehmé, Reine; Nehmé, Hala; Lafite, Pierre; Duverger, Eric; Routier, Sylvain; Morin, Philippe
- P-54** **LIPID OXIDATION LEVELS OBSERVED IN PATIENTS DIAGNOSED WITH ACUTE LYMPHOBLASTIC LEUKEMIA**
Nixdorf, Suzana L.; Almeida, Mariana B.; Marques, Leticia A.; Amarante, Marla K.; Hirooka, Elisa Y.
- P-55** **MDA IN BALB/C PLASMA INFECTED WITH LEISHMANIA AMAZONENSIS TREATED BY TOPICAL AND INTRAMUSCULAR APPLICATIONS OF *TANACETUM PARTHENIUM* PHYTOCHEMICAL**
Nixdorf, Suzana L.; Almeida, Mariana B.; Marques, Leticia A.; Rabito, Mirela F.; Madeira, Tiago B.
- P-56** **FABRICATION OF THIN-METAL MICROPARTICLES USING LIFT-OFF PHOTOLITHOGRAPHY**
Novotný, Jakub; Kupčík, Rudolf; Jusková, Petra; Bilková, Zuzana; Foret, František
- P-57** **MEKC AND MEEKC AS A TOOLS FOR EVALUATING THE STATUS OF VITAMINS A, C AND E IN PATIENTS WITH CYSTIC FIBROSIS**
Oleđzka, Ilona; Kaźmierska, Katarzyna; Plenis, Alina; Kamińska, Barbara; Baćzek, Tomasz
- P-58** **LOCAL EXPRESSION OF CALGRANULINS (S100 A8/A9) IN HEAD NECK SQUAMOUS CELL CARCINOMA: AN IMAGING MASS SPECTROMETRIC APPROACH**
Pápai, Zoltán; Járai, Tamás; Schmidt, János; Burián, András; Kajtár, Béla; Maász, Gábor; Raics, Katalin; Futó, Kinga; Lukács, András; Lujber, László; Márk, László
- P-59** **B-MYB, A TRANSCRIPTON FACTOR IN EARLY STAGE HUMAN EMBRYONAL DEVELOPMENT: NON-INVASIVE SCREENING FOR PREDICTION OF EMBRYO VIABILITY**
Pápai, Zoltán; Böddi, Katalin; Petrovics, Dóra; Avar, Péter; Várnagy, Ákos; Rideg, Orsolya; Fekete, Csaba; Maász, Gábor; Schmidt, János; Bódis, József; Márk, László
- P-60** **FREEFLOW ISOTACHOPHORESIS ON GLASS CHIP**
Park, Jukyung; Campos, Camila Dalben Madeira; Neuzil, Pavel; Manz, Andreas
- P-61** **URINARY STEROID HORMONE LEVELS AS POTENTIAL BIOMARKERS OF NEUROENDOCRINE TUMORS**
Plenis, Alina; Miękus, Natalia; Oleđzka, Ilona; Baćzek, Tomasz; Lewczuk, Anna; Woźniak, Zofia; Koszałka, Patrycja; Seroczyńska, Barbara; Skokowski, Jarosław
- P-62** **ANALYSIS OF CALIX[4]RESORCINARENE CAVITAND DERIVATIVES WITH TANDEM MASS SPECTROMETRY**
Prauda, Ibolya; Bartó, Endre; Sándor, Viktor; Kilár, Ferenc; Felinger, Attila
- P-63** **OPTIMIZED ON-LINE CAPILLARY ELECTROPHORETIC METHOD FOR CYP3A4 MEDIATED ENANTIOSELECTIVE N-DEMETHYLATION OF KETAMINE**
Řemínek, Roman; Glatz, Zdeněk; Thormann, Wolfgang
- P-64** **CAPILLARY ELECTROPHORESIS WITH ON-LINE UV ABSORPTION AND LIF DETECTION (488 NM) FOR THE DETERMINATION OF BINDING PARAMETERS BETWEEN APTAMERS AND THEIR TARGETS**
Ric, Audrey; Boutonnet, Audrey; Couderc, François; Ecochard, Vincent; Paquereau, Laurent
- P-65** **NOVEL LC-MS/MS METHOD FOR THE ANALYSIS OF INTACT R-TYPE BACTERIAL ENDOTOXINS**
Sándor, Viktor; Kilár, Ferenc; Kocsis, Béla; Dörnyei, Ágnes; Kilár, Anikó
- P-66** **CESI-MS FOR MONITORING POST-TRANSLATIONAL MODIFICATIONS OF HISTONE H4**
Sarg, Bettina; Faserl, Klaus; Lindner, Herbert

- P-67** **A STOCHASTIC APPROACH TO THE POLYDISPERSITY IN SIZE EXCLUSION CHROMATOGRAPHY**
Sepsey, Annamária; Bacskay, Ivett; Felinger, Attila
- P-68** **MODELING THE 2D CORRELATION IN CHROMATOGRAPHY WITH GAUSSIAN PEAK SHAPE**
Simon, József; Felinger, Attila
- P-69** **DESIGN AND NUMERICAL SIMULATION OF MICROFLUIDIC CELL CAPTURE DEVICES**
Szigeti, Márton; Járvás, Gábor; Guttman, András
- P-70** **MODELING OF SAMPLING STRATEGIES FOR CAPILLARY ISOELECTRIC FOCUSING**
Takácsi-Nagy, Anna E.; Thormann, Wolfgang; Kilár, Ferenc
- P-71** **ANALYSIS OF SERUM N-GLYCOME ALTERATIONS IN INFLAMMATORY AND MALIGNANT LUNG DISEASES**
Váradi, Csaba; Guttman, András
- P-72** **A STUDY OF TWO SEQUENTIAL CULTURE MEDIA FOR IVF**
Wan, Jia; Panic-Jankovic, Tanja; Seyfert, Sonja; Mitulovic, Goran
- P-73** **CHIRAL ANALYSIS OF ASPARTATE AND GLUTAMATE IN BIOLOGICAL SAMPLES BY CAPILLARY ELECTROPHORESIS WITH LASER-INDUCED FLUORESCENCE (LIF) DETECTION AND APPLICATION IN INVESTIGATING THE RELATIONSHIP WITH ALZHEIMER'S DISEASE**
Wang, Yi-Rou; Hsieh, Ya-Hui; Chen, Su-Hwei
- P-74** **ELECTROPHORESIS IN THE LIQUID AND GAS-PHASE FOR INVESTIGATION OF THE INFLUENCE OF FLUOROPHORE/QUENCHER MODIFICATIONS ON OLIGONUCLEOTIDE CONFORMATIONS**
Weiss, Victor U.; Allmaier, Günter
- P-75** **NEW APPROACH IN EVALUATING THE INERTNESS OF GAS CHROMATOGRAPHIC SYSTEMS**
Zenkevich, Igor G.; Morozova, Tatiana E.
- P-76** **NGS BASED CHARACTERIZATION OF TWO SHIGELLA SONNEI STRAINS WITH DIFFERENT LPS CHARACTERISTICS**
Nagy, Laura; Tóth, Zsuzsanna; Kiss, Írisz; Valasek, Andrea; Urbán, Péter; Strasszer, Márk; Kocsis, Béla; Fekete, Csaba; Kilár, Ferenc
- P-77** **CHROMATOGRAPHIC PROFILE IN PHYSIOLOGICAL FLUIDS BIOPTÉRINS**
Boudah, Abdennacer

BIOGRAPHIES



Fernando Benavente

Fernando Benavente received his M.Sc. in Chemistry and PhD in Analytical Chemistry in 1998 and 2003 at the University of Barcelona (UB, Barcelona, Spain). He is currently an Associate Professor in the Department of Analytical Chemistry of the UB and one of the leaders of the group of Bioanalysis. He joined this group in 1997, but he has also done doctoral and postdoctoral research at The RW Johnson Pharmaceutical Research Institute (Raritan, New Jersey, USA), The National University of Rosario (Rosario, Argentina) and the University of Leiden (Leiden, The Netherlands). His research is focused on the development and application of high performance separation techniques coupled to mass spectrometry to solve complex analytical problems related to biomedicine, pharmaceutical

and food industry. He is especially interested in the separation, the sensitivity enhancement and the characterization of peptides, proteins and glycoproteins in biological samples, biopharmaceuticals and food using LC-MS and CE-MS. His contributions include more than 50 international peer-reviewed publications and more than 100 presentations at national and international meetings.



Jonas Bergquist

Jonas Bergquist is Full Chair Professor in Analytical Chemistry and Neurochemistry at the Department of Chemistry at Uppsala University, Sweden, and Adjunct Professor at the Department of Pathology at University of Utah, USA. He received his MSc degree in Biology and Chemistry from the University of Lund and his MD PhD degree from the Institute of Clinical Neuroscience of the Göteborg University in Sweden. After a postdoctoral position at the Institute of Clinical Neuroscience, Sahlgrenska University Hospital, Dr Bergquist was initially promoted to Associate Professor at

Göteborg then appointed as a Full Professor and Head of Department (prefect) of Physical and Analytical Chemistry at Uppsala University and later deputy Head for Department of Chemistry – Biomedical Centre.

Professor Bergquist's research group is continuously developing general analytical tools for screening and discovery of biomarkers for various pathological states. The technologies includes all within the analytical chain important links: identifying relevant clinical applications, sampling, sample pretreatment, multidimensional liquid based separation, high resolution mass spectrometry such as FT-ICR, and OrbiTrap MS-multivariate data analysis including algorithms for cluster analysis and pattern recognition. Professor Bergquist uses these techniques to study numerous medical issues including neurodegenerative disorders and psychiatry, cancer, cardiovascular diseases, obstetrics and gynaecology, surgery and internal medicine. Professor Bergquist has currently published around 360 papers, has around 5000 citations and an h-index of 39.



Ede Bodoki

Associate professor at the Analytical Chemistry Department within the Faculty of Pharmacy, "Iuliu Hatieganu" University from Cluj-Napoca, Romania. Born in 1978 in the medieval town of Cluj situated in the heart of Transylvania, he pursued all of his studies in his native town. Pharmacist by formation, graduate of the same university, where he also received his PhD title in 2008. Separation sciences, involving liquid chromatographic and electrodriven techniques, as well as (bio)electrochemistry, involving sensors and biosensors, in the analysis of bioactive compounds, drugs and pollutants represent his two main fields of interest. Furthermore, chemometric tools for data analysis, optical and mass spectrometry coupled to electrochemistry are also part of his area of interest focusing on the elucidation of redox mechanisms of certain drugs and specific molecular interactions in chiral and non-chiral environments (nanostructured surfaces, cyclodextrins, molecularly imprinted polymers) with current applications in chiral analysis.



Bezhan Chankvetadze

Bezhan Chankvetadze is Full Professor for Physical Chemistry and director of the of the Institute of Physical and Analytical Chemistry at the Tbilisi State University in Tbilisi, Georgia.

B. Chankvetadze has published over 200 research papers in peer reviewed journals, over 30 review papers and book chapters and holds several patents of the former Soviet Union, USA, Germany and Japan. B. Chankvetadze has published one monograph (Capillary Electrophoresis in Chiral Analysis, Wiley&Sons, Chichester, UK, 1997), co-authored one book (Quantitative Determination of Antiepileptic Drugs in Biological Fluids, Tbilisi University Press, Tbilisi, Georgia, 1993) and edited one multiautored book (Chiral Separations, Elsevier Science, 2001). He has edited and co-edited many special issues of

the journals J.Chromatogr. A, Electrophoresis, J. Pharm. Biomed. Anal., and Journal Separation Science on various topics of separation science.

B. Chankvetadze has given over 200 presentations as plenary, invited or oral speaker on the international conferences in fields of chirality, electromigration techniques and separation science. B. Chankvetadze is the Editor of the Journal of Pharmaceutical and Biomedical Analysis (Elsevier, Amsterdam, Netherlands) and a member of the editorial boards of Electrophoresis (Wiley-VCH), Journal of Chromatography A (Elsevier), Journal of Separation Science (Wiley-VCH), Chirality (Wiley), Current Analytical Chemistry (Bentham), Current Chromatography (Bentham), Current Pharmaceutical Analysis (Bentham) and Acta Chromatographica.



Hervé Cottet

Hervé Cottet completed his PhD in analytical chemistry in 1999 at the Ecole Nationale Supérieure de Chimie de Paris (ENSCP, ParisTech, France) under the supervision of Prof. Pierre Gareil. He worked on Capillary Electrophoresis (CE) of synthetic polyelectrolytes. After a one year post-doc at the Technical University of Eindhoven (the Netherlands), where he investigated the use of non aqueous solvents in CE, he joined the University of Montpellier in 2000 as an assistant professor. In 2007, he obtained a full professor position at the Biomolecules Institute in Montpellier. His research work concentrates at the interface between separation sciences, physical chemistry, polymers and biology. He is developing CE methodologies (2D-separations, free solution and gel-based separations, micellar / microemulsion modes, isotachopheresis, isoelectric focusing) and Taylor Dispersion Analysis for the characterization of (bio)polymers, polyelectrolytes, dendrimers,

nanoparticles, colloids and bacteria. He is both interested in fundamentals (mobility modeling, electrophoretic behavior) and practical (or industrial) applications of CE and TDA. In 2006, he awarded the price from the Analytical chemistry Division of the French Chemical Society. In 2011, he has been nominated as a junior member of the Institut Universitaire de France. He is a member of the directorial board of the french-speaking separation science society (AfSep).



Jacques Crommen

Jacques Crommen is currently Professor Emeritus at the University of Liege, Belgium and Visiting Professor at Jinan University, Guangzhou, China. He received his PhD degree in Pharmaceutical Sciences from the University of Liege in 1981. He did post-doctoral studies at the Biomedical Center, Uppsala University, Sweden, in 1985-1986. He was Full Professor and Head of the Laboratory of Analytical Pharmaceutical Chemistry at the University of Liege from 1991 to 2010. He was also Guest Professor at the Catholic University of Louvain (UCL), Belgium, from 1997 to 2003 and Visiting Professor at the University of Sassari, Italy, in 2011. He was Editor of the Journal of Pharmaceutical and Biomedical Analysis from 1999 to 2003 and member of the Editorial Board of the Journal of Chromatography A from 1995 to 1999. He is a member of the section of Pharmaceutical Sciences of the Belgian Royal Academy of Medicine. He was appointed Honorary Member of the Hungarian Pharmaceutical Society in

1993 and Honorary Member of the Belgian Society of Pharmaceutical Sciences in 2011. He was awarded the degree of Doctor honoris causa from the Iuliu Hatieganu University of Cluj-Napoca, Romania, in 2010. His current research interests include chiral separations by HPLC and capillary electrophoresis (CE), detection and quantification of disease biomarkers by miniaturized separation techniques coupled to mass spectrometry and analysis of counterfeit drugs by HPLC and CE.



Claudimir Lucio do Lago

Claudimir Lucio do Lago is a Full Professor at University of São Paulo, Brazil. He obtained his PhD in Analytical Chemistry (1991) at the University of Campinas, Brazil. His current research interests focus on the development of CE-C⁴D and CE-MS methods and instrumentation for detection of monoalkyl carbonates in biological medium.



László Drahos

László Drahos has nearly 20 years of experience in mass spectrometry coupled to chromatography.

He received his Ph.D. degree from the Eötvös University in 2000 under the guidance of Professor Vékey. He developed theoretical models on internal energy effects in mass spectrometry. Later he moved to pharmaceutical and proteomics application using (nano)HPLC-MS/MS.

Presently he is the head of the MS Proteomics unit at the Research Centre for Natural Sciences of the Hungarian Academy of Sciences.

He published more than 80 papers in referred journals and held many presentations worldwide, his H-index is 16. He is the board member of the Hungarian Society for Separation Sciences.



Szymon Dziomba

Szymon Dziomba received his M. Sc. degree in Pharmacy from Medical University of Gdańsk (2011) and B. Sc. degree in Biotechnology from Technical University of Gdańsk (2012). In May 2011 he has started his Ph. D. studies on the on-line preconcentration techniques in capillary electrophoresis. His other scientific interests cover microextraction techniques, proteomics, microchip electrophoresis and mass spectrometry. In 2012 he underwent a scientific internship in Matrin Luther University in Halle (Saale, Germany) in prof. Reinhard Neubert's research group. After the Ph. D. defense in the beginning of 2015 he is going to undergo a postdoctoral fellowship.



Nicole Engel

Nicole Engel is a Ph.D. candidate at the Vienna University of Technology, Institute of Chemical Technologies and Analytics. In 2011 she graduated from the University of Konstanz with a M.Sc. in Chemistry working on the development of a high resolution bioaffinity mass spectrometry method combining kinetic affinity studies with structural identification. During her PhD thesis in the Bio- and Polymer Analysis group headed by Prof. Günter Allmaier in Vienna, she focuses on the separation of glycoproteins in the liquid phase (microchip capillary gel electrophoresis (MCGE) system) and the gas phase (gas-phase electrophoretic mobility molecular analyzer (GEMMA)). Both strategies are based on separation according to different electrophoretic mobilities of analytes and will be studied with respect to specificity and sensitivity.



Salvatore Fanali

Dr. Salvatore Fanali is a Senior Researcher "Direttore di Ricerca" at the Italian National Research Council (C.N.R.), Institute of Chemical Methodologies in Monterotondo (Rome) Italy and head of "Capillary Electromigration and Chromatographic Methods" Unit. In 1974 he received the degree of Dr. in Chemistry at Rome University "La Sapienza" and later on the PhD in Analytical Chemistry at Comenius University – Bratislava, Slovakia. His research is focused on development of miniaturized techniques, e.g., nano-liquid chromatography/nano-LC, capillary zone electrophoresis/CZE, capillary electrochromatography /CEC. They were coupled with mass spectrometry. Studies on enantiomers separations, new stationary phases are carried out. Methods are applied to pharmaceutical, agrochemical, food, environmental, forensic analysis. He is author or co-author of about 300 publications in Journal (SCI) of international interest, chapters in books, two booklets. He received awards, e.g., Bratislava University, University of Verona, Liberti Medal in Analytical Chemistry (Italian Chemical Society). He is Editor of Journal of Chromatography A (Elsevier), honorary Editor in Journal of Separation Science where he served as Editor-in-chief and member of the advisory editorial board of 6 International Journals.



Frank Fleurbaaij

Frank Fleurbaaij started his academic career in 2006 as a Bachelor's degree Chemistry student in Amsterdam. This was followed by a MSc degree in Analytical Chemistry, with internships in Amsterdam (VU University) which focused on high-throughput screening of GPCR-ligand interactions, as well as at King's College London studying the development of novel monolithic phases for capillary LC. In 2012 he was hired as a PhD. candidate at the Leiden University Medical Center for a project that is a result of the collaboration between the departments of Medical Microbiology and the Center for Proteomics and Metabolomics. The aim of the project is to develop methods to determine the drug resistant traits of bacteria using CE-MS, mainly at the proteomic level.



Frantisek Foret

Frantisek Foret obtained his Ph.D. degree in 1991 from the Czechoslovak Academy of Sciences and in the same year joined the Barnett Institute in Boston as a postdoctoral research fellow in the group of Prof. Barry L. Karger. He stayed at the Barnett Institute for additional nine years as a research group leader and resumed his position in Brno in 2001. At present he is a deputy director for science and head of the Department of Bioanalytical Instrumentation at the Institute of Analytical Chemistry of the AS CR, Brno, Czech Republic. Since 2011 he is also a group leader at CEITEC MU, Brno. His main research interests include capillary separation techniques for bioanalysis, laser induced fluorescence detection, miniaturization and mass spectrometry coupling. He is author and co-author of over 100 publications including a monograph on Capillary Electrophoresis, ten book chapters, and 14 patents. Currently serves as the senior deputy editor of Electrophoresis and in editorial boards of Journal of Separation Science, Biomacromolecular Mass Spectrometry and Current Analytical Chemistry. He is an Associate Director of CASSS – An International Separation Science Society (since 2009) and member of the Learned Society of the Czech Republic (since 2011).



Attila Gáspár

Attila Gáspár (1970) is an associate professor at the Department of Inorganic and Analytical Chemistry, University of Debrecen, Hungary. He obtained his PhD in chemistry in 1997. At the beginning he was working on improvements of sample introduction techniques for flame atomic spectrometry. From 2000, he continued his research on different applications of capillary electrophoresis for clinical and pharmaceutical analysis. In 2007, he acquired expertise on microfluidic analytical techniques at CSU, Los Angeles. Recently he is working on developments and applications of electrophoretic and chromatographic systems in microchips and capillaries.



András Guttman

András Guttman is an external member of the Hungarian Academy of Sciences and leads the MTA-PE Translational Glycomics Research Group in University of Pannonia (Veszprem, Hungary) as well as the Horvath Laboratory of Bioseparation Sciences in University of Debrecen (Hungary). He holds visiting professorships in the USA at Northeastern University, The Scripps Research Institute and UCSD. Dr Guttman held industrial positions at Novartis, Genetic BioSystems, and Beckman Coulter, working on capillary and microfluidics based separation methods. He has more than 230 scientific publications, 32 book chapters, edited several textbooks, holds 19 patents and currently the president of the ACS-HU chapter, board member of CASSS, and on the editorial boards of numerous international scientific journals. Dr. Guttman graduated from University of Veszprem (Hungary) in chemical engineering, where he also received his doctoral degree. He got the Analytical Chemistry Award of the Hungarian Chemical Society in 2000, the Szentgyorgyi Professorship in 2005, was named as Fulbright Scholar in 2012 and got the CE Pharm Award in 2013.



Norberto Guzman

Dr. Norberto Guzman is currently Chief Scientific Officer at Princeton Biochemicals Inc., Princeton, New Jersey, U.S.A. Dr. Guzman's expertise is primarily in protein biochemistry and immunochemistry. He has developed immuno-analytical instrumentation and methodologies for the quantification, identification and characterization of proteins and peptides of relevance to the clinical laboratory, pharmaceutical industry and food-nutraceutical industry (e.g., erythropoietin, antibodies, and collagen). Dr. Guzman is the author or co-author of more than 130 scientific publications, including manuscripts, patents and book chapters. He has lectured more than 300 oral presentations in Europe, the Americas, the Far East, and Australia. Dr. Guzman's publications have been cited more than 4610 times, having an h-index of 35, and an i10 index of 62, according to Google Scholar Citations. One publication alone is approaching 1400 citations. Seven figures of his publications have appeared on the front cover of prestigious scientific journals and books. He is the editor of two widely referenced books on the subject of capillary electrophoresis and collagen prolyl hydroxylase. Dr. Guzman holds numerous worldwide patents on capillary electrophoresis and microchip technology and his accomplishments have been recognized by being the recipient of many national and international awards in science and technology innovation. Dr. Guzman is a member of several international scientific organizations. He serves on the editorial board of *Electrophoresis* (European journal), and the *Journal of Liquid Chromatography and Related Technologies* (American journal). Dr. Guzman is the founding editor of the *Journal of Capillary Electrophoresis and Microchip Technology* and one of the pioneers in this field. He is also the founder of the international symposia series known as LACE (Latin-American Capillary Electrophoresis). His main research interest is in the understanding of the function of newly-formed and/or post-translational-modified proteins in inflammatory processes, and the finding of therapeutic agents, such as natural and synthetic proteins/peptides, aimed to alleviate chronic inflammatory diseases. Dr. Guzman received a B.Sc. degree in biochemistry (clinical biochemistry) from a Joint Undergraduate Program of the University of Concepcion and the University of Chile, Santiago, Chile; a M.Sc. degree in biochemistry (cell and molecular biology) from the Medical College of Georgia, Augusta, Georgia, U.S.A.; and a Ph.D. degree in biochemistry (protein biochemistry) from a Joint Graduate Program of the University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School (formerly Rutgers Medical School) and Rutgers, The State University of New Jersey, New Brunswick, New Jersey, U.S.A. Dr. Guzman has worked for the last 30 years in academic medical institutions, diagnostic and pharmaceutical companies, including Mount Sinai School of Medicine, Roche Diagnostic Systems, Hoffman-La Roche, and Johnson & Johnson. He also has worked in a collagen food-nutraceutical industry. Dr. Guzman is currently a member of the International Board of Advisory Directors at the International School of Medical Sciences, Panama City, Panama.



Rob Haselberg

Dr. Haselberg studied Analytical Sciences at the VU University where he received his M.Sc. degree (cum laude) in 2006. In 2010, he obtained his doctorate at Utrecht University with prof. G.J. de Jong on the development and application of capillary electrophoresis-mass spectrometry (CE-MS) technologies for the analysis of biopharmaceuticals. Subsequent post-doctoral research at the Biomolecular Analysis group at Utrecht University focused on the evaluation of novel sheathless CE-MS methodologies for the characterization of therapeutic glycoproteins. A second post-doctoral stay at Utrecht University in close collaboration with the VU University involved development of affinity CE and CE-surface plasmon resonance methods for the selective probing of protein-receptor interactions. In 2013, Haselberg was appointed at the AIMMS research group BioMolecular Analysis of the VU University. Here, his research focuses on the design, improvement and application of new efficient methodologies for the detailed compositional and affinity analysis of intact proteins, such as monoclonal antibodies. Moreover, he supervises the CE and CE-MS laboratory of the group.



Wilhelm Einar Stellan Hjertén

Professor Wilhelm Einar Stellan Hjertén of the Uppsala University was presented with the inaugural Arnold O. Beckman Award and Medal for Outstanding Achievements in the Field of Electrodriven Separations on Monday, March 11, 2013 during the 29th International Symposium on MicroScale Bioseparations in Charlottesville, Virginia, USA. Stellan Hjertén's investigations have been devoted to various techniques for the purification and characterization of biological substances including proteins, viruses and bacteria, to what he calls the artificial antibodies. His methods were distinguished by not permitting interactions, in chromatography, between the solute and chromatographic bed, and in electrophoresis, between the solute and the supporting medium - all surfaces with which analytes came in contact had to be hydrophilic. This led to his introduction of agarose and polyacrylamide gels for chromatography and electrophoresis. During his rich research life, he invented, promoted, and developed many new materials, techniques, terms, and

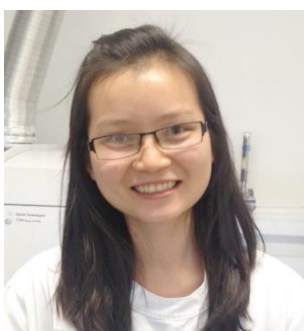
theories. Clearly, it would be difficult to find a biochemist or analytical chemist who has never heard of Stellan Hjertén and his accomplishments. "We are very pleased to be the sponsor of this medal and award in the name of our founder Dr. Arnold O Beckman" says Jeff Chapman, Director of Scientific Alliances at Beckman Coulter. "Professor Hjertén's career truly embodies the values in which this award was created to acknowledge, and his scientific legacy has shaped what is now state-of-the-art implementation of electrophoresis"



Peter Horvatovich

Peter Horvatovich earned his PhD in 2001 in Strasbourg (France) in Food Analytical Chemistry developing new trace analysis methods for detection of irradiated foodstuffs. After graduation, he continued his carrier in Pharmaceutical Industry at Sanofi-Aventis in Budapest (Hungary) in molecular modelling and cheminformatics (2001-2003), followed by a postdoctoral position (2003-2004) in Berlin at Federal Institute for Risk Assessment (BfR) developing analytical method for detection of recombinant bovine Somatotropin treatment of lactating cattle. Dr. Peter Horvatovich joined the Analytical Biochemistry group at University of Groningen in 2005 and worked in the first period in discovery of blood protein biomarkers for early detection of cervical cancer. 7 years ago, Peter Horvatovich turned to the challenging field of LC-MS(/MS) data pre-processing, statistical analysis and computational mass spectrometry, which field become his major research activity today. Péter Horvatovich

disposes more than 42 scientific publications, four book chapters and he is the secretary general of Chromosome-Centric Human Proteome Project.



T.N. Suong Huynh

T.N. Suong Huynh received her Pharmacy Diploma at University of Medicine and Pharmacy Ho Chi Minh City, Vietnam in 2011, followed by a Master Degree in Analytical Chemistry at University Claude Bernard Lyon I, France. During her internship, she studied the interaction between amyloid peptides, biomarkers of neurodegenerative diseases and its ligands by capillary electrophoresis (CE), CE – UV and CE – LIF, with Dr. Luc Denoroy at the group of Radiopharmaceutical & Neurochemical Biomarkers, Lyon Neuroscience Research Center (CRNL). Since 2012, she has been a PhD student, under the supervision of Dr. Agnès Hagège at Laboratory of Target Proteins, Health Sciences Division, Atomic Energy and Alternative Energies Commission (CEA), France, where she has been working

on analytical strategies based on ICP/MS and ESI/MS to determine target proteins for uranium in biological samples.



Tamás Janáky

I have been working for almost 40 years at the University of Szeged, Hungary. At the Laboratory of Endocrinology we have developed many radioimmunoassay methods for the determination of peptide, protein and steroid hormones to investigate patients with different hormonal diseases. As a visitor scientist I've spent three years in New Orleans in the laboratory of Nobel laureate Prof. Andrew Schally. During that time we have synthesized, analyzed and tested more than 100 LH-RH and somatostatin hormone analogs with anticancer activity. About 20 years ago we have established an Analytical Laboratory at the Department of Medical Chemistry in Szeged, Hungary for the analysis of natural and synthetic peptides with chromatography, capillary electrophoresis and mass spectrometry. Expanding our interest towards the analysis of larger biopolymer proteins, we turned to proteomics and established the first proteomics laboratory. In the last 15 years we have

developed new proteomics methods and performed analysis of thousands samples from bacteria to human tissues. We have studied molecular background of psychiatric and neurodegenerative diseases and we designed several new compounds for treatment of Alzheimer's disease.

A new 'omics' field, lipidomics is in the focus of our recent research activities: we are interested in changes of lipidome in different neurodegenerative and oncological diseases.



Gábor Járvas

Gábor Járvas received his MSc in chemical engineering (2007) and PhD in chemistry (2012) at University of Pannonia. In 2013 he joined the collaboration project of Bioanalytical Instrumentation Group (Brno, Czech Republic) and MTA-PE Translational Glycomics Research Group (Veszprém, Hungary) as postdoctoral research fellow. Currently, his research interests focuses on the simulation and modeling of microfabricated bioanalytical devices and CE-ESI-MS interfaces.



Guinevere S. M. Kammeijer

PhD-candidate, Center for Proteomics and Metabolomics at Leiden University Medical Center, Leiden

Guinevere S. M. Kammeijer received a BSc degree in Biotechnology - Forensic Sciences from University of Applied Science van Hall Larenstein, Leeuwarden followed by a MSc in Analytical Chemistry at the VU University, Amsterdam. The MSc included an internship at the Center for Proteomics and Metabolomics at Leiden University Medical Center where she focused on small scale sample preparation with CE-MS/MS.

Currently, she is a PhD candidate at the same Center for Proteomics and Metabolomics under the supervision of Prof. Manfred Wührer. Her project involves exploring CE-MS for protein glycosylation analysis with a focus on the analysis of glycopeptides, employing a porous nano-sprayer for MS coupling.



Barry L. Karger

Dr. Karger received his B.S. in Chemistry from MIT in 1960 and his Ph.D. in Analytical Chemistry from Cornell University in 1963. In 1963, he joined Northeastern University, attaining Full Professorship in 1972. In 1973, he founded the Barnett Institute of Chemical and Biological Analysis. The Institute, a leading international bioanalytical research center, now has a major focus in proteomics and biopharmaceutical characterization. A new Center for Regulatory Analysis was recently established at the Barnett Institute. Professor Karger has been an active researcher with close to 350 publications and 40 patents in the field of bioanalytical chemistry, with particular emphasis in liquid chromatography, capillary electrophoresis and mass spectrometry. In November Of 2011, the Barnett Institute published their 1000th paper. He was a major contributor to the development of HPLC. His laboratory produced polymer matrices that were used for DNA sequencing in the Human

Genome Project. His recent interests are in the development of new technologies for proteomics, especially trace level LC/MS analysis of proteins in biological matrices, and comprehensive characterization of complex proteins structures. He is also actively involved in the development of new technologies to characterize biopharmaceuticals in the biotechnology industry.

Dr. Karger has received numerous honors, including 3 American Chemical Society Awards (Supelco Award for Chromatography (1982), Fisher Award for Analytical Chemistry (1990) and IBC/Millipore Award for Separation Science and Technology (1998)). He has also received the A.J. Martin Medal (Basel, 1991); M.S. Tswett Medal (Baltimore, 1992); EAS Symposium Award (Somerset N.J., 1997); Halasz Medal (Leipzig, 2002); Michael Widmer Award (Salzberg, 2004); Torbern Bergman Medal (Gothenburg, Sweden, 2008); Csaba Horvath Medal (Innsbruck, Austria, 2008); Golay Medal (Portland, OR, 2009); and J. Heyrosky Medal (Prague, 2010). In 2007 he was appointed as an Honorary Member of the Hungarian Academy of Sciences, and in 2009 he was awarded an Honorary Professorship by the Dalian Institute of the Chinese Academy of Sciences. In 2010 he received the J. Heyrovsky Honorary Medal for Merit in the Clinical Sciences, Academy of Sciences of the Czech Republic.

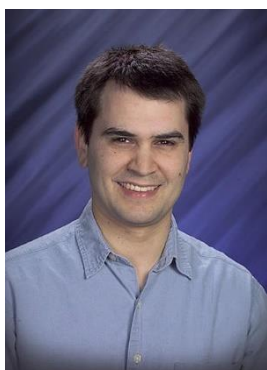


Václav Kašička

Václav Kašička received MSc. degree in 1977 and the title RNDr. in 1979, both of them in physical chemistry at Faculty of Science, Charles University, Prague, and the CSc. (PhD.) degree in biochemistry in 1985 at the Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague. In this Institute, he is currently head of the group Electromigration Methods. He is engaged in research and development of capillary and free-flow electroseparation methods and their applications to analysis, purification and characterization of (bio)molecules. V. Kašička is author or co-author of 135 papers in international peer-reviewed journals with more than 1 780/1 450 citations with/without self-citations according to ISI. He is (co)-author of about 50 papers in the proceedings of international symposia, 15 book chapters, 25 patent pendings and more than 120 lectures at

international symposia.

V. Kašička is one of the editors of the Journal of Separation Science, editor of special issues of Electrophoresis and Journal of Chromatography B, and member of editorial boards of international journals, e.g. Electrophoresis, Current Analytical Chemistry, Current Chromatography and The Open Nanoscience Journal. V. Kašička is member of permanent Scientific Committee of the series of the International Symposia on Electro- and Liquid Phase-separation Techniques. He is chairman of the Chromatography and Electrophoresis Group of the Czech Chemical Society, and member of Steering Committee of the European Society for Separation Science.



Ryan T. Kelly

Dr. Kelly is a Senior Research Scientist and leads the Instrument Development and Microfabrication laboratories at the William R. Wiley Environmental Molecular Sciences Laboratory (EMSL), a national scientific user facility at Pacific Northwest National Laboratory in Richland, Washington, USA. He has a broad background in the design and fabrication of microfluidic devices and other microsystems for a diverse array of applications. His graduate research focused on the development of novel electrically driven separation and analysis methods for proteins and peptides within microfluidic devices. While at PNNL, he developed approaches for increasing the sensitivity of electrospray ionization mass spectrometry using both capillary-based and microfabricated systems as well as improved ion optics. His process for chemically etching electrospray emitters for dramatically improved performance in the nanoflow regime has recently been commercialized by Bruker, and the multi-nano-electrospray

sources that he developed were a key component of the R&D 100 award-winning, "Ultrasensitive electrospray ionization source and interface". His current research projects involve coupling microfluidic systems with mass spectrometry for sample-limited bioanalyses and to provide solution based, label-free determination of kinetic parameters for biomedical and bioenergy research. Kelly has authored or co-authored more than 50 scientific publications and is a named inventor on eight issued and three pending patents.

History—PhD, Brigham Young University, 2001-2005; Postdoc., Biological Sciences Division (BSD), PNNL, 2005-2007; Scientist III, BSD, PNNL, 2007-2010; Scientist IV, EMSL, 2010-present.



Takehiko Kitamori

Professor Kitamori is full Professor in the Department of Applied Chemistry, the School of Engineering, the University of Tokyo. He also serves as Director General of Division for Environment, Health and Safety. Prior to joining the University of Tokyo in 1989, he was a researcher at Hitachi's Energy Research Lab.

Professor Kitamori was the recipient of the Japan Society for Analytical Chemistry Award in 2009, the IBM Faculty Award in 2008, and the Chemical Society of Japan Award for Creative Work in 2006, as well as various other awards. He is a member of several academic societies including the Royal Society of Chemistry, the American Chemical Society, the Society for Chemistry and Micro-Nano Systems (of which he was President in 2002-2003), the Japan Society for Analytical Chemistry (of which he was Senior-Vice President in 2007), and the Chemical and Biological Microsystems Society (of which he

has served as Vice President since 2006).

His areas of research are Micro/Extended-Nano Fluidics, Integration of Chemical System on Microchips, Applied Laser Spectroscopy for Ultrasensitive Detection, Analytical Chemistry, and Extended-Nano Space Chemistry.



Sergey N. Krylov

Professor Krylov was born in Russia, in 1963. He received his MSc in Physics and PhD in Biophysical Chemistry from Moscow State University in 1987 and 1990, respectively. Prior to his first academic appointment he was a research associate with Prof. N. J. Dovichi at the University of Alberta. He joined the Department of Chemistry at York University as an Associate Professor in 2000 and was promoted to Full Professor in 2006. Professor Krylov's current research program focuses on the development of novel methods for biomedical research, clinical diagnostics, and drug development. He is an author of over 130 articles in peer-reviewed journals. Professor Krylov received a number of awards including: Research Innovation Award (2000), Premier's Research Excellence Award (2000), PetroCanada Young Investigators Award (2002), Canada Research Chair (2003, 2008), W.A.E. McBryde Medal (2007), and Maxxam Award (2014).



Jörg P. Kutter

Professor Dr. Jörg P. Kutter received his B.S in chemistry in 1991, and his Ph.D. in analytical chemistry in 1995, both from the University of Ulm, Germany. Both theses focused on chromatographic and electrophoretic separation techniques.

After graduation, he was a postdoctoral research fellow in the Laser Spectroscopy and Microinstrumentation Group at Oak Ridge National Laboratory (Oak Ridge, TN, USA) developing microchip-based analytical tools.

In June 1998, he joined the Department of Micro and Nanotechnology (formerly, MIC) of the Technical University of Denmark (DTU) in Lyngby, Denmark. In 2006, he was appointed professor in experimental lab-on-a-chip systems at DTU.

Since September 2013, Dr. Kutter is the Chair of Analytical Biosciences at the Dept. of Pharmacy at the University of Copenhagen. His research interests focus on the development of microfluidic devices for applications in the life sciences, and, particularly, in the pharmaceutical sciences.

Dr. Kutter has extensive experience in leading scientific projects, has supervised and co-supervised 20 PhD students, has more than 100 international peer-reviewed publications and books/book chapters, and is involved in several international conference committees, advisory boards, and professional organizations.



Michael Lämmerhofer

Michael Lämmerhofer is Professor for Pharmaceutical (Bio)Analysis at the University of Tuebingen, Germany.

He graduated in Pharmaceutical Sciences in 1992 and earned his PhD in Pharmaceutical Chemistry in 1996 both at the University of Graz, Austria. Between 1997 and 2011 he was coworker of Prof. Wolfgang Lindner at the University of Vienna, Department of Analytical Chemistry first as an assistant professor and since 2002 as associate professor. In 1999-2000 he was post-doc at the Department of Chemistry of the University of California, Berkeley with Prof. Frantisek Svec. His research interests include the development of functionalized separation materials, monoliths, and nanoparticles. Recently, he shifted his focus to bioanalysis working on metabolomics and plasmid DNA analysis. Another topic of current interest is the analysis of oxidative stress biomarkers, in particular oxidized phospholipids. Michael has published more than 130 papers and 6 book chapters, and edited a book on metabolomics. He holds 7 patents and is associate editor of Journal of Separation Science.



James P. Landers

James received his Bachelor of Science degree in Biochemistry with a minor in Biomedicine at the University of Guelph in Ontario (Canada) in 1984 and his Ph.D. in Biochemistry in 1988. After a post-doctoral fellowship at the Banting Institute at the University of Toronto's School of Medicine, he was awarded a Canadian Medical Research Council (MRC) Fellowship to study cancer biology and diagnostics under Dr. Thomas Spelsberg, a breast cancer biochemist at the Mayo Clinic. He launched and directed the Clinical Capillary Electrophoresis Facility in the Department of Lab Medicine and Pathology at Mayo developing clinical assays using capillary electrophoretic technology. While an Assistant Professor of Analytical Chemistry at the University of Pittsburgh, he forayed into analytical microfluidic systems with the goal of developing the next generation molecular diagnostics platform. His program moved to the University of Virginia where access to a dedicated class-100 cleanroom for microchip fabrication allowed for rapid prototyping of microdevices for separations, DNA purification and DNA amplification. He has published more than 195 papers in peer-reviewed journals, 22 book chapters, edited three editions of the CRC Press Handbook of Capillary Electrophoresis, and was the recipient of the 2008 Association for Lab Automation 'Innovative Technology of the Year' Award.



Laurent Leclercq

Max Mousseron Institute for Biomolecules, Montpellier, France
UMR CNRS 5247

- Physical chemistry of polyelectrolyte complexes
size, surface charge, stoichiometry, selectivity phenomena
- Biomedical and pharmaceutical application of degradable polyelectrolyte complexes
polymer - protein interactions, drug/gene delivery systems, surface modification, nanoparticles
- 33 international publications + 1 patent
- + EUFEPS Award (2006) for the best publication in *European Journal of Pharmaceutical Sciences*.



Herbert H. Lindner

Herbert Lindner began his undergraduate education in the field of chemistry at the University of Innsbruck, Austria. In 1982, while employed as a Contract Assistant at the Institute of Organic and Pharmaceutical Chemistry, he obtained his Ph.D. Later in the same year, he relocated within the University to a position of Contract Assistant at the Department of Medical Chemistry and Biochemistry and, subsequently, was promoted to the position of University Assistant in 1984. In 1992, he received the award of Habilitation and "venia legendi" for Biochemistry. He was promoted to the position of Assistant Professor in 1994, and then to Associate Professor three years later. By 2007 Herbert Lindner was appointed Head of the Protein Micro-Analysis Facility at Innsbruck Medical University.

In the late 1980s he established a bioanalytical research group with focus on the development of high-resolution methods for the separation and identification of post-translational modified proteins to investigate their biological significance. Now, as a result of a continuous development program over many years, his group also offers a wide range of analytical methods and services to support the work of other research scientist in the University. The analytical tools developed and routinely applied in his laboratory led to numerous publications and successful national and international collaborations.



Leticia Marques

Currently is Master Degree Student (Analytical Chemistry) at State University of Londrina (UEL). Bachelor of Science in Chemistry with Technological Attributions at UEL (2010-2013). Academic laurel receiving honorable mention for the best score in chemistry from undergraduates students. She has experience at Analytical Chemistry area, with emphasis in liquid chromatography, developing and optimizing extractions techniques for complex matrices such as biological, food and environment. During undergraduating, Ms. Marques did internship of scientific research at DIA lab (Development for Instrumentation, Automation and Analytical methodology), receiving scholarship from Nanobio Project of CAPES (Coordination of Improvement of Higher Education Personnel) governmental agency for sponsoring Brazilian research. She presents award-

winning workin 3th Analitica Latin America at 2012 Pittcon (Pittsburgh Conference on Analytical, Chemistry and Applied Spectroscopy) and being to mission at University of Virginia (EUA) visiting Dr. James Landers research group.



György Marko-Varga

György Marko-Varga is Professor at the Tokyo Medical University, Japan, and is the Head of the div. Clinical Protein Science and Imaging, Department of Biomedical Engineering. He has been working within senior Drug-, Discovery/Development positions and responsibilities within Astra, and AstraZeneca for a period of more than 18 years. Marko-Vargastarted as a Lead Scientist in collaboration with the Nobel Prize laureateBengt Samuelsson, Karolinska Institute, on inflammation studies in 1992. He has been in leadership positions in AstraZeneca; as global proteomics head, Clinical Biomarker Platforms used in clinical studies phase I and II, moving into phase III, and Biological Mass Spectrometry (2004-2009). In 2006 Marko-Varga was the initiators of "Nietorp AB", a MicroTechnology company within AstraZeneca. In addition Marko-Varga has been a founder of additionally two start-upcompanies, ISET AB (2006) and OKRAM Technology

(2009). He was responsible for IRESSA Protein Biomarker Discovery studies in Japan (2004-2009) with 52 Lung Cancer Clinical Centers throughout Japan, the biggest Biomarker study activities in the industry with 4.000 patients.

Today he is Responsible forBiobank and Biomarker developments within the "Big 3" study: *Lung Cancer-Cardiovascular diseases-*, and *COPD* with 100,000 patients processing5 Million samples (2010-2014) in Southern Sweden. He became the leading PI of a 5-year project in the Malignant Melanoma, sponsored by the Kamprad Foundation (2012-2017), of a 5-year grant on Protein Biomarker Discovery and Drug Imaging for Cancer Research. Marko-Varga has since then been the PI or Co-PI of several national and international grants, including one funded from the Swedish Strategic Foundation funded in 2011 on Cardiac Infarct. Additional Biobankingstudies within Lung Cancer and COPD (KOL-Örestad Study 2013-2018) runs under the leadership of Marko-Varga.

He has published more than 270 scientific publications since 1984 in reviewed international scientific journals, 21 Book Chapters and Edited 2 Books, Marko-VargasH index amountsto 42 with over 7000 citations (ISI). As part of his career, he is the founder and President of the Swedish Proteomics Society, General Council member (Swedish representative).

He became the President of the European Proteomics Association (EuPA) in 2011 and runs until 2015. Marko-Varga is also the European Editor of Journal of Proteome Research, an American Chemical Society journal. In addition, Editorial board member of additionally 9 international journals. As a longstanding member (20 years) of the Swedish Academy of Pharmaceutical Sciences (Drug Analysis Section), organized and lead more than 25 national and international congresses, as well as coerces and workshops. He had 14 PhD students, 6 Licentiate students, more than 25 diploma students, 8 post docs, throughout a 19 year period. He has filed 54 patents application in Europe as well as worldwide, and is the owner of 10 approved patents.

The extensive educational role through supervision of students of GMV has been complemented by teaching coerces, and developing new pedagogic lecturing, that is combined with experimental sections. Marko-Varga currently holds a research team of 20 research scientists in frontlinescience at the new medical mass spectrometry laboratories at the Biomedical Center in Lund.



Frank-Michael Matysik

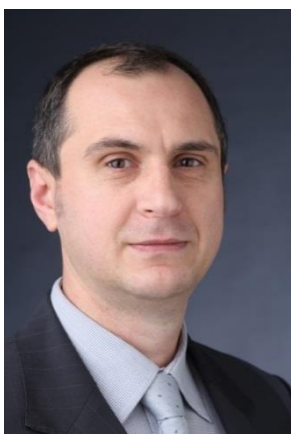
Frank-Michael Matysik is Professor of Analytical Chemistry at the University of Regensburg (Bavaria, Germany). He studied chemistry at the University of Leipzig and received his Ph.D. (1994) and "Habilitation" (2001) degrees from the University of Leipzig. From 2001 to 2008 he was "Privatdozent" for Analytical Chemistry at the same university. In May 2008 he accepted the position of a full professor of chemistry at the University of Regensburg where he is representing the field of instrumental analysis.

Research interests

Electroanalysis, electromigrative separation techniques (capillary and chip format), mass spectrometry, hyphenation of electrochemistry – separation techniques – mass spectrometry

Scientific publications

More than 100 research papers, book chapters and 6 patents, editor of two books and series editor (together with J. Wegener) of Bioanalytical Reviews (Springer)



Goran Mitulović

Assistant Professor at the Medical University of Vienna and Head of the Proteomics Core Facility, Clinical Institute of Medical Laboratory, Medical University of Vienna, Austria

Dr Goran Mitulović is Assistant Professor at the Medical University of Vienna and Head of the Proteomics Core Facility, Clinical Institute of Medical Laboratory, Medical University of Vienna, Austria. He completed his PhD studies in 2001 at Vienna General Hospital, Clinical Institute of Medical and Chemical Laboratory Diagnostics, Toxicology Group under the supervision of Professor Dr Rainer Schmid.

From 2001 – 2004 he was Postdoctoral and Associated scientist with LC Packings and Dionex in Amsterdam, The Netherlands. From 2004 until 2009 he was employed with the Institute of Molecular Pathology and Institute of Molecular Biotechnology in Vienna. Since 2009 he is with the Medical University of Vienna.



Reine Nehmé

Dr Reine Nehmé is 30 years old. After a university degree in biochemistry, she specialized during her thesis (2005-2008) at the University of Montpellier (faculty of pharmacy, France) in capillary electrophoresis (CE). During this thesis, she focused on the study of capillary coatings for the analysis of peptides and proteins (e.g. hemoglobin glycoforms). She has then taken a post-doctoral position in Professor Philippe Morin's group at the University of Orléans (Institut de Chimie Organique et Analytique (ICOA), France) to develop the use of the capacitively contactless conductivity detector (C4D) for stoichiometry determination of a pharmaceutical compound and its counter-ion by CE. She has been working as an assistant professor in the same institute since 2009. Her main research is the development of analytical methods using CE, especially to miniaturize enzymatic assays (e.g. kinases,

beta-galactosidase and myrosinase) and to control the fractions of SPE based on molecularly imprinted polymers (MIPs). During her carrier, she published 13 publications in international reviews, 1 book chapter and 40 presentations (13 oral, 27 posters). Four of her most significant publications are listed below:

1. R. Nehmé et al., Contactless conductivity detection for screening myrosinase substrates by CE. *Anal. Chim. Acta*, 2014. 807, 153.
2. H. Nehmé et al., Electrophoretically mediated microanalysis for in-capillary electrical cell lysis and fast enzyme quantification by CE. *Anal. Bioanal. Chem.*, 2013. 405, 9159.
3. B. Claude et al., Analysis of urinary neurotransmitters by CE: Sensitivity enhancement using field-amplified sample injection and MIP-SPE. *Anal. Chim. Acta*, 2011. 699, 242.
4. R. Nehmé et al., Influence of polyelectrolyte coating conditions on capillary coating stability and separation efficiency in CE. *Electrophoresis*, 2008. 29(14), 3013.



Nilsso Staffan

Professor, Technical Analytical Chemistry, 2002-2005, LTH, Lund, Sweden
Professor, Analytical Chemistry, 2005-2007, LTH, Lund, Sweden
Professor, Pure & Applied Biochemistry, 2007- still, LTH, Lund, Sweden

Main scientific non-cargo achievements

- 1986 - Purification of biological active Membrane-Protein using HPLC
- 1987 - HPLC, Protein G
- 1989 - HPLC, Protein Fragment based Enantioseparation
- 1992 - TLAC of protein (pregnancy test);
- 1992 - Protein-Monolith CEC enantioseparation
- 1995 - Real-Time Fluorescence Imaging of CE-separations
- 1997 - MIP based Monolith CEC enantioseparation
- 1998- "Wall-less" test tubes for CE
- 2000 - Airborne Cell analysis
- 2000 - MIP nanoparticle PSP-CEC enantioseparation
- 2001 - Ultrasonic trapping in CE
- 2002 - NP-PSP-CEC-ESI/MS
- 2003 - Airborne Chemistry-Protein Crystallisation
- 2003 - Airborne Chemistry X-ray Scattering
- 2004 - Nano-Spray ESI MS CEC/CE
- 2006 - Levitated droplet dye laser
- 2008 - NACE of EtOH Markers
- 2008 - Monoclonal nanoparticle PSP-MIP-CEC
- 2009 - Airborne Cell-Cell communication
- 2010 - Chip-PSP-CEC
- 2013 - Open Chip SAW-MALDI MS Sample Handling



Koji Otsuka

Koji Otsuka is a professor of Analytical Chemistry of Materials, Department of Material Chemistry, Graduate School of Engineering, Kyoto University, since April 2002. He studied analytical chemistry and received his Ph. D. from Kyoto University in 1986 under the supervision of Prof. Teiichi Ando and Dr. Shigeru Terabe. After receiving the JSPS Fellowship for Young Scientists (1986–1988), he joined the Department of Industrial Chemistry, Osaka Prefectural College of Technology as a senior lecturer (1988–1990) and associate professor (1990–1995). He moved to the Department of Material Science, Faculty of Science, Himeji Institute of Technology as an associate professor of the Prof. Terabe's Lab in 1995 until 2002, followed by moving to Kyoto University. His research interests include the development of micro/nano scale high performance separation

techniques using electrophoretic and chromatographic methods. He has published approximately 150 manuscripts and book chapters, cited over 6300 times.

He received the Award of the Society for Chromatographic Sciences (2006) and the Chemical Society of Japan Award for Creative Work (2009). He is a member of the Permanent Scientific Committee of the HPLC Symposium Series since 2012.



Tanja Panic-Jankovic

Current Positions:

Resident physician at the Clinical Institute for Laboratory Medicine, Medical University of Vienna, Austria

Ph.D. Student, Proteomics Core Facility, Clinical Institute for Laboratory Medicine, Medical University of Vienna, Austria

Education:

2003-2010 M.D. degree from the University of Vienna, Austria

2011- → Ph.D., Medical University of Vienna, Austria

Concentrations: Medicine, Endocrinology and Metabolism; Dissertation: Developing Analytical Strategies for Proteomics Analysis of Secreted, Proteins in In-Vitro-Fertilization Procedures

Experience: 2012 → Residency in Laboratory Medicine, Clinical Institute of Medical and Chemical, Laboratory Diagnostics, Clinical Institute of Medical Laboratory, Medical University of Vienna, Austria

Teaching: 2013 - → Medical University of Vienna, Austria, Courses: Laboratory Diagnostics.



Antal Péter

Place and data of birth: Munkács, 31.03.1945.

Professional data:

Chemist, B.Sc. and M.Sc.: 1964-1969 József Attila University, Szeged

University doctor: József Attila University, Szeged, 1973

Candidate of Science: 1984 (Hungarian Academy of Sciences)

Doctor Habil: 2003 (University of Szeged)

Doctor of Science: 2004 (Hungarian Academy of Sciences)

Research interest: Method development for separation of amino acids and other pharmacologically important analytes. Chiral chromatography. Investigation of stability of peptides towards enzymatic degradation.

Teaching activity:

Courses in analytical chemistry; Laboratory courses in inorganic and analytical chemistry; Advanced courses in chromatography

Awards: 1997: "Pro Scientia" Award

1998-2001: Széchenyi Professorship

2002-2005: István Széchenyi Scholarship

2006: "Silver Merited Cross" of Hungarian Republic

2010: "Pro Scientia" Award

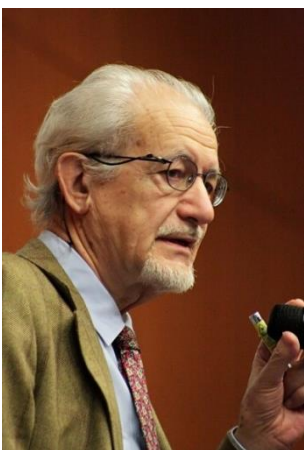
List of publications: Papers : >180, Lectures and posters: >170, Sum of Impact Factors: >330, Independent Citations: >1600



Jan Preisler

Jan Preisler received his Ph.D. in analytical chemistry at Iowa State University, Ames with Ed Yeung in 1996. After four years in the group of Barry Karger at Barnett Institute in Boston he returned to his alma mater, Masaryk University in Brno, Czech Republic. Here he became associate professor in 2007 and full professor in 2014. His research interests include development of instrumentation for bioanalytical chemistry, time-of-flight mass spectrometers, interfaces for off-line coupling of separation to mass spectrometry and capillary electrophoresis with laser-induced fluorescence detection. He employed a kHz laser for the first time in order to increase sample throughput of matrix-assisted laser desorption/ionization time-of-flight mass spectrometry. Thus, multiple simultaneous separations were analyzed with a single mass spectrometer in real time and mass spectrometry imaging was speeded up substantially. He and his coworkers also

developed two original techniques of sample introduction for atomic spectrometry; combined bioanalysis and elemental analysis holds promising potential in the field of metallomics. He enjoys teaching courses, such as Mass spectrometry of biomolecules or Molecular luminescence, promoting analytical science at annual Schools of Mass Spectrometry in the Czech Republic and supervising students.



Pier Giorgio Righetti

Prof. Righetti earned his Ph. D. in Organic Chemistry from the University of Pavia in 1965. He then spent 3 years as a Post. Doc. at MIT and 1 year at Harvard (Cambridge, Mass, USA). He is full professor of Proteomics at the Milan's Polytechnic.

He is in the Editorial Board of Electrophoresis, J. Proteomics, BioTechniques, Proteomics, Proteomics Clinical Applications. He has co-authored the book Boschetti, E. Righetti, P.G. Low-Abundance Proteome Discovery; State of the Art and Protocols, Elsevier, Amsterdam, 2013, pp. 1-341.

He has developed isoelectric focusing in immobilized pH gradients, multicompartiment electrolyzers with isoelectric membranes, membrane-trapped enzyme reactors, temperature-Programd capillary electrophoresis and combinatorial peptide ligand libraries for detection of the low-abundance proteome.

On 560 articles reviewed by the ISI Web of Knowledge (Thomson Reuters), Righetti scores 18.890 citations, with an average of 33 citations/article and with a H-index of 60. Only in the

last nine years (2005-2013) he has received citations ranging from 1000 to 1200 per year.



Andreas M. Rizzi

Andreas M. Rizzi is Professor for Analytical Chemistry at the University of Vienna and Head of the Mass Spectrometry Center of the Faculty of Chemistry.

He was born in Vienna, Austria, is married with Christa Rizzi having two adult children. He received his Master degree in Theoretical Chemistry in 1975, and his Ph.D. in Analytical Chemistry in 1978 from the University of Vienna. After a brief period as visiting scientist at the Pharma-Research-Laboratory of Höchst in Germany, he habilitated for Analytical Chemistry in 1991 at the University of Vienna and became Professor for Analytical Chemistry there in 1996. In 2008 he received a Honorary Doctor degree of the University of Arad, Romania. He is Senior Deputy Editor of *"Electrophoresis"* and from 2004 to 2013 he edited the journal's annual special issues on "Bioanalysis". Over the last ten years he served as chairman of the annual mass spectrometry meeting "MassSpec-Forum-Vienna".

His main research activities cover combined electrophoretic, chromatographic and mass spectrometric techniques like CZE-MS/MS, capillary HPLC-MS/MS, 2D-Electrophoresis MALDI-MS and its application to bioanalysis, particularly therapeutic glycoprotein analyses and disease associated proteomics and glycoproteomics. Another topic is chiral analysis by CZE and HPLC. He is Author/Coauthor of more than 80 papers in Peer-reviewed journals and of several book chapters. He is extensively involved in teaching activities.

His private hobbies are classical music and animal wildlife photography, additional areas of interest are brain evolution and ancient cultures.



Julie Schappler

Julie Schappler received her Pharmacy diploma at the University of Geneva (Switzerland), prior to a Ph.D. grade in Pharmaceutical Sciences in 2007. After a post-doctoral fellowship at the Swiss Laboratory for Doping Analysis, she became senior research associate at the University of Geneva in the group of pharmaceutical analytical chemistry and heads the unit of capillary electrophoresis. The unit works on developing CE-based methods coupled to various detectors to gain selectivity and/or sensitivity and also reduce total analysis time. A special focus is given to CE-MS interfacing and sample preparation procedures such as micro-extraction techniques that are particularly adapted to the CE format. Applications range from small pharmaceutical compounds and their metabolites in biological fluids, to biomolecules such as intact proteins and mAbs.



Gerhard K. E. Scriba

Prof. Dr. Gerhard K. E. Scriba graduated from the School of Pharmacy, University of Bonn in 1979 and obtained his Ph.D. in 1984 at Department of Pharmaceutical Chemistry of the University of Münster. From 1986 to 1988 he worked as a post-doc at the Department of Pharmaceutical Chemistry of the University of Kansas, Lawrence, Kansas, USA before returning to the University of Münster where he finished his habilitation in 1995. Since 1999 he is a full professor at the Department of Pharmaceutical Chemistry at the University of Jena. He received the Rottendorf-Prize for Pharmaceutical Sciences in 1995 and the Johann-Wolfgang-Döbereiner-Prize of the German Pharmaceutical Association in 1997.

Prof. Scriba has published over 140 research and review papers and 16 book chapters. He is editor of the book *Chiral Separations* and co-editor of the journal *Chromatographia* and the series *Commentary to the European Pharmacopoeia*. Prof. Scriba is a member of the editorial boards of the journals *Electrophoresis*, *Journal of Separation Science*, *Journal of Pharmaceutical and Biomedical Analysis*, *Pharmeuropa* and *Die Pharmazie* and served as guest editor of the paper symposia "Pharmaceutical Analysis" of *Electrophoresis*. He is a member the scientific advisory board of the Federal Institute for Drugs and Medical Devices (BfArM), the working group Pharmaceutical Chemistry of the German Pharmacopoeia and the scientific commission of the German Drug Codex (DAC). His main research interests are the analysis of drugs and peptides including stereoisomer analysis by capillary electrophoresis and HPLC as well as capillary electrophoresis-based enzyme assays.



Hisashi Shimizu

Hisashi Shimizu received his Ph.D. from the University of Tokyo. He is currently an assistant professor at Department of Applied Chemistry, School of Engineering of the University of Tokyo. His research is focused on highly sensitive detection methods, especially for nonfluorescent molecules based on photothermal spectroscopy and micro/nanofluidic analytical devices such as chromatography.



Kiyohito Shimura

Kiyohito Shimura is the professor of Laboratory of Chemistry at Fukushima Medical University (FMU). His professional interests have long been in the interface of bio-affinity and separation, especially that of electrophoresis. Born in 1954, he learned chemistry and biochemistry at Yamagata University and Hokkaido University with a PhD degree in pharmaceutical sciences. In the early part of his scientific career in Prof. Kasai's lab at Teikyo University (Pharmaceutical Sciences), he developed a new mode of affinity electrophoresis, namely affinophoresis, which separates specific proteins using a conjugate of an affinity ligand and a soluble charged polymer. He stayed in Prof. Karger's lab at Northeastern University in Boston between 1991-93, and there started the investigation in the field of capillary electrophoresis. The development of affinity probe capillary electrophoresis (APCE), a method to detect a target molecule as a complex with a fluorescence-labeled affinity probe, was launched in this period. After coming back to Japan, he continued to develop the APCE and affinity capillary electrophoresis (ACE). Prior to his appointment as the professor at FMU in 2010, he engaged in research of chip electrophoresis at Prof. Kitamori's lab in the University of Tokyo. His recent work has been focused on the application of APCE to the analysis of distribution patterns of protein isoforms, or modification forms (mod-forms).



Laura Sola

Dr. Laura Sola earned her Master degree in Chemistry and Pharmaceutical Technologies at University of Milan, in 2008 with a thesis in organic synthesis. In 2012 she graduated with a Ph.D. in Drug Chemistry at the University of Milan. Her expertise deals with the development of novel polymeric coatings for molecular recognition and separation techniques on supports made of various materials, used in biomedical applications of biosensors, microfluidic devices and Lab on Chip analysis. Laura specializes in chemical synthesis of monomers, polymers, coatings and linear matrices for DNA, DNA sequencing by capillary electrophoresis and novel capillary polymer coatings enabling improved analysis.



Frantisek Svec

Frantisek Svec received both degrees B.S. in chemistry and Ph.D. in polymer chemistry from the Institute of Chemical Technology, Prague (Czech Republic) in 1965 and 1969, respectively. In 1976 he joined the Institute of Macromolecular Chemistry of the Czechoslovak Academy of Sciences where he was promoted through the ranks to the Head of Department and the Scientific Secretary of the Institute. He accepted an offer and joined faculty at Cornell University in 1992. Since 1997, he is appointed at the University of California, Berkeley and currently works as Facility Director in the Molecular Foundry of the Lawrence Berkeley National Laboratory. Dr. Svec authored over 420 scientific publications, edited 2 books, and authored 75 patents. He is Editor-in-Chief of the Wiley's Journal of Separation Science and member of editorial boards of a number of renowned journals. In 2003 he was elected President of CASSS (formerly California Separation Science Society). A few of his numerous honors include the 2005 M.J.E. Golay Medal in Chromatography and EAS Award for Achievements in Separation Science, the 2006 Honorary doctorate of philosophy in Sweden the 2008 ACS Award in Chromatography, the 2009 Honorary professorship in China, and Dal Nogare award, as well as 2013 A.J.P. Martin Medal from the UK Chromatographic Society.



Éva Szökő

She is a Full Professor at the Department of Pharmacodynamics, Semmelweis University, Budapest. She was graduated from the Pharmaceutical Faculty of Semmelweis University. From 1990 to 1993 she was a postdoctoral fellow at Barnett Institute, Northeastern University, Boston. She worked on capillary electrophoresis method developments under the supervision of Professor B.L. Karger.

One of her recent interests is the development and application of capillary electrophoresis methods for various pharmacological studies. These works mainly relate to the analysis of biological samples, and problems of sample pre-concentration and chiral analysis.

Beside research and being tutor of PhD students, she is lecturer in pharmacology and pharmacotherapy. At present, she is the president of the Hungarian Society for Pharmaceutical Sciences. She is a board member of the American Chemical Society-Hungary Chapter.



Marina Tavares

Marina F.M. Tavares was born October 10, 1959 in Sao Paulo, SP, Brazil. She received a B.S. degree in Chemistry from University of Sao Paulo, Sao Paulo, SP, Brazil in 1980, a M.Sc. in Analytical Chemistry from University of Sao Paulo (with Roberto Tokoro) in 1986 and a Ph.D. in Analytical Chemistry from Michigan State University, East Lansing, MI, U.S.A. in 1993 (with Victoria L. McGuffin). She joined the Institute of Chemistry of University of Sao Paulo in 1997 as an assistant professor, became associate professor in 2003 and full professor in 2008. To date she published 3 book chapters, 93 articles (+3 in print) and participated in more than 180 symposia and conferences, delivering 50 lectures and 12 short courses; 17 doctorate and 6 master students graduated under her guidance. The group has hosted in Brazil the 4th, the 11th and the 16th Latin American Symposium on Biotechnology, Biomedical, Biopharmaceutical and Industrial Applications of Capillary Electrophoresis and

Microchip Technology.

Present research interests include: separation science, physical chemistry and clinical metabolomics/peptidomics. Projects are focused on modeling, simulation, method development and optimization of conditions for the separation and analysis of molecules of clinical, forensic, nutritional, pharmaceutical, cosmetological, environmental and industrial importance using modern separation techniques.



Myriam Taverna

Myriam Taverna received her PhD in 1992, at the University of Paris XI (France) in analytical chemistry. Her thesis focused on the development of new analytical methods to characterize glycoproteins. In 1993, she joined the "groupe de chimie analytique de Paris Sud (GCAPS)" at the faculty of pharmacy (university of Paris –Sud) as an assistant professor. In 2005 she obtained a full professor position in analytical chemistry and biotechnology at the same university and is now the head of a multi-disciplinary research team, composed of 14 researchers, which is strongly dedicated to "miniaturized separation techniques for peptide and protein analysis". Since 2010 she joined with her team the group UMR 8612 "Institut Galien Paris Sud"

Myriam Taverna has a strong background in Capillary Electrophoresis (CE) of proteins peptides and glycoproteins and a deep experience in biochemistry and analytical chemistry of proteins. She is author of more than 85 international publications and is currently editor of

a volume of methods in molecular Biology (Springer).



Tung-Hu Tsai

Dr. Tung-Hu Tsai received his Ph.D. degree in pharmacology in 1995 from National Yang-Ming University, Taipei, Taiwan. He then went on to complete a post-doctorial fellowship training in 1997 from Cambridge University, England, UK. He is presently a professor and director of Institute of Traditional Medicine, School of Medicine, National Yang-Ming University, Taipei, Taiwan.

He is an adjunct professor and director of the Department of Education and Research of Taipei City Hospital, provides service on the Centre for medical research, clinical trial, faculty development and objective structure clinical examination centre (OSCE Centre). He also serves as a member for Institutional Review Board (IRB) to review the research

proposal on ethical concern.

Dr. Tsai has published over 300 peer reviewed papers and book chapters in pharmaceutical and biomedical analysis, agricultural and food chemistry, integrative & complementary medicine, pharmacology & pharmacy journals. He has made major contributions to review some scientific paper in these areas. As a result, Dr. Tsai has received an Award for excellence in teaching in 2008, outstanding research award in 2007-2014 at National Yang-Ming University. Dr. Tsai is also a member of the editorial board for some scientific journals in pharmaceutical analyses as well as herbal medicine. He was invited as an editor by Wiley publisher and published a book of Application of Microdialysis in Pharmaceutical Science, in 2011.



Ir. Tom van de Goor

Dr. Ir. Tom van de Goor studied Chemical Engineering at Eindhoven University of Technology in The Netherlands where after obtaining his engineering degree, he also received his Doctor degree in Analytical Chemistry with Prof. Frans Everaerts, Prof. Carel Cramers and Prof. Pat Sandra in the field of Capillary Electrophoresis in 1992.

He then joined Hewlett-Packard in their central Research Laboratories in Palo Alto, California. During this time he worked on and lead research teams in several technology fields related to micro scale separation technologies, such as capillary and chip based electrophoresis, low flow chromatography systems, HPLC-chip-MS, Time of Flight Technology Mass Spectrometry and electrospray interfacing. Many of these have found their way into HP and Agilent Technologies products.

In 2002 he joined the Mass Spectrometry division within Agilent where he lead teams both in R&D and Marketing in product and application development leading towards the introduction of the new 6000 MS series instruments in 2006. His specific technology focus was on ionization techniques such as nanospray, multimode ESI/APCI and API MALDI as well as applications in the Omics fields.

Since 2007 he is R&D section Manager at the Liquid Phase Separations Business in Waldbronn Germany, responsible for System Validation, Application and Research Collaborations for Chromatography systems and Capillary Electrophoresis and more focused on Pharmaceutical and Biopharmaceutical Analysis.

He is author of more than 40 peer reviewed publications, 3 book chapters, 10 patents and (invited) speaker and contributor to over 100 International conferences and has been reviewer for numerous journals as well as the NIH and other grant agencies.



Károly Vékey

Károly Vékey has graduated in chemistry, and got his PhD degree at Eötvös University, Budapest, Hungary. His main research field is analytical and physical-chemistry, in particular mass spectrometry. He has been active both in fundamental studies and in practical applications. Structure determination of organic compounds; pharmaceutical, biomedical and clinical applications are in the forefront of his interest. Recently he has been active in proteomics, in particular analyzing protein glycosylation. He has developed a novel theory of mass spectrometry, focusing on energetic aspects. He has written over 170 publications, edited two books; his works have been cited over 3000 times. He is editor of the Journal of Mass Spectrometry, and board member of other scientific journals.



Gyula Vigh

Gyula Vigh earned his undergraduate and doctoral degrees from the University of Chemical Engineering, Veszprem, Hungary, in 1970 and 1975, respectively, and became a faculty member there in the Institute of Analytical Chemistry. He joined Texas A&M University (TAMU) in 1985, where he served two terms as chairman of the Analytical Division in the Department of Chemistry. He was appointed to TAMU's Gradipore Chair in Separation Science in 2001. He served as a Symposium Volumes editor for Journal of Chromatography and was a member of the editorial boards of most major chromatographic and electrophoretic journals. His research focused on both the theoretical and practical aspects of high performance chromatographic and electrophoretic separation methods. At TAMU, he graduated 34 PhD students, published 178 papers, obtained 5 US patents. He received the Halasz Medal in 2011. He retired on December 31, 2013.



Victor U. Weiss

Victor U. Weiss studied Chemistry at the University of Vienna and specialized in his studies on Analytical Chemistry and Biochemistry. In 2007 he finished his diploma thesis on 'Virus Analyses on Electrophoretic Microdevices' in the group of Prof. Ernst Kenndler at the Institute of Analytical Chemistry at the University of Vienna. In the course of his work, electrophoresis of fluorescently labeled human Rhinovirus serotype 2 (HRV2) was transferred from the capillary format to a commercially available chip instrument (Agilent 2100 Bioanalyzer). Following his diploma work Victor did his PhD in the same group on 'Chip Electrophoresis of Human Rhinovirus and Receptor Decorated Liposomes as Model Membranes for the Analysis of Key Steps in the Viral Infection Pathway'. This research continued the work started already during his diploma thesis and led to the development of an in vitro model system to follow steps of early viral cell infection employing receptor decorated liposomes and HRV2. After the retirement of Prof. Kenndler, Victor continued his research in the group of Prof. Dieter Blaas (Max F. Perutz Laboratories, Medical University of Vienna) and finished his PhD by the end of 2009. In April 2010 he started his work at Vienna University of Technology in the group of Prof. Günter Allmaier analyzing virus-like particles (VLPs) via electrophoresis in the gas-phase (GEMMA system). Following projects focused on chip and gas-phase electrophoresis of gelatin (NanoLyse project funded by the EU) as well as other (bio-) nanoparticles and ammodytoxins (proteins obtained from *Vipera ammodytes ammodytes* venom). Additionally, Victor is working on still open questions concerning early Rhinovirus cell infection events by various techniques.



Mary J. Wirth

Dr. Mary J. Wirth is the W. Brooks Fortune Distinguished Professor in the Department of Chemistry at Purdue University. Her research is on new materials for protein separations, which spans the fields of bioanalytical chemistry and materials science. Applications include both characterization of heterogeneity of protein drugs, particularly monoclonal antibodies, and top-down proteomics, particularly polyubiquitination. Dr. Wirth received her B.S. degree in 1974 from Northern Illinois University, and she received her Ph.D. in 1978 from Purdue University. Dr. Wirth's research has been recognized by awards that include the ACS Analytical Division Award in Spectrochemical Analysis, the EAS Gold Medal Award in spectroscopy, the ANACHEM Award, the Eastern Analytical Symposium Award for Outstanding Achievements in the Fields of Analytical Chemistry, and the Dal Nogare Award. She is a Fellow of the Society of Applied Spectroscopy and a Fellow of the American Association for the Advancement of Science.

Kaiguang Yang



Dr. Kaiguang Yang obtained his bachelor degree of engineering from Chengdu University of Technology in 2003 and Ph. D degree of engineering from Sichuan University in 2009. From 2007 to 2009, he carried out research as a joint Ph. D candidate in the research group of molecular imprinting, Department of Pure and Applied Biochemistry, Lund University, Sweden. He began to work in Dalian Institute of Chemical Physics, Chinese Academy of Sciences in Jul. 2009. His current research interests are focused on the preparation of novel sample-preparation and separation materials for proteomics analysis using functional nanoparticles and molecularly imprinted polymers. Up till now, he has published over 40 papers in the relative fields and applied more than 30 patents.

John R. Yates



John R. Yates is the Ernest W. Hahn Professor in the Department of Chemical Physiology and Molecular and Cellular Neurobiology at The Scripps Research Institute. His research interests include development of integrated methods for tandem mass spectrometry analysis of protein mixtures, bioinformatics using mass spectrometry data, and biological studies involving proteomics. He is the lead inventor of the SEQUEST software for correlating tandem mass spectrometry data to sequences in the database and developer of the shotgun proteomics technique for the analysis of protein mixtures. His laboratory has developed the use of proteomic techniques to analyze protein complexes, posttranslational modifications, organelles and quantitative analysis of protein expression for the discovery of new biology. Many proteomic approaches developed by Yates have become a national and international resource to many investigators in the scientific community. He has received the American Society for Mass Spectrometry research award, the Pehr Edman

Award in Protein Chemistry, the American Society for Mass Spectrometry Biemann Medal, the HUPO Distinguished Achievement Award in Proteomics, Herbert Sober Award from the ASBMB, and the Christian Anfinsen Award from The Protein Society. He was ranked by Citation Impact, Science Watch as one of the Top 100 Chemists for the decade, 2000-2010. He was #1 on a List of Most Influential in Analytical Chemistry compiled by The Analytical Scientist 10/30/2013 and is on the List Of Most Highly Influential Biomedical Researchers, 1996-2011, European J. Clinical Investigation 2013, 43, 1339-1365. He has published 707 scientific articles with 54,000 citations and an H-index of 112.

PÉCS, THE CITY OF CULTURE

Pécs is the fifth largest city of Hungary, located on the slopes of the Mecsek mountains in the south-west of the country, close to its border with Croatia. It is the administrative and economical centre of Baranya county. Pécs is also the seat of the Roman Catholic Diocese of Pécs.

The city Sopianae was founded by Romans at the beginning of the 2nd century, in an area peopled by Celts and Pannoni tribes. By the 4th century it became the capital of Valeria province and a significant early Christian center. The early Christian necropolis is from this era which became an UNESCO World Heritage Site in December 2000.

Its episcopate was founded in 1009 by Steven I, and the first university in Hungary was founded in Pécs in 1367 by Louis I the Great. (The largest university still resides in Pécs with about 34,000 students). Pécs was formed into one of the cultural and arts center of the country by bishop Janus Pannonius, the great, Hungarian, humanist poet. Pécs has a rich heritage from the age of a 150 year long Ottoman occupation, like the mosque of Pasha Qasim the Victorious on Széchenyi square.

NAME

The earliest name for the territory was its Roman name of Sopianæ. The name possibly comes from the plural of the Celtic sop meaning "marsh". Contrary to the popular belief, the name did not signify a single city and there are no traces of an encircling wall from the early Roman era, only from the 4th century.

The medieval city was first mentioned in 871 under the name *Quinque Basilicae* ("five cathedrals".) The name refers to the fact that when constructing the churches of the city, the builders used material from five old Christian chapels. In later Latin documents the city was mentioned as *Quinque Ecclesiae* ("five churches", a name identical in meaning to the German name *Fünfkirchen* and the Slovak name *Päťkostolie*).

The name Pécs appears in documents in 1235 in the word *Pechyut* (with modern spelling: *pécsi út*, means "road to/from Pécs"). In Turkish "beş" means 5. The name is first recorded after the Mongol invasion of Europe. In other languages: in Latin *Quinque Ecclesiae*, in Croatian *Pečuh*, in Serbian *Печyj / Pečuj*, in Slovak *Päťkostolie*, in German *Fünfkirchen*.

HISTORY

Ancient roman city

The area has been inhabited since ancient times, with the oldest archaeological findings being 6000 years old. Before the Roman era the place was inhabited by Celts. When Western Hungary was a province of the Roman Empire (named Pannonia), the Romans founded several wine-producing colonies under the collective name of Sopianae where Pécs now stands, in the early 2nd century.

The centre of Sopianae was where the Postal Palace now stands. Some parts of the Roman aqueduct are still visible. When Pannonia province was divided into four administrative divisions, Sopianae was the capital of the division named Valeria.

In the first half of the 4th century Sopianae became an important Christian city. The first Christian cemeteries, dating back to this age, are inscribed on the World Heritage List. By the end of the century Roman rule weakened in the area, mostly due to attacks by Barbarians and Huns.

Early medieval city

When Charlemagne arrived in the area, it was ruled by Avars. Charlemagne, after conquering the area, annexed it to the Holy Roman Empire. It belonged to the Diocese of Salzburg.

A document written in Salzburg in 871 is the first document mentioning the early medieval city under the name *Quinque Basilicae*. During the 9th century the city was inhabited by Slavic and Avar peoples and was part of the Balaton Principality, a Frankish vassal state.

In the Middle Ages

According to György Györffy's theory from place names, after the Hungarians conquered the Carpathian Basin, they retained a semi-nomadic lifestyle changing pastures between winter and summer and Árpád's winter quarters -clearly after his occupation of Pannonia in 900- were perhaps in Pécs. Later, Comitatus of Baranya was established, the capital of the comitatus was not Pécs but a nearby castle, Baranyavár ("Baranya Castle".) Pécs, however, became an important religious centre and episcopal seat. In Latin documents the city was mentioned as *Quinque Ecclesiae*. Around 1000, the area was inhabited by the Black Magyars. The Deed of Foundation of the Diocese of Pécs was issued in 1009.

In 1064 when King Solomon made peace with his cousin, the later King Géza I, they celebrated Easter in Pécs. Shortly after the cathedral burnt down. The cathedral that stands today was built after this, in the 11th century.

Several religious orders settled down in Pécs. The Benedictine order was the first in 1076. In 1181 there was already a hospital in the city. The first Dominican monastery of the country was built in Pécs in 1238.

King Louis the Great founded a university in Pécs in 1367 following the advice of William, the bishop of Pécs, who was also the king's chancellor. It was the first university in Hungary. The founding document is almost word for word identical with that of the University of Vienna, stating that the university has the right to teach all arts and sciences, with the exception of theology.

In 1459 Janus Pannonius, the most important medieval poet of Hungary became the bishop of Pécs. He strengthened the cultural importance of Pécs.

Under Ottoman rule

After the Battle of Mohács (1526) in which the invading Ottoman army defeated the armies of King Louis II, the armies of Suleiman occupied Pécs. Not only was a large part of the country occupied by Ottomans, the public opinion of who should be the king of Hungary was divided, too. One party supported Ferdinand of Habsburg, the other party crowned John Zápolya in Székesfehérvár. The citizens of Pécs supported Emperor Ferdinand, but the rest of Baranya county supported King John. In the summer of 1527 Ferdinand defeated the armies of Szapolyai and was crowned king on November 3. Ferdinand favoured the city because of their support, and exempted Pécs from paying taxes. Pécs was rebuilt and fortified.

In 1529 the Ottomans captured Pécs again, and went on a campaign against Vienna. The Ottomans made Pécs to accept King John (who was allied with them) as their ruler. John died in 1540. In 1541 the Ottomans occupied the castle of Buda, and ordered Isabella, the widow of John to give Pécs to them, since the city was of strategic importance. The citizens of Pécs defended the city against the Ottomans, and swore loyalty to Ferdinand. The emperor helped the city and defended it from further Ottoman attacks, but his advisers persuaded him into focusing more on the cities of Székesfehérvár and Esztergom instead of Pécs. Pécs was preparing for the siege, but a day before, Flemish and Walloon mercenaries fled from the city, and raided the nearby lands. The next day in June 1543 the Bishop himself went to the Ottomans with the keys of the city.

After occupying the city the Ottomans fortified it and turned it into a real Ottoman city. The Christian churches were turned into mosques; Turkish baths and minarets were built, Qur'an schools were founded, there was a bazaar in place of the market. For a hundred years the city was an island of peace in a land of war. She was a sanjak centre in Budin Eyalet at first and Kanije Eyalet later as "Peçuy".

In 1664 Croat nobleman Nicholas Zrínyi arrived in Pécs, with his army. Since the city was well into the Ottoman territories, they knew that even if they occupy it, they could not keep it for long, so they planned only to pillage it. They ravaged and burned the city but could not occupy the castle. Mediaeval Pécs was destroyed forever, except the wall encircling the historical city, a single bastion(Barbakán), the network of tunnels and catacombs beneath the city, parts of which are closed down, other parts are in possession of the famous Litke champagne factory, and can be visited today.[citation needed] Several Turkish artifacts also survived, namely three mosques, two minarets, remnants of a bath over the ancient Christian tombs near the cathedral, and several houses, one even with a stone cannonball embedded in the wall.

After the castle of Buda was wrested from Ottoman rule in 1686, the armies went to capture the rest of Pécs. The advance guards could break into the city and pillaged it. The Ottomans saw that they could not hold the city, and burnt it, and withdrew into the castle. The army led by Louis of Baden occupied the city on October 14, and destroyed the aqueduct leading to the castle. The Ottomans had no other choice but to surrender, which they did on October 22.

The city was under martial law under the command of Karl von Thüngen. The Viennese court wanted to destroy the city first, but later they decided to keep it to counterbalance the importance of Szigetvár, which was still under Ottoman rule. Slowly the city started to prosper again, but in the 1690s two plague epidemics claimed many lives.

In 1688 German settlers arrived. Only about one quarter of the city's population was Hungarian, the others were Germans or Southern Slavs. According to 1698 data, South Slavs comprised more than a half of the population of the town. Because Hungarians were only a minority of the population, Pécs did not support the revolution against Habsburg rule led by Francis II Rákóczi, and his armies pillaged the city in 1704.

In modern times

A more peaceful era started after 1710. Industry, trade and viticulture prospered, manufactures were founded, a new city hall was built. The feudal lord of the city was the Bishop of Pécs, but the city wanted to free itself from episcopal control. Bishop George Klimó, an enlightened man (who founded the first public library of the country) would have agreed to cede his rights to the city, but the Holy See forbade him to do so. When Klimó died in 1777, Queen Maria Theresa quickly elevated Pécs to free royal town status before the new bishop was elected. This cost the city 83,315 forints.

According to the first census (held in 1787 by the order of Joseph II) there were 1474 houses and 1834 families in Pécs, a total of 8853 residents, of which 133 were priests and 117 were noblemen.

In 1785 the Academy of Győr was moved to Pécs. This academy eventually evolved into a law school. The first stonework theatre of the city was built in 1839.

The industry developed a lot in the second half of the 19th century. By 1848 there were 1739 industrial workers. Some of the manufactures were nationally famous. The iron and paper factories were among the most modern ones of the age. Coal mining was relevant. A sugar factory and beer manufactures were built, too. The city had 14,616 residents.

During the revolution in 1848–49 Pécs was occupied by Croatian armies for a short time, but it was freed from them by Habsburg armies in January 1849.

After the Austro-Hungarian Compromise of 1867 Pécs developed, like all the other cities and towns of the country. From 1867 Pécs is connected to the nearby town Barcs by railway, and since 1882 it is also connected to Budapest. In 1913 a tram system has been founded, but it was extinguished in 1960.

At the end of World War I Baranya county was occupied by Serbian troops, and it was not until August 1921 that Pécs could be sure that it remains part of Hungary. The University of Pressburg (modern-day Bratislava, Slovakia) was moved to Pécs after Hungary lost Pressburg according to the Treaty of Trianon.

During World War II Pécs suffered only minor damages, even though a large tank-battle took place 20–25 km south of the city, close to the Villány area late in the war, when the advancing Red Army fought its way towards Austria.

After the war development became fast again, and the city grew, absorbing several nearby towns. In the 1980s Pécs already had 180,000 inhabitants.

After the end of Socialist era (1989–1990) Pécs and its county, like many other areas, were hit hard by the changes, the unemployment rate was high, the mines and several factories were closed, and the war in neighboring Yugoslavia in the 1990s affected the tourism.

Pécs was also the centre of the Nordic Support Group (NSG) consisting of units from Denmark, Norway, Sweden, Finland and Poland, as part of the IFOR and later SFOR NATO deployments, after the Dayton Agreement and following peace in former Yugoslavia; the first units were deployed to Pécs in late 1995 and early 1996. The NSG handled the relaying of supply, personnel and other logistical tasks between the participating countries and their deployed forces in Bosnia-Herzegovina.

Pécs always was a multicultural city where many cultural layers are encrusted melting different values of the history of two thousand years. Hungarians, Croatians and Swabians still live in peace together in economic and cultural polarity. In 1998 Pécs was given the UNESCO prize Cities for peace for maintaining the cultures of the minorities, and also for its tolerant and helping attitude toward refugees of the Balkan Wars. In 2007 Pécs was third, in 2008 it was second Liveable city (The LivCom Awards) in the category of cities between 75-200 thousand inhabitants.

In 2010 Pécs was selected to be the European Capital of Culture sharing the title together with Essen and Istanbul. The city's motto was: "The Borderless City". After receiving the title major renewal started in the city. Renewed public places, streets, squares and neighbourhoods, a concert hall, a new library and center and a cultural quarter were designed.

ATTRACTIONS

UNESCO World Heritage

Cella Septichora Visitor Centre



The Centre introduces the most beautiful edifices of the 4th century Early Christian Burial Ground, which, owing to its unique value became part of the UNESCO World Heritage in 2000.

Cella Septichora

The largest building of the burial ground discovered so far. It was named after its septifoil layout (having seven apses) that is unique among the Early Christian buildings.

Peter and Paul Burial Chamber

This 4th century building is located in the centre of the burial ground. We can admire the richly painted walls and the barrel vault of the burial chamber.

The Wine Pitcher Burial Chamber

This Early Christian burial chamber is located in a north-south direction including a grave with a double shell casing. Its name comes from the painted decoration (fresco) found in the recess of its northern wall.

The Octagon Burial Chamber

According to the most recent researches this chapel was possibly built to house the grave of a martyr. This much larger than usual building is not an isolated burial chamber but might probably have been a place of pilgrimage, a building partly sunk into the ground with windows.

Early Christian Mausoleum

As a result of the excavations of 1975-76, the biggest and most important Early Christian edifice, the Mausoleum was unearthed in the descending space in front of the Cathedral.

The upper part of the double-storied building had been a chapel which was perished completely, and the lower level was a burial chamber that could be accessed through a stairway from the vestibule.

The walls of the burial chamber are covered with frescoes of Biblical scenes. The fragmented though clearly visible paintings were applied on wet lime-cast with the fresco technique. A part of the mural series of the northern wall depicts the Fall of Adam and Eve with the serpent on the tree turning to Eve. The other painting shows Daniel in the Lions' Den. Next to Daniel banderoles can be seen starting from wreaths. Both scenes are framed by red stripes in a square. A Chi-Rho symbol, Christ's initials are painted above the round-arched niche in the eastern wall of the chamber. A painting on the left side of the niche can be seen only in fragments; possibly it depicts the enthroned Christ. The archment was also decorated with paintings. The lid of the marble sarcophagus is adorned with masked heads, and each side of it is decorated with a winged cherub.

The paintings and the sarcophagus in the World Heritage Mausoleum have been restored with the most up-to-date techniques, and their protection is ensured by a protective building above them. The reconstructed base of the former chapel can be seen above the burial chamber.



Sepulchral Structures of Apáca Street

A part of the extensive Roman burial ground located beneath the Cathedral Square was discovered here in 1958 when a construction was carried out in the yard of the library. First, a double grave with painted walls was found. This was built of brick and stone and covered with a pitched roof also made of brick. The inside of the grave was



also painted. A burial chamber with no paintings and several simple graves were also discovered nearby that had only some funerary goods. In the southern part of the yard a large collective tomb (crypt) was found with 14 graves. These were also covered with brick, the cover being stuck to the wall of the crypt with the help of lime mortar.

Researches date the remains back to the 4th century. When the Romans left, during the time of the mass migration of peoples, the graves were ravaged. The few that remained intact contain bracelets and beads, earrings and rings as well as glass vessels.

Of the graves in this part of the burial ground the double grave and its painted walls offer great experience. The decoration of the walls divided into three parts, the simple line drawing symbolize a gate with a circular pattern in the centre. On the gable of one of the graves we can see the Greek initials of the name of Christ (XP), the so called Christogram.

Early Christian Burial Chapel (14 Apáca Street)

During the excavations of 1968-1972 an apsidal burial building was unearthed in the yard of a dwelling-house in Apáca Street, in which three adults and a child had been buried under ground level. The last date of the multiple burials was defined by the coins found next to a bejewelled woman's remains: A.D. 385-390. The tomb was rebuilt in the 5th century. Above the tomb, a semi-circular bench and elevated base was built in the apse, and the floor of the burial chamber was also elevated. The later function of the building in the following centuries is unknown.

The uncovered graves can be seen under the modern protective building erected in the yard. The most spectacular finds of the rich material unearthed here are shown in photographs on the wall of the display building. The original ones are displayed at the exhibition of the Museum of Archaeology. Among those, a matching jug and drinking glass are of exceptional beauty, which are known to be early Christian symbols. Some of the many spindle-shaped, slim bottles used for storing scents or oils also can be seen here. The collection from the burial chapel also includes a large number of bronze, silver and gold jewellery and coins.

TURKISH AGE

Gazi Kassim Pasha's mosque



The monumental building in the middle of Széchenyi square with its 23-metre dome and ogee windows dominates the square. Especially in the evening hours, lit by an inside glow, it attracts attention by its peculiar beauty.

The mosque is the biggest Turkish vestige in the country. There used to be an Early Christian tomb and perhaps a chapel in its place and a Roman legionary's votive altar-stone was unearthed there as well. In the mid-13th century the St. Bartholomew parish-church was built here, which burned down in 1299. It was rebuilt in the 14th century, then during the invasion of the Turks, Pasha Gazi Kasim had it demolished in

the late 1570s, and had a mosque and minaret raised partly of the old stones. After recapturing Pécs in 1686 the mosque was taken over by Jesuit monks. The minaret was dismantled in the beginning of the 18th century, and a bulky tower was built in its former place. The mosque was transformed into a baroque church, a new altar and oratories were built, and the dome was raised up. The exposition and reconstruction of the Turkish segments of the mosque began in 1938. An extension was added to the North-Western wall, so the interior space almost doubled. Between 1960-64, considering the requirements of monument preservation, the baroque dome was reconstructed in its original form. Since these last two modifications the exterior appearance of the mosque has not changed.

The interior of the church also offers a rich spectacle in the duality of Turkish vestiges and the disposition and ornaments of the Christian church. The niche of the mihrab belonged to the Turkish mosque, and the fragments of citations from the Koran still can be seen on the walls. The history of the church is recorded on the walls of the addition by Ernő Gebauer, a 20th-century artist of Pécs. The stained-glass windows of the vestry were created by Lili Sztéló, the excellent glass artist in 1938.

A contemporary eyemark of Széchenyi square is the campanile and St. Bartholomew's statue raised near the northern wall of the mosque in memory of the former St. Bartholomew's church and its martyr patron saint. The campanile is 13 metres high and it is made up of three gracile steel rods, with three different-sized bells. The martyrs's statue stands next to it with its symbols, the Rood and the snake. It was created by sculptor Sándor Rétfalvi of Pécs. The campanile is raised up only when bells are to ring, then it is drawn back down again so that it will not interfere with the spectacle of the mosque. The bells chime meanwhile. The contemporary campanile music was composed by László Kircsi, Pécs. The design of the modern belfry is connected to Zoltán Bachmann, the architect-designer of Pécs.

The mosque of Jakovali Hassan Pasha

It is the most intact and conserved Hungarian mosque with minaret from the period of the 150-year Turkish invasion. It was built by the Yakova-born (today's Djakovo) Pasha of Pécs in the 16th century. The mosque has a square base, its dome is octagonal, and its minaret is 23 metres tall.

It was transformed into a Christian chapel in the early 1700s, and then it underwent several modifications in the following centuries. Its reconstruction as a monument began in 1955, and the Muslim place of worship furnished with the donations of the Turkish government was opened in 1975.

Entering the building, we are faced with the mihrab-chamber of the middle wall with its stalactite arches. Rich floral ornaments and quotations from the Koran can be seen on the walls and on the dome. The white and red stripes of the circular ornamentation of the dome is a reconstruction made after the remaining original fragments. It is worthwhile to observe the earthenware jugs placed in the walls and dome with their outward mouths, which were to provide excellent acoustics. These niches had been covered with a thin layer of plaster that was not replaced during the reconstruction for the sake of their spectacle. The flooring is covered with tiles from the Mecsek Hills, and it was made by the revealed fragments.



Idris Baba's turban-stone tomb



There used to be a Turkish cemetery on the southern slope of the Saint Roch (Rókus) Hill. The turbe is the tomb of Idris Baba and a Turkish pilgrimage destination. We know little about the person lying in the burial place. Turkish traveller Evlia Chelebi referred to him as a "faithful physician", and according to Ibrahim Pechevi he was a miraculous seer. The octagonal, domed monument was built in the 1500s. After the Turkish Invasion the building was taken over by the Loyolite order, and it was transformed into a plague hospital, then it was named after St. Roch, the patron saint of the plague-stricken (this memory is preserved in the name of the hill). Later it was used as a powder-magazine by the army. It

was partly uncovered and restored in 1912, but only got its present form in 1961 after its reconstruction. The burial space of Idris Baba cut into the rocks was also discovered, and his intact skeleton was found. The furniture, the sepulchral monument, the embroidered cover and the prayer rug was donated by the government of the Republic of Turkey. The tomb is a significant vestige of Turkish architecture in Hungary; Gül Baba's Mauseoleum in Buda is the other only known such monument. Both are Islamic destinations of pilgrimage.

Ruins of Memi Pasha's bath



Domed baths were essential parts of the Turkish townscape. They not only provided a place for people to bathe, but also a place for social meetings. The famous Turkish traveller Evlia Cselebi mentions three baths in Pécs in the second half of the 18th century: the baths of Pasha Memi, Pasha Ferhad and Pasha Quassim. The Bath of Pasha Ferhad was soon destroyed, only its foundation walls could be traced. The Bath of Pasha Memi was pulled down in the 1880s, but in 1963 it was restored.

Cathedral & Bishopric

St. Peter and Paul Cathedral

We have not much information concerning its first church, which might have been one of the Early Christian temples still standing at the time. The so called Illuminated Chronicle tells us that in 1064, when King Solomon was crowned in Pécs, the „bells fell down from the towers” owing to a fire that raged during the night following the coronation. This means that there was already a temple there which had to be reconstructed after the fire. The five-nave cross vaulted undercroft, built at the turn of the 11th and 12th centuries, still preserves its monumental embellished interior space. The church above it, built slightly later, is a three-nave basilica with no transept. Of its four towers two were constructed at the beginning and two other at the end of the 12th century. In the Middle Ages the interior of the church was richly decorated with stone carvings and frescos which were partly destroyed during the Turkish occupation then the repeated reconstructions of the following centuries covered them completely. The medieval ornaments were found as a result of the reconstruction carried out between 1883-1891. The stone carvings were then taken out from the wall and water colours were made about the remains of the frescos. The reconstruction kept the basilica architecture of the 12th century cathedral. The design was the work of the Friedrich von Schmidt of Austrian, while the work was supervised by Ágoston Kirstein.



Similarly to the former Romanesque building, the cathedral, reconstructed in a Neo-Romanesque style, is a three-nave basilica with a flat ceiling, four towers and a ring of chapels. The rich paintings of its interior have their roots in the historicism of the 19th century. The walls and the ceiling are completely covered with paintings depicting various scenes from the Bible and Hungarian saints. The paintings of the naves are the work of Karl Andreä and Moritz von Beckerath of Austria, while those in the chapels were made by Bertalan Székely and Károly Lotz. The figural carvings and the copies of the original

ornaments of the undercroft descents were made by György Zala, while the relief above the southern gate and the apostle sculptures standing on the columns of the arcade are the work of György Kiss. These latter ones were replaced with the sculptures of Károly Antal in 1962-63. In the open space in front of the cathedral's gate the double bronze-gate composition of Sándor Rétfalvi was unveiled on December 30th in 2000. The outer bronze gate is decorated with leaves and clusters of grape on grapevine with birds and small lizards hiding among them. It also contains scenes recalling the foundation of the bishopric. The inner gate is embellished with 22 golden bronze high-reliefs depicting scenes from the Old Testament.

After its reconstruction the former basilica still reflects the magic of a medieval church. The cathedral with its four towers surrounded by the buildings of the Bishop's Palace, the Prebendal Cartulary and Presbytery and the Mediterranean square in front of it is the best sight of the town and an everlasting memory that visitors may take home.

The remains of Janus Pannonius (1434-1472), the Renaissance poet and former bishop of Pécs were discovered when restoring the cathedral in 1991. The leaders of the bishopric assumed that the remains belonged to the late bishop and the results of an anthropological research received in the spring of 2008 confirmed that their suspicion had been correct. In the autumn of 2008 the former bishop was laid to rest in the undercroft of the cathedral in the form of a solemn ceremony. The remains of the great poet are deposited beside those of bishop Nándor Dulánszky.

Cathedral Museum



During the rebuilding of the Cathedral between 1883-1891, the figural, coloured stone carvings were found that had adorned the original walls of the church built in the 12th century. The former church had suffered serious damage during the Turkish invasion (16th century). In spite of that, the troves possess a remarkable artistic value. During the 19th-century restoration the damaged carved stones were not wished in their original place, therefore they were deposited in the granary of the Cathedral. Later they were stored in the corridors and some rooms of the bishop's library, then in a basement room of the Cathedral, so they could

not be seen by the public. A foundation was established for the construction of the Cathedral Museum and the restoration of the stonework in 1990. As a result of the work beginning in 1994, the most beautiful ornaments of the Romanesque cathedral can now be seen in the stone repository opened in 2005.

In the grand space six hundred pieces out of the nearly thousand-piece collection can be seen at the exhibition. In their arrangement and prospect those ornaments have a central role that were brought to the surface in bigger and more coherent units, such as the popular altar chapel and the relief ornaments of the undercroft descents. Their arrangement reconstructs their original, medieval place and role. Beside the Romanesque stonework, the exhibition displays stone artefacts from later eras of the cathedral as well, such as fragments from 14th-century carvings. These include the key-stone with the heads of the Apostles, the figure of St. George with the dragon, the Holy Spirit with the dove, and the plaited, palmette and grapelike ornaments, column-fragments and headstones can also be admired by visitors.

The Cathedral stone repository can evoke the former entirety of our cultural heritage that has left us with these fragments of the European art of medieval church-architecture after thousand years of hardships.

The upstairs gallery provides a place for periodic historical, art and crafts exhibitions.

Bishop's Wine Cellar

In the cellar built by Bishop Ferenc Nesselrode in the 1700s the wines of 4 wine regions (Pécs, Tolna, Szekszárd, Villány) located in the area of the Pécs diocese are treated and bottled. The tasting room above the cellar, having a seating capacity of 100 offers 15-20 different wines. Part of the cellar is an exhibition space featuring the traditional grape processing and wine making equipments.

Zsolnay heritage

ZSOLNAY PÉCS – these were the two words that Vilmos Zsolnay would write and stamp on the products of his factory from the beginning. He kept the name of the city in his logo even when he changed the shape of his stamp. His successors followed this tradition. The Zsolnay family and the subsequent directors of the factory indicated their affection towards the city in several ways, while the citizens of Pécs have always respected the “Zsolnay” and are still proud of it.

Zsolnay and Pécs, it is not only the name but also the image and the activities of the factory and the city that have always been closely related. Five successive generations of the Zsolnay family have enriched the culture of the city and added to its wealth. Wherever we walk in the city we can encounter the heritage of the Zsolnay family everywhere: on the facade of old and new houses, on roofs, on sculptures and reliefs, in shop-windows, on commemorative plaques and in the exhibition of the 55-year-old Zsolnay Museum introducing the complete history of the factory. Thanks to the “2010 European Capital of Culture” Program we can also get a taste of this great heritage in the historic buildings of the Zsolnay Cultural Quarter established on the site of the former

manufactory where we can also visit the Gyugyi Collection introducing the works of the factory from the periods when they produced historicist and Art Nouveau ceramics.

The Zsolnay Cultural Quarter



The Zsolnay Cultural Quarter is the gem of Pécs. The heritage of the former world renowned ceramics factory of the Zsolnay family lives on under worthy circumstances as the new cultural centre of the city. During the course of the past few years an outstanding and unique investment project was realized that resulted in creating a new cultural “city” within the city. The still active parts of the porcelain factory were all moved into the eastern part of its premises so the emptied buildings provide space for such cultural and artistic venues that are not only new

patches of colour on the touristic palette of Pécs but they also enrich both locals and visitors with a set of institutions that offer a large variety of activities to spend their free time. These outstanding cultural venues and spectacles of Pécs make up an area of 50,000 square metres of the former manufactory that was fully rebuilt and renovated.

Visiting the exhibitions or just simply walking around the area and taking it all in is a full day’s Program that grabs and carries the attention of all the members of the family.

Exhibitions, cafés, restaurants, shops, a university quarter, concert and conference halls, the Visitor Centre, the Live Manufacture and the Interactive House of Playful Sciences, a planetarium, a Zsolnay gift shop, several open-air playgrounds and a basketball court – this is the Zsolnay Cultural Quarter today; the legend of Pécs reborn awaiting all age groups seeking creative experience and an exciting cultural adventure, just a 15-minute-walk away from the city centre.

The Zsolnay family and factory history exhibition



The figure of Vilmos Zsolnay is not emblematic only in Pécs. The influential figure of the Hungarian ceramics industry made the Zsolnay brand and the achievements of the high quality national industry well-known over the borders of Hungary too. The Zsolnay family and factory history exhibition gives an insight to the visitor of the most precious moments of the life of the industrial dynasty starting with the simplest industrial ceramic items to the most decorated ornamental pieces and the life-changing family events.

Golden Age of Zsolnay Exhibition

Thanks to the sacrifices of the city the collection of László Gyugyi, the Hungarian collector living in the United States, has found its place in the Zsolnay Cultural Quarter. The collection contains the best historicist and Art Nouveau ceramics that were on display at various world’s fairs.

According to the wish of the collector this 600-piece exhibition, called “The Golden Age of Zsolnay”, can be seen in the former dwelling-house of the Sikorski family located inside the Zsolnay Cultural Quarter. This was the place from where these products departed to conquer the world.



Live Manufacture

The Zsolnay Live Manufacture – porcelain in the making is the special venue of the Zsolnay Cultural Quarter where the visitors can see the more than 150-year-old production processes, popular motifs and products of the famous porcelain manufacture.

Pink Zsolnay Exhibition



The exhibition entitled „In the beginning was the pink...” aims to introduce the bests of the Zsolnay objects to the visitors.

Zsolnay Mausoleum

After Vilmos Zsolnay, founder of the Zsolnay factory passed away in 1900 his son had the mausoleum erected right next to the factory on top of a little hill that had been the scaffold of the city before. The venue was not important for the family because of its shady past.

The small hill used to be a dear place of the founder of the factory where he had spent a lot of time just glazing down at the factory lying underneath. According to the plans of the son-in-law of Vilmos Zsolnay; Tádé Sikorski the construction works of the factory and the landscaping of the surrounding area had began exactly 100 years ago, in 1901. All the workers of the factory have taken part in building the Pécs Pantheon; they have worked out each and every little detail together. „... the family had all the bricklayer, carpenter, blacksmith ...etc works carried out by the colleagues using the raw materials of the factory and the people working on the chapel are still mainly those who had served the old man with faith and love.” - reports the Pécsi Napló about the event in 1901.



The ore coffin of Vilmos Zsolnay was put to its eternal rest in the crypt of the family in 1913, and he was followed by his wife Terézia Bell in 1919. The only other person lying in the crypt today is their son Miklós because the mortal remains of the other family members have fallen victim to the vandal destructions after which they were reburied in the Pécs Cemetery of Honour in damaged state in 1986.

The neo-roman building includes a burial chapel and a burial chamber underneath with a decorated eosin sarcophagus and 32 coffin vaults. The facade of the mausoleum had been covered by unenameled pyrogranite tiles while the hemispheric dome had been covered by dark green majolica-glazed shaped tiles. An altar and an eternal light were placed inside the chapel the walls of which are decorated by colourful tiles. The glasses of the round windows were originally produced in the Roth workshop. On the inside surface of the mausoleum the blue sky, cherubs and golden stars watch the sleep of the deceased while secessionist decorations and flower strings overwhelm the space by an inimitable serenity. The full inside decoration was the work of the leading sculptor of the factory; Sándor Apáti Abt. In the middle of the chapel is the bluish glazed opeion hole with a Roman column parapet through which one can look down into the sepulchral vault. On a podium in the middle of the vault lies the eosin sarcophagus of Vilmos Zsolnay decorated on all sides by figural scenes. This architectural division is characteristic to the Paris burial site of Napoleon where people looking down from above



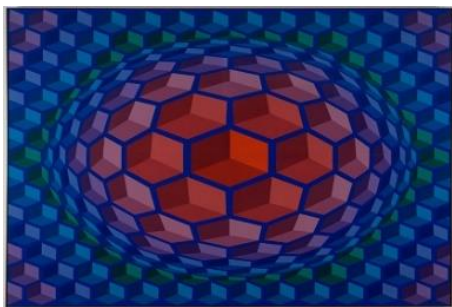
bow their heads for the deceased while in the crypt they look up to the sarcophagus that is placed on a podium. Whoever spends some time here unconsciously gives respect to those of its resting inhabitants. They say that during the time of the winter solstice when the sun is at its zenith the light coming in unravels the secret of the eosin. By paying a little attention we might become the knowers of the secret...

During the storms of history the building and its surroundings have fallen victim of constant destruction and the ceramic building elements were scattered. The full renovation of the mausoleum - except for the roofing - has been done in the framework of the Pécs2010 European Capital of Culture Program. It included not only the renovation of the building but the promenade leading up to it with the lions and the fence that needed to be rebuilt fully from scratch based on some early photos.

MUSEUMS

Vasarely Museum

Vasarely gave 42 serigraphs (screen-prints) to the museum in 1968. This series was displayed at the first Vasarely exhibition in Hungary. Further donations - paintings, tapestries, plastic and graphic pieces - arrived here the following year, with the purpose of establishing the Vasarely Museum. The artist gave the city of Pécs not only his own works, but some valuable pieces by his wife Claire and his son Yvaral and other contemporary European artists. The exhibition of Vasarely Museum opened in the restored and transformed birth-place of the artist under 3 Káptalan Street in 1976. Thus, Western European ideological streams were officially accepted by Hungarian cultural politics. The exhibition - one of the most popular and visited ones in



Pécs - was shown in several neighbouring countries during the last decade, therefore the region could get acquainted with Vasarely's work.

The collection of the Museum reflects on defined, significant stages of the artist's life-work from the 1940s. The exhibits show the different periods of Vasarely's versatile genres and techniques which are connected to personal experience or environmental surroundings. Visitors are surprised to see the anaglyphic, pulsating compositions of the "Vega" group. The waving line-pattern of the tapestry "Zebras" (1960) appeared as early as in the 1930's in his early experiments.

Besides Vasarely's life-work, the Museum also exhibits his wife Claire's and his son Yvaral's works.

Csontváry Museum

The paintings by Tivadar Csontváry Kosztka, deceased at 66, were left behind in his studio in Budapest. His heirs offered the large-sized paintings on sale for nearby carriers, thinking the excellent quality canvasses could be used as car covers. Gedeon Gerlóczy, a young architect just finishing his studies, was looking for a studio, and catching sight of the advertisement on the door, took a look at Csontváry's deserted atelier. One of the rolled-up paintings uncurled by accident, and Gerlóczy was faced by the "Lonely Cedar" that - as he told later - had an incredible impact on him. During the auction sale held the next day, he managed to buy up the bequest in advance of the bidding carriers. The paintings were waiting for their chance packed in crates for a while then. Gerlóczy, who was teaching at the Arts college, managed to place some large-sized pieces in the rooms of the College. After the exhibitions in Paris and Brussels in 1949 the paintings were moved to the basement of the National Museum of Arts, and some of them were given back to the owner only six years later. Later on the masterpieces were kept in the research rooms of the National Gallery; one of the large paintings was leaned to the wall in the corridor - facing the wall. When Pécs asked the ageing Gerlóczy's permission to show the paintings at a permanent exhibition in the early 1970s, he agreed. The Csontváry Museum was established by a deposit contract of ten years.

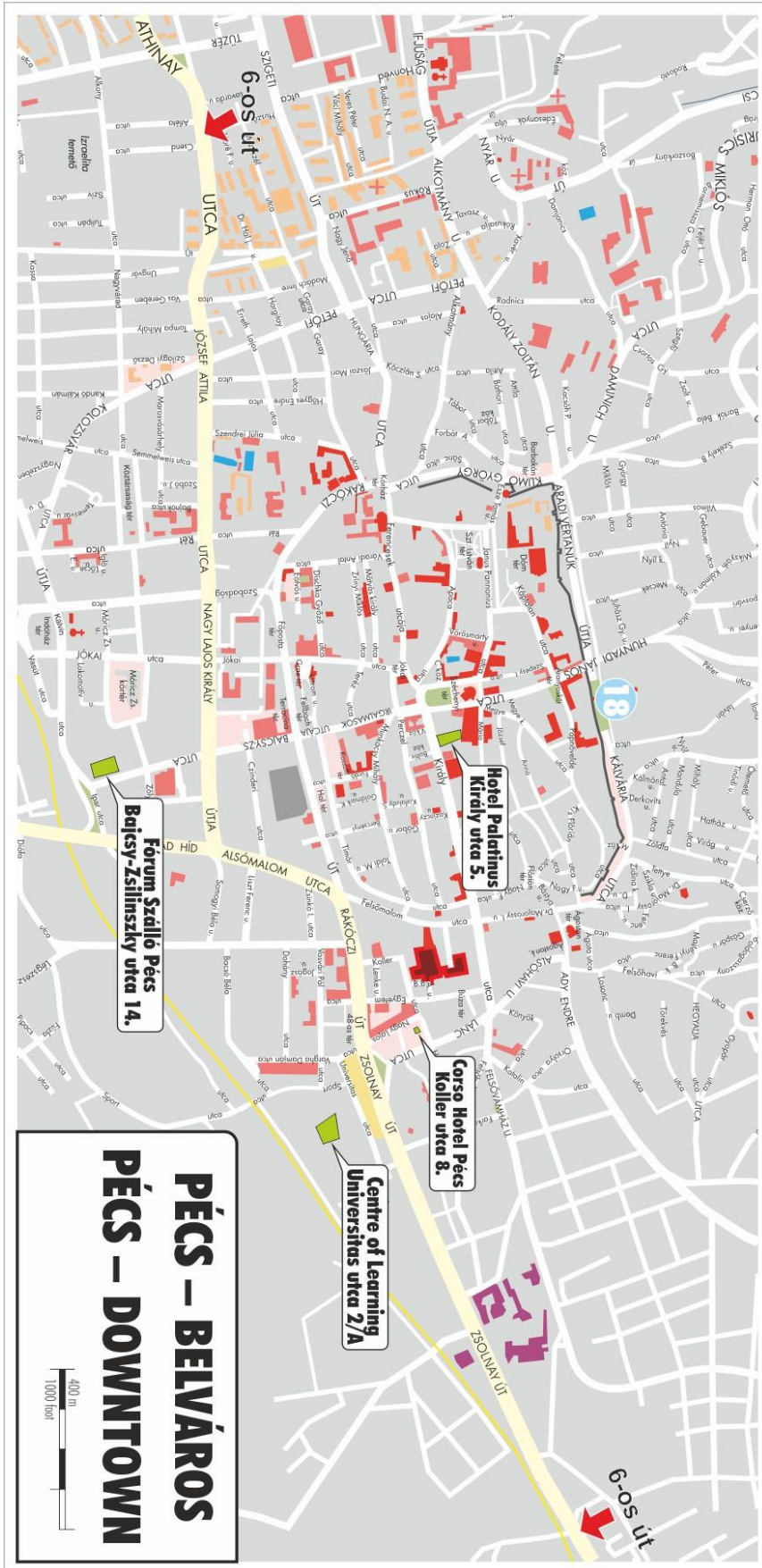


The museum was opened in 1973, on the 120th anniversary of the artist's birth - first with eight paintings exhibited in a single room and with a scarce selection of early sketches. The exhibition expanded significantly ten years later, when the state of Hungary bought Gedeon Gerlőczy's collection that was moved to The Csontváry Museum with the exception of four paintings. The exhibition was enriched with paintings made in Dalmatia, Southern Italy and at home, in Hortobágy and Selmecebánya (today's Banská Štiavnica). One of the most significant masterpieces, the beautiful "Lonely Cedar" can also be found here, which was painted as a symbolic portrayal of the artist himself.

Zsolnay Museum

The exhibition introduces the best products of the factory from its first great success at the World's Fair in Vienna (1873) to the latest vases and ornamental pots. The personal belongings on display in the Zsolnay memorial room recall the everyday life of this respected family. Miklós Zsolnay, a merchant, founded a stoneware factory in Pécs in 1853. It was his son, Vilmos Zsolnay who developed this small manufactory into a world famous factory. Beginning from the 1870s till the end of the century, Teréz and Júlia, the two daughters of Vilmos Zsolnay, also took part in the art and design activities. In 1898 young artists established an Art Nouveau workshop within the factory, which played an important part in the art life of the city, too. After the extended experiments of Vilmos Zsolnay, in 1893, the factory began to produce its ornamental pots having a polychromatic and metallic luster glaze that is called „eosin”. After the death Vilmos Zsolnay in 1900, his son Miklós began to manage the already renowned factory, which gained high reputation overseas, too. This was the time when architectural ceramics, whose several excellent examples can be seen in the centre of Pécs, became popular and highly marketable.

More information: www.visitpecs.com



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4th International Regulatory Workshop on A to Z on Bioequivalence Bioanalysis, Dissolution and Biosimilarity

Budapest, Hungary, May 19–21, 2014



Budapest, 30 August, 2013

Dear Colleagues,

On behalf of the Organizing Committee, it is our pleasure to inform you that the 4th International Regulatory Workshop on A to Z on Bioequivalence, Bioanalysis, Dissolution and Biosimilarity will be held on May 19–21, 2014 in Budapest, Hungary.

This unique event offers an extraordinary opportunity for the fourth time to its participants to meet leading scientists from Europe, USA/Canada, Japan, China, India and Australia, dealing with original and generic drug development, from bioequivalence, bioanalysis, *in vitro* dissolution, advances in pharmaceutical technologies, biotechnology to different aspects of biosimilarity, furthermore to the concerns of conducting clinical studies, and their regulatory aspects.

Nowadays this scientific field is getting more and more appreciated therefore several researchers are involved from the research and development to the marketing authorization.

As you may see in the First Circular, the organizers' intention is to give a comprehensive review about the current status of this multidisciplinary field. Participants will also meet international exhibitors and CROs from the corresponding areas.

We anticipate more than 300 scientists from 40 countries around the globe.

The venue of the Workshop is, as a tradition, the home of the Hungarian Academy of Sciences, one of the most distinguished institutions of the 1100-year old Hungary.

We are looking forward to welcoming you and your colleagues this year again to the Workshop and do hope that you will find this outstanding scientific event with its social program memorable.

Prof. Imre Klebovich

Prof. Vinod P. Shah

Co-chairs of the Workshop

Workshop Secretariat:

Diamond Congress Ltd. Attila Varga H-1255 Budapest, P.O. Box 48., Hungary
Phone: +36 1 225 0210 Fax: +36 1 201 2680 E-mail: diamond@diamond-congress.hu

www.bew2014.hu

Report on the preparation of The 2nd International Conference on Analytical Chemistry. Analytical Chemistry for a Better Life. RO-ICAC'2014, 17-21 September 2014, Targoviste, Romania

The meeting is organized by Romanian Society of Chemistry, Ministry of National Education, Eurachem – Romania, University of Valahia, Targoviste, National Institute of Research for Electrochemistry and Condensed Matter **in cooperation with DAC EuCheMS and International Romanian Chapter of American Chemical Society**. The meeting obtained the financial support of the Ministry of National Education.

Topics included in the final program: Biomedical Analysis, Pharmaceutical Analysis, Advanced Materials Analysis, Environmental Analysis, Food Analysis, Validation and Chemometrics.

There will be presented: 9 plenary lectures, 10 keynote lectures, 53 oral presentations, and 67 poster presentations. In total 139 invited and accepted presentations.

Participants registered to date are from Romania, Egypt, Denmark, USA, Algeria, Germany, Turkey, UK, Cyprus, Belgium, France, Saudi Arabia, China.

A special session for young analytical chemists: “**ACS Network of Young Chemists**” was organized with the support of American Chemical Society – a grant was obtained by the International Romanian Chapter of ACS for prizes awarded for oral and poster presentations.

International Romanian Chapter of ACS will present every 2nd year with the occasion of this conference an award for excellence in analytical chemistry: “George-Emil Baiulescu Award”. Professor Baiulescu was an active member of DAC for many years. The first award will be presented at the Opening Ceremony of RO-ICAC 2014.

2nd International Conference on Analytical Chemistry RO - ICAC'2014

Analytical Chemistry for a Better Life

There will be an exhibition with new instrumentation for analytical chemistry.

A special issue with peer-reviewed papers presented in the conference will be published by the journal *Revue Roumain de Chimie*.

The Book of Abstracts and Programme are already printed.

The next meeting is planned to be on 2nd-5th of June 2016 in Timisoara.

Report prepared by Raluca-Ioana van Staden
Chairman of RO-ICAC2014.

25/07/2014

September 17th – 21st, 2014, Targoviste, Romania



Salzburg, a City with Tradition in Music, Culture and Science
www.salzburg.info

ISC 2014 Salzburg, Austria

30th International Symposium on Chromatography

Communicating Separation
Science for the Future

September 14-18, 2014
www.isc2014.at



WELCOME TO ISC 2014

On behalf of the organizing committee of the 30th International Symposium on Chromatography, ISC 2014, it is our pleasure to invite you to Salzburg, Austria, 14 – 18 September 2014. The ISC series has established itself as one of the premier meetings for discussion and presentation of all modes of separation sciences such as gas chromatography, high performance liquid chromatography, electro-driven separation techniques or supercritical fluid chromatography, to name but a few methodological topics.

A major focus of this Symposium will also be set on the newest developments in mass spectrometry, the more and more dominating mode of detection employed in combination with separation techniques. According to the motto of ISC 2014 “Communicating Separation Science for the Future”, special emphasis will be given to all aspects of separation sciences including sample preparation and pre-treatment, all sorts of separation techniques in the gas and liquid phase, detection methods, and applications in various fields.

As an integral part of the scientific program consisting of lectures, tutorials, podium discussions and poster sessions, an international exhibition on instrumentation and services related to all fields of separation sciences will be organized. ISC 2014 provides a forum for attendees from academia, industry and government research institutions for scientific exchange and networking, not only during scientific sessions but also while enjoying the social and cultural highlights offered by the city of Salzburg.

We are looking forward to welcoming you to Salzburg.



Wolfgang Buchberger
(Chairperson of ISC 2014)



Michael Lämmerhofer
(Chairperson of ISC 2014)



Wolfgang Lindner
(Honorary Chair of ISC 2014)

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Gunda Köllensperger (Vienna)

Herbert Oberacher (Innsbruck)

THE VENUE

The Symposium will take place in Salzburg (Austria) which is a City of Music, Culture and Science. Salzburg is known for Mozart, the Salzburg Festival, Sound of Music, and for its beautiful historic city center in baroque style.

Salzburg is located at the heart of Europe. It can be accessed easily via Airport Salzburg, Airport Munich (direct shuttle bus to Salzburg, 100 min), Airport Vienna (2.5 h by train), motorway hub to the West, South, East, and North, and railway hub (connections to many cities in Europe).

The Symposium will be located at the modern Salzburg Congress Center (www.salzburgcongress.at) located next to the beautiful Mirabell Gardens and within easy walking distance to the city center.

SYMPOSIUM HISTORY AND SCOPE

The International Symposium on Chromatography (ISC) represents a traditional congress series of major European Chemical Societies. It was first organized in 1956 in London and since then held biannually in various major European cities. Austria hosted a very successful ISC in Vienna in 1988 chaired by the late Prof. J. F. K. Huber. The ISC conference in Salzburg will be the 30th event of this symposium series.

The Symposium will be organized under the auspices of the Austrian Society of Analytical Chemistry (ASAC). It will be supported by the Arbeitskreis Separation Science of GDCh (Society of German Chemists), the Association Francophone des Sciences Séparatives (AFSEP, France), the Chromatographic Society (UK), the Californian Separation Science Society (CaSSS), and the European Society for Separation Science (EuSSS). In addition, more chromatographic societies will support this conference.

The conference is committed to the promotion of research and knowledge in separation science, with a special focus on chromatographic and electrophoretic techniques. It covers separation methodologies in all scales from nano/micro-scale to preparative scale, fundamental and applied science, and application fields comprising (bio)pharmaceutical, bioanalytical, environmental, clinical/toxicological, and food analysis research and many more.

- New technologies, instrumentations and materials (separation media, core shell particles, monoliths, micro/nanostructured materials)
- Advances in liquid chromatography (UHPLC), gas chromatography, supercritical fluid chromatography
- Complementary separation techniques such as electrophoresis and other electrokinetic techniques, field-flow fractionation
- Detection and hyphenated techniques such as LC-MS, GC-MS and CE-MS
- Microfluidics, lab-on-a-chip and other miniaturized techniques
- Multidimensional separation systems
- Fundamentals (theories, retention models, chemometrics)
- (Bio)Pharmaceutical, clinical/toxicological, environmental, food analysis
- Proteomics, glycomics, metabolomics
- Biomarker discovery
- Natural product, polymer analysis, and process analysis
- Sample preparation, validation, quality by design, and data processing
- Green technologies, future challenges and trends

EXHIBITION

The exhibition on instrumentation, analytical services and scientific literature will form an integral part of the conference. It will provide a unique opportunity for contacts between conference participants and exhibitors. Companies interested in participating are invited to contact the exhibition organisers for further details:

S12! studio12 gmbh
Kaiser Josef Straße 9
6020 Innsbruck, Austria
Phone (+43 512) 89 04 38
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E: ker@studio12.co.at
I: www.studio12.co.at



REGISTRATION FEES

Academic registration	up to July 31, 2014 from August 1, 2014	550,- € 680,- €
Industry (early)	up to July 31, 2014 from August 1, 2014	690,- € 820,- €
Students (early)	up to July 31, 2014 from August 1, 2014	270,- € 330,- €

Registration fees include access to all scientific sessions, coffee and tea breaks, the industrial exhibition and various social events.

Optional item Party, Tue, September 16, 2014 25,- €

www.isc2014.at

IMPORTANT DEADLINES

Abstract submission

April 30, 2014 (oral contributions)
May 31, 2014 (poster contributions)

Registration and payment

July 31, 2014 (for early registration fee). Abstracts of participants without payment before August 10, 2014 will not be included in the Book of Abstracts

Hotel reservation

August 14, 2014
(see conference website)

CONFERENCE WEBSITE

www.isc2014.at

Please note that all further information on the Symposium will be published only on the conference website, www.isc2014.at. The website will be constantly updated. Please refer to the website for programme details, registration, abstract submission and hotel reservation.

SYMPOSIUM ORGANIZING OFFICE

PCO TYROL CONGRESS

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