

## Programme

### Sunday 05/10/2014

**13:00      Registration**

#### Session Workshop 1

**14:00      Preparative HPLC: Phase Screening, Method Optimisation, Process Development. Troubleshooting a Preparative Chromatographic Device**

Michael SCHULTE  
(MERCK KGAA, Darmstadt, Germany)

#### Session Workshop 2

**14:00      From Development to Commercial Scale: Rules to Scale up, QbD, Regulatory, Process Validation**

Alessandro BUTTE  
(ETH ZURICH, Zurich, Switzerland)

#### Session Workshop 3

**14:00      Multicolumn Processes: From Historical SMB to the Latest Advances in the Purification of Biomolecules**

Arvind RAJENDRAN  
(UNIVERSITY OF ALBERTA, Edmonton, AB, Canada)

**15:30      Coffee Break**

#### Session Workshop 4

**16:00      Solving a Purification Process: Choice of the Appropriate Process (Centrifugal Partition Chromatography vs Countercurrent Chromatography, Batch vs Continuous, Low Pressure vs High Pressure, Liquid vs SFC)**

Eric VALERY  
(NOVASEP CDMO, AN AXPLORA COMPANY, Pompey, France)

#### Session Workshop 5

**16:00      Process Design for Purification of Small Molecules and Peptides**

Jochen STRUBE  
(CLAUSTHAL UNIVERSITY OF TECHNOLOGY, Clausthal-Zellerfeld, Germany)

#### Session Workshop 6

**16:00      Process Design for Purification of Biomolecules**

Alois JUNGBAUER  
(UNIVERSITY OF NATURAL RESOURCES AND LIFE SCIENCES, Vienna, Austria)

**18:00      Welcome Reception**

**19:30      End of Day 1**

### Monday 06/10/2014

08:45      **Welcome**

#### **Session 1: Process Modeling and Optimization 1**

##### **Session Chair**

Andreas SEIDEL-MORGENSTERN  
(MAX PLANCK INSTITUTE FOR DYNAMICS OF COMPLEX TECHNICAL SYSTEMS, Magdeburg, Germany)

##### **Session Co-Chair**

Tuomo SAINIO  
(LAPPEENRANTA UNIVERSITY OF TECHNOLOGY, Lappeenranta, Finland)

09:00      **Keynote Lecture**  
**Chromatographer: What Could Modeling Do for You?**

Roger-Marc NICOUD  
(FOUNDER AND FORMER CEO NOVASEP, CONSULTANT, Nancy, France)

09:40      **Advances in Model-Based Inline Peak Deconvolution: Process-Data-Based Model Calibration and Real-Time Pooling Decisions**

Nina BRESTRICH  
(KARLSRUHE INSTITUTE OF TECHNOLOGY, Karlsruhe, Germany)

10:00      **Modeling and Optimization of the Twin Column Capture SMB Process**

Daniel BAUR  
(ETH ZÜRICH, Zurich, Switzerland)

10:20      **Coffee Break sponsored by LABOMATIC AG**

#### **Session 2: Process Modeling and Optimization 2**

##### **Session Chair**

Jochen STRUBE  
(CLAUSTHAL UNIVERSITY OF TECHNOLOGY, Clausthal-Zellerfeld, Germany)

##### **Session Co-Chair**

Mirjana MINCEVA  
(TECHNISCHE UNIVERSITÄT MÜNCHEN, Freising, Germany)

10:50      **Implementation of Model-Based Approach for Chromatography Development**

Bertrand GUELAT  
(NOVARTIS PHARMA AG, Basel, Switzerland)

11:10      **Modelling and Simulation of the Purification of Cell Culture-Derived Influenza Virus Via Continuous Size Exclusion Chromatography**

Laura M. FISCHER  
(MAX PLANCK INSTITUTE FOR DYNAMICS OF COMPLEX TECHNICAL SYSTEMS, Magdeburg, Germany)

11:30      **Unified Design of Chromatographic Separation Processes**

Tuomo SAINIO  
(LAPPEENRANTA UNIVERSITY OF TECHNOLOGY, Lappeenranta, Finland)

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**11:50 Modelling and Optimization of Preparative Chromatography Separation of Rare Earth Elements**  
Bernt NILSSON  
(LUND UNIVERSITY, Lund, Sweden)

**12:10 Lunch Break**  
**Vendor Seminars by AkzoNobel, LEWA and Waters Corporation (12:20-13:20)**

### Session 3: Purification and Resolution of Small Molecules

#### Session Chair

José Paulo MOTA  
(REQUIMTE/CQFB, FFCT, Caparica, Portugal)

#### Session Co-Chair

António E. RIBEIRO  
(POLYTECHNIC INSTITUTE OF BRAGANÇA, Braganca, Portugal)

**13:20 Keynote Lecture**  
**Pharmaceutical Small Molecule Purification: Where Are We and Where Do We Need to Be?**  
Larry MILLER  
(AMGEN, Thousand Oaks, United States)

**14:00 Preparative Chiral Chromatography. Summa Chiralogica**  
Pilar FRANCO  
(CHIRAL TECHNOLOGIES EUROPE, Illkirch, France)

**14:20 Implementation of Continuous Chromatography Under cGMP for the Pharmaceutical Industry**  
Olivier DAPREMONT  
(SK PHARMTECO, Rancho Cordova, United States)

**14:40 Highly Active Small Molecules and Peptides: Intrinsic Reduction of Risks by the Use of Preparative Chromatography and Flow Technologies**  
Ulf ALTENHOENER  
(LONZA AG, Aarau, Switzerland)

**15:00 Coffee Break**

### Session 4: Counter Current Chromatography

#### Session Chair

Joachim KINKEL  
(GEORG-SIMON-OHM UNIVERSITY OF APPLIED SCIENCES, Nuernberg, Germany)

#### Session Co-Chair

Alain BERTHOD  
(UNIVERSITÉ DE LYON 1 - CNRS, Villeurbanne, France)

**15:30 Keynote Lecture**  
**Continuous Processing by CCC/CPC: Where to Plug and How to Play When Everything is Fluid**  
Svetlana IGNATOVA  
(BRUNEL UNIVERSITY, Uxbridge, United Kingdom)

**16:10 From Molecule to Process: Model-Based Design of Continuous Centrifugal Partition Chromatography**

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Mirjana MINCEVA  
(TECHNISCHE UNIVERSITÄT MÜNCHEN, Freising, Germany)

**16:30      Methodology for Scale-Up in Countercurrent Chromatography**

Karine FAURE  
(INSTITUT DES SCIENCES ANALYTIQUES, Villeurbanne, France)

**16:50      pH Zone Refining in Centrifugal Partition Extraction. A Step Change in Productivity for Liquid-Liquid Chromatography Processes?**

Paul HELLIER  
(INSTITUT DE RECHERCHE PIERRE FABRE, GAILLAC, France)

**17:10      A New Dynamic Fractionation Method and Column Design for Size Separation of Bio-Polymer Particles**

Peter HEWITSON  
(BRUNEL INSTITUTE FOR BIOENGINEERING, Uxbridge, United Kingdom)

**17:30      Poster Session #1 and Beer Party  
(presentation of posters with even numbers)**

**19:00      End of Day 2**

**Tuesday 07/10/2014**

### **Session 5: Protein and Peptide Purification**

#### **Session Chair**

Olivier LUDEMANN-HOMBOURGER  
(POLYPEPTIDE LABORATORIES FRANCE, Strasbourg, France)

#### **Session Co-Chair**

Jeannie HORAK  
(UNIVERSITY OF TUEBINGEN, Tuebingen, Germany)

- 08:30      Keynote Lecture**  
**Peptide Purification: State-of-the-Art and Challenges**  
Thomas MEIER  
(BACHEM AG, Bubendorf, Switzerland)
- 09:10      High Yield Protein Refolding by Integrating Single-Column Chromatography and Membrane Filtration**  
Sebastian NIMMIG  
(FRIEDRICH-ALEXANDER-UNIVERSITY, Hanau, Germany)
- 09:30      Saturation Capacity for Proteins in Ion Exchange Chromatography**  
Fabian STEINEBACH  
(ETH ZÜRICH, Zurich, Switzerland)
- 09:50      HTS Chromatographic Platforms: Small is Beautiful**  
David DELVAILLE  
(MERCKSERONO, Martillac, France)
- 10:10      Peptide Purification Via Ion-Exchange Doped Reversed Phase Chromatography: a Combined Experimental and Modeling Approach**  
Gianluca BUFFOLINO  
(ZEOCHEM AG, Uetikon am See, Switzerland)
- 10:30      Coffee Break**

### **Session 6: Purification of Biopharmaceuticals**

#### **Session Chair**

Michael SCHULTE  
(MERCK KGAA, Darmstadt, Germany)

#### **Session Co-Chair**

Kathleen MIHLBACHLER  
(LEWA GMBH, Leonberg, Germany)

- 11:00      Integration of Continuous Precipitation and Flow Through Chromatography with Monoliths for Purification of Recombinant Antibodies**  
Alois JUNGBAUER  
(UNIVERSITY OF NATURAL RESOURCES AND LIFE SCIENCES, Vienna, Austria)
- 11:20      Purification of Antibody Conjugates by MCSGP Chromatography**  
Thomas MÜLLER-SPÄTH  
(CHROMACON AG, Zurich, Switzerland)

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- 11:40 Implementation of a Negative Mode Platform for Virus Purification**  
Ricardo SILVA  
(IBET - INSTITUTO DE BIOLOGIA EXPERIMENTAL E TECNOLÓGICA, Oeiras, Portugal)
- 12:00 Optimizing the Separation of MAB Charge Variants Using Model-Based Approaches**  
Rushd KHALAF  
(ETH ZÜRICH, Zurich, Switzerland)
- 12:20 Lunch Break sponsored by AMPAC FINE CHEMICALS**  
**Vendor Seminars by Novasep, Merck Millipore, Chiral Technologies Europe and Agilent Technologies (12:30-13:30)**
- 13:30 Poster Session #2**  
**(presentation of posters with odd numbers)**

### Session 7: Industrial Purification Processes

#### Session Chair

Eric VALERY  
(NOVASEP CDMO, AN AXPLORA COMPANY, Pompey, France)

#### Session Co-Chair

Galatea PAREDES  
(NOVARTIS PHARMA, Basel, Switzerland)

- 14:30 Keynote Lecture**  
**Industrial Preparative HPLC for Production of API Including Most Common Unit Operations; Membrane Operations, Evaporation, Crystallization**  
Roman BURJA  
(LEK PHARMACEUTICALS D.D., Menges, Slovenia)
- 15:10 Overcoming Challenges in the Industrial Production of OMEGA-3S**  
Jean BLEHAUT  
(NOVASEP GROUP, Pompey, France)
- 15:30 Design of an Agarose Based Platform for Large Scale Chromatography**  
Hans JOHANSSON  
(PUROLITE, Uppsala, Sweden)
- 15:50 Continuous Manufacturing in Biopharmaceutical Industries**  
Holger FROELICH  
(CLAUSTHAL UNIVERSITY OF TECHNOLOGY, Clausthal-Zellerfeld, Germany)
- 16:10 Coffee Break**

### Session 8: Multicolumn Chromatography

#### Session Chair

Massimo MORBIDELLI  
(ETH ZÜRICH, Thessaloniki, Greece)

#### Session Co-Chair

## Programme

Ernst FREUND  
(NOVARTIS PHARMA AG, Basel, Switzerland)

- 16:30      Keynote Lecture**  
**Multi-Column Chromatography: Challenges and Opportunities**  
Yoshiaki KAWAJIRI  
(GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, United States)
- 17:10      Three Column Intermittent Simulated Moving BED (3C-ISMB) Chromatography: Cascade Operation for Center-Cut Separations**  
Simon JERMANN  
(ETH ZÜRICH, Zurich, Switzerland)
- 17:30      Purification of an Intermediately Eluting Component from a Complex Mixture**  
Kiara KOCHENDOERFER  
(BASF SE, Ludwigshafen, Germany)
- 17:50      Continuous Processing of Self-Cleaving Fusion Proteins by Matrix-Assisted Refolding Separation Using SMB Size Exclusion Chromatography with Buffer Recycling**  
Martin WELLHÖFER  
(CELONIC AG, Basel, Switzerland)
- 18:10      Panel discussion: Bridging Purification and Flow Chemistry?**  
Discussion animated by Berthold SCHENKEL (Novartis, Switzerland), Andreas SEIDEL-MORGENSTERN (MPI for Dynamics of Complex Technical Systems, Germany) and Olivier DAPREMONT (AMPAC Fine Chemicals, United States)
- 19:00      End of Day 3**
- 20:00      Symposium Banquet**

### Wednesday 08/10/2014

#### Session 9: Supercritical Fluid Chromatography

##### Session Chair

Arvind RAJENDRAN  
(UNIVERSITY OF ALBERTA, Edmonton, AB, Canada)

##### Session Co-Chair

Antoine PRADINES  
(SANOFI-AVENTIS, Toulouse Cedex 1, France)

- 08:30 Separation of Lignans by Supercritical Fluid Simulated Moving BED**  
Ming-Tsai LIANG  
(I-SHOU UNIVERSITY, Kaohsiung, Taiwan)
- 08:50 Scale-Up in Supercritical Fluid Chromatography**  
Abhijit TARAFDER  
(WATERS CORPORATION, Boston, United States)
- 09:10 Reliable Scale-Up from Analytical to Large Scale Instrumentation in Chiral Supercritical Fluid Chromatography**  
Torgny FORNSTEDT  
(KARLSTAD UNIVERSITY, Karlstad, Sweden)
- 09:30 Extraction-Injection: an Alternative Sample Introduction Method for SFC**  
Geoffroy COX  
(PIC SOLUTION, Media, United States)
- 09:50 Poster Prize**
- 10:10 Coffee Break**

#### Session 10: Integrated Continuous Processes

##### Session Chair

Olivier DAPREMONT  
(SK PHARMTECO, Rancho Cordova, United States)

##### Session Co-Chair

Martin WELLHÖFER  
(CELONIC AG, Basel, Switzerland)

- 10:40 Keynote Lecture**  
**Chromatography and Crystallization: Good Partners in Separating Enantiomers**  
Andreas SEIDEL-MORGENSTERN  
(MAX PLANCK INSTITUTE FOR DYNAMICS OF COMPLEX TECHNICAL SYSTEMS, Magdeburg, Germany)
- 11:20 Implementing Integrated Continuous Downstream Processing**  
Kathleen MIHLBACHLER  
(LEWA GMBH, Leonberg, Germany)



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- 11:40**     **Integrated Reaction/Separation Process for High-Yield Pegylation**  
David PFISTER  
(ETH ZÜRICH, Zürich, Switzerland)
- 12:00**     **Hardware Solutions Enabling Continuous Biomanufacturing**  
Roger NORDBERG  
(GE HEALTHCARE, Uppsala, Sweden)
- 12:20**     **Integrated Countercurrent Chromatography (ICCC) - From SMB to a Fully Integrated Process**  
Steffen ZOBEL-ROOS  
(CLAUSTHAL UNIVERSITY OF TECHNOLOGY, Clausthal-Zellerfeld, Germany)
- 12:40**     **Closing Remarks**
- 13:00**     **End of Day 4**