CPAC Summer Institute 2019

Process Characterization leading to Process Optimization

July 23-25, 2019, University of Washington, Seattle, WA

Tuesday, July 23, 2019 – University of Washington Club

8:30	**Meeting Registration Desk Opens** – University of Washington Club,
9:00-9:10	**Introduction to the Summer Institute Theme** Mel Koch, CPAC, APL, UW
9:10- 9:45	**The Circular Economy: What is it and Will it Happen?** Ray Chrisman, MK Optimization and Control
9:45-10:20	**What's Next? The Changing Role of Chemometrics and Instrumentation for Process Analytics** Brian Rohrback, Infometrix, Inc.
10:20-10:35	**Break**
10:35-11:05	**The Medicines for All Initiative** Roger Stringham, Virginia Commonwealth University
11:05-11:35	**Statistical Process Control and Multivariate Analysis** Michael F. Roberto, Northwest Analytics
11:35-11:55	**Wireless Sensor Platforms** Chris Rudell, UW Electrical Engineering
11:55-12:10	**Introduction of Meeting Participants and Discussion**
12:10-1:15	**Lunch**
1:15-1:30	**Update on CPAC Activities** Mel Koch, CPAC, UW
1:30-2:00	**Battery Free Sensing and Communication** Zerina Kapetanovic, Josh Smith, UW Electrical Engineering and Computer Sciences

2:00-2:35	**Advances in the Use of PAT for Developments in Process Control** Brian Marquardt, UW, APL, CPAC, and MarqMetrix
2:35-3:00	**Break**
3:00-3:40	**Process Analytical Technologies for Bioreactor Monitoring and Control** James Collett, Pacific Northwest National Laboratory (PNNL)
3:40-4:10	**A Machine Learning Approach to Calibrate Generic Raman Models for Real-time Monitoring of Cell Culture Processes** Aditya Tulsyan, Amgen
4:10-4:40	**In-line Determination of Phosphoramidite ID for Oligonucleotide Sequencing and Fault Detection** Dan Hill, Biogen
4:40-5:00	**Discussion**
5:15	Dinner at Ivar's Salmon House

Wednesday, July 24, 2019 – UW Club

9:00-9:10	**Daily Overview** Ray Chrisman, MK Optimization and Control
9:10-9:40	**Expansion of PAT Tools with the Emphasis on the Integration of the Associated Technologies into an Integrated Informatics Communication, Analysis, and Control Solution.** Ernie Hillier, Waters
9:40-10:10	**Advances in Analytical Sensing** Richard Becker, Blaze Metrics
10:10-10:30	**Break**
10:30-11:00	**Real Time PAT Based Knowledge Management and Control in Continuous Processes** Martin Gadsby, Optimal Industrial Automation Ltd., UK
11:00-11:30	**New Developments in Benchtop NMR for Reaction Monitoring, Material Screening and Mixture Analysis** Hector Robert, Magritek Inc

11:30-12:00	**Continuous Biocatalytic Manufacturing Approaches for the Synthesis of Drugs** Amanda Evans, Los Alamos National Laboratory (LANL)
12:00-1:00	**Lunch**
1:00-1:30	**New Characterization Tools for Biomolecules** Rae Eaton and Matt Bush, UW Chemistry
1:30-2:00	**CMaT Data Analytics: Enabling Robust, Scaleable, Low-Cost Manufacturing of High Quality Therapeutic Cells** Theresa Kotanchek, Evolved Analytics LLC
2:00-2:30	**Recent Advances in Software Development and Application of Two-Dimensional Gas Chromatography** Sarah E. Prebihalo, Kelsey L. Berrier and Robert E. Synovec, UW Chemistry
2:30-2:45	**Break**
2:45:-3:15	**Real-time, On-Line Monitoring for Quantification of U, Pu and Other Radionuclides in Complex Processing Streams** Neal Gallagher, Eigenvector Research Inc., Amanda M. Lines[1], Susan R. Adami[1], Sergey I. Sinkov[1], Amanda J. Casella[1]; Gabriel B. Hall[1], Jarrod R. Allred[1], Gregg J. Lumetta[1], Samuel A. Bryan[1], Neal B. Gallagher[2,*], Robert T. Roginski[2] [1] Energy and Environment Directorate, Pacific Northwest National Laboratory, Richland, WA 99352 [2] Eigenvector Research, Inc., 300 Bella Strada Lane, Manson, WA 98831
3:15-3:45	**Improvements in Biopharma PAT with Sequential Injection** Dan Hasle, FIA Labs
3:45-4:15	**Ammonia Sensing with Single-Walled Carbon Nanotubes** Alex Mamishev. SEAL Lab, UW Electrical Engineering
4:15-4:45	TBA
4:45	**Discussion** (arrange car-pools for Thursday)

Thursday, July 25, 2019 - Lake Kachess Clubhouse

10:15-10:45	**Industry Case Study SIFT-MS, A Discontinuous Innovation to Replace Finished Product Release for Odor by Panelist**

	Brian Goodlander, Procter and Gamble,
10:45-11:25	**Implementing Gas Chromatography for Real Time Process Analysis** Timothy J. Trinklein, Paige E. Sudol, Derrick V. Gough and Robert E. Synovec, UW Chemistry
11:25-11:55	**The Impact of Chromatographic Alignment** Brian Rohrback, Infometrix Inc.
11:55-12:30	**Lunch**
12:30-1:00	**An On-line Continuous Monitoring Strategy for API Flow Chemistry** John-David McElderry, Biogen
1:00-1:30	**Nuclear Magnetic Resonance for Process Analysis** Sophia Fricke, Matt Augustine, Chemistry, U California Davis
1:30-2:00	**Supporting Biotechnology Processes using Mass Spectroscopy through FDA Research** David Powers**,** US FDA CDER
2:00-2:15	. **Break**
2:15-2:45	**Continuous Fermentation for Protein Production: Sensor Designs and Needs** Clem Furlong, Tom Bukowski, and Scott Soelberg. Medical Genetics and Genome Sciences, UW Medicine
2:45--3:15	**Can Flow Synthesis Enable Chemical and Pharmaceutical Provision in Africa**? Paul Watts, Nelson Mandela University, South Africa – presented by Ray Chrisman, MK Optimization and Control
3:15-3:45	**Selected Topics Discussed at the 2019 CPAC Rome Workshop that are Related to the Summer Institute Theme** Ray Chrisman, MK Optimization and Control LLC
3:45-4:00	**Final Discussion, Summary, and Development of Action Plans**
4:00	**Reception**
5:00	**BBQ Dinner**