

Rome 2013 Workshop Program

CPAC / ATOCHEMIS ROME WORKSHOP ROME 25–27 MARCH 2013

CPAC (Center for Process Analysis and Control – University of Washington) and ATOCHEMIS srl will conduct a workshop at the UW Rome Center, March 25-27, 2013, Rome, Italy, for the purpose of gathering US and European scientists and engineers of similar expertise in the field of micro-instrumentation and process optimization. The goal is to catalyze transatlantic collaborations in the areas of micro-unit operations (reaction, separation, purification) and the related enabling technologies of sampling and micro-analytical technologies.

These collaborations will advance research and educational aspects to enhance the discovery, development, and production of specialty chemical, pharmaceutical, bio-technology, and food products. The goal of these advances will be in improved awareness of the global issues of safety, reduced energy use, and a positive environmental impact –things that can be achieved by these technology developments.

Historically, much of the development of micro-reaction and micro-separation technology has been in Europe, while much of the micro-analytical, sampling development, and advanced data handling has been in the U.S. Bringing these groups together will have a large impact on the important fields of ‘green chemistry’ and ‘energy reduction’ programs.

In 2013, the plan is to present and discuss the make-up of the concept of Smart Manufacturing in achieving process intensification – and follow with technology advances from a variety of sources.

CPAC has an established track record in fostering academic / industrial / national laboratory interactions, which aims at bridging the gap between basic research and full-scale process / product development. This year the Italian based process optimization business, Atochemis Srl, will assist in organizing the workshop.

The CPAC / ATOCHEMIS srl workshop at the UW Rome Center is held for the purpose of bringing together US and European scientists and engineers of similar expertise in the field of micro-instrumentation. The goal is to catalyze transatlantic collaborations in the areas of micro-reactors and the related enabling technologies of sampling and micro-analytical technologies, with an emphasis on bio-technologies.

The workshop will provide continuing educational opportunities in the areas of Micro-Instrumentation (Micro-Reactor, Micro-Analytical, Micro-Separations, etc.), Process Intensification (Flow Chemistry, Separations, Environmental, Energy Reduction), and Future

Chemical Factories (Process Control, Scale-Out and Modularity). It will be a forum for presenting and discussing advances in continuous unit operations and measurement sciences linked to improved process control incorporating Quality by Design (QbD) approaches in pharmaceutical applications. The presentations will include challenges in the selected areas, case studies, and new technical advances including emerging applications for NeSSI™ (New Sampling/Sensor Initiative).

Monday afternoon, Tuesday, and Wednesday morning will focus on the impact of micro-instrumentation to achieve the goals of Process Intensification for assessing New Manufacturing Platforms based on the value of continuous flow processing. Wednesday afternoon and Thursday morning will feature aspects of Process Optimization for Achieving REACH Compliance and Green Chemistry attributes including reduced energy and environmental impacts.

Workshop attendees include: industrial 'end-users', government scientists and engineers, instrument manufacturers, and academic researchers.

The Satellite Workshop will be held over four days - beginning at 13:30 on Monday, March 25, and ending at 16:00 on Wednesday, March 27. The Workshop Presentations will serve as a basis for open discussions with a futuristic outlook toward the technology presented and its impact on the future of Process Analytical Technology (PAT). The official language for the workshop will be English.

An informal reception for the Satellite Workshop attendees who are already in Rome will be held on Sunday.

Monday, March 25

12:00	Registration
	Introduction
13:15	Mel Koch, CPAC/APL University of Washington, US and Giorgio Borghi, ATOCHEMIS srl, Italy
13:30	Welcome John Guerin, US Embassy in Rome, Italy
Day One	"On a process scale - production and process integration"
13:45	Chemical and process-design intensification in flow - seen holistically Volker Hessel - Eindhoven University of Technology, Netherlands
14:30	System Engineering of Intensified Continuous Production of Fine Chemicals, Philippe Caze – Novelia Engineering, France
15:00	Case Study for Developing a Spectroscopic Probe for High Temperature Applications Giuseppe Caire – Infineum Italia srl, Italy
15:20	Break
15:45	University of Washington Rome Center Welcome Sheryl Brandalik, Director and Introduction of Participants

- 16:00 Life-Cycle Assessment of intensified flow chemical processes – guidance & judgment
Christin Staffel, Uniiversity of Jena, Germany
- 16:30 Advances in Continuous Chromatography for Purification of Therapeutic Proteins,
Massimo Morbidellia, Thomas Müller-Späth, ETH, Zurich, Switzerland
- 17:10 Discussion
Ray Chrisman, ATOCHEMIS srl, Italy
- 17:30 Reception

Tuesday, March 26

Day Two AM "Inside out process units - process control and sensing"

- 9:00 Introduction
Small Scale interactions of Gas/Liquid/Soilds on the Influence of Mass transfer
Claude de Bellefon, U. Lyon, France
- 9:15 Corning® Advanced-Flow™ Reactors : engineered for seamless scale-up
Alessandra Vizza, Corning, France
- 9:45 Recent developments in dynamically mixed flow systems
Steven Robinson, AM Technologies, UK
- 10:15 Break
- 10:45 Engineering Heterogeneous Reactions for Continuous Specialty Chemical Processing
Ryan Hartman, U. Alabama, US
- 11:15 Control of Flow Chemical Reactions – Using unique approaches to sampling, sensing, and data handling
Brian Marquardt CPAC / APL University of Washington, US
- 11:45 Lunch, Pancrazio

Day Two PM "On a process unit scale - reaction and separation"

- 13:00 Following Successful Reactions there is a need for Separation and Purification
Ray Chrisman, ATOCHEMIS srl, Italy
- 13:50 Novel Separation Unit Operations
Lidia Protasova, VITO, Belgium
- 14:15 Design of Simulated Moving Bed Chromatography: Methods and Tools to Achieve High Product Purity and High Yield
Ray Chrisman (for Linda Wang, Purdue University, US)

14:40	Multi-Step Synthesis Using Micro-Reactors Frank Gupton, Virginia Commonwealth University, US and Tyler McQuade, Florida State University, US
15:15	Break
15:40	Raw material quality risk management Brian Carlin, FMC Biopolymer, UK
16:05	tba
16:30	Discussion
17:30	Reception

Wednesday, March 27

Day Three	"Solution Providers"
9:00	Introduction
9:15	Incremental Model Identification of Reaction Systems Julien Billeter, EPFL, Lausanne Switzerland
9:45	Control Technologies Marco Banti, ABB, Italy
10:15	Break
10:45	Fiber optic probes Slava Artyushenko, Art Photonics, Germany
11:15	BIOLAZ: real time cleanroom viable and not viable air monitoring technology Gilberto Dalmaso, Particle Measuring Systems, Italy
11:45	Discussion
12:00	Lunch
14:00	Micro-extruders Simone Maccagnan, GIMAC, Italy (tbc)
14:30	Process Optimization Approaches Giorgio Borghi, ATOCHEMIS srl, Italy
15:00	Break
15:30	TBA
16:00	Final Discussion and Action Plans
17:00	Reception