Wednesday, 2 November 2016

09:00 **Welcome Address from the Flow Chemistry Society**
Ferenc Darvas, Chairman, Flow Chemistry Society, Switzerland

09:15

Conference Chair

Macrocyclization in Continuous Flow
Shawn Collins, Professor, Université de Montréal, Canada

The development of various strategies to enable macrocyclization of natural products and pharmaceuticals in continuous flow will be described.

10:00 **The Application of Flow Chemistry to the Manufacturing Route for MK8931**
John Naber, Associate Prinicpal Scientist, Merck & Co., Inc, United States of America

The development of a key step in the synthesis of Merck's Phase III compound for Alzheimer's disease from an initial lab scale hit through to a pilot plant campaign on hundreds of kilograms is presented.

10:30 **Coffee & Networking in Exhibition Hall**

11:00 **Accelerated C–H Activation Chemistry in Flow Microreactors**
Timothy Noel, Assistant Professor, Eindhoven University of Technology, Netherlands

11:30 **Shading Synthesis Green Using Enabling Technologies**
Duncan Browne, Lecturer in Organic Chemistry, Cardiff University, United Kingdom

In this presentation will discuss the development of continuous multistep process for the safe generation of diazonium salts followed by a green reduction by vitamin C to the corresponding hydrazines and subsequent cyclocondensation to afford a range of pyrazole products.

12:00 **Advancing Continuous Processing Through Innovative External Collaborations**
Scott May, Senior Research Advisor, Eli Lilly & Co, United States of America

This talk with highlight the results and benefits from several different LIFA and LRAP projects including continuous Asymmetric Hydroformylation, Aerobic Oxidation and Asymmetric Aza-Henry Reactions.

12:30 **Lunch & Networking in the Exhibition Hall**

13:30 **Poster Viewing Session**

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14:00

Keynote Presentation

Synthesis Design through the Lens of Flow Chemistry
Timothy Jamison, Professor, Massachusetts Institute of Technology, United States of America

The technical, tactical, and strategic opportunities that flow chemistry offers for synthetic chemistry will be discussed.

14:45 **Diazomethane without Tears. Or Explosions**
Oliver Kappe, Professor, Karl Franzens University of Graz, Austria

A simple and robust semi-batch apparatus for the generation of anhydrous solutions of diazomethane on laboratory scale is presented. Diazomethane is produced by base-mediated decomposition of Diazald within a semi-permeable Teflon AF-2400 tubing and subsequently selectively separated from the tubing into a flask.

15:15 **Preparative Fluoroalkylation via Visible Light Induced Electron Transfer**
Corey Stephenson, Professor, University of Michigan, United States of America

The development of visible light photocatalysis in flow will be presented focusing on radical fluoroalkylation reactions.

15:45 **Automated Flow Peptide Synthesis: Toward Amide Bonds at Nature's Pace**
Brad Pentelute, Assistant Professor, Massachusetts Institute of Technology, United States of America

Here we describe a rapid flow solid phase peptide synthesis methodology that enables incorporation of an amino acid residue in 40 seconds with amide-bond formation taking only 5 seconds. To demonstrate the broad applicability of this method, it was employed to synthesize hundreds of peptides and proteins.

16:15 **Coffee & Networking in Exhibition Hall**

16:45 **The Utilization of Flow Chemistry to Explore the Formation of Biomolecules in Space**
Daryl Sauer , Research Scientist, University of Wisconsin Parkside, United States of America

This presentation will detail efforts to utilize flow chemistry to prepare biologically significant molecules, both known (i.e., prebiotic) and unknown, based on conditions and building blocks found in space.

17:15 **Enz-Flow – The Union of Continuous Processing and Bioprocessing for Chemical Synthesis**
Amanda Evans, Assistant Professor, California State University Fullerton, United States of America

In order to establish new, greener, precedents for generating active pharmaceutical ingredients (APIs), the Evans group is focused on advancing the fusion of continuous processing and bioprocessing technologies, or "Enz-Flow".

17:45 **Radical Polymerization of Acrylic Acid and Acrylamide in Microreactors**
Kai Wang, Associate Professor, Tsinghua University, China

Reaction kinetics and molecule variation were studied using tubular microreactors for the polymerization of water soluble monomers.

18:15 **Drinks Reception in the Exhibition Hall**

Thursday, 3 November 2016

08:30 **Carbon Nanohoops in Continuous Flow**
Ramesh Jasti, Associate Professor, Organic, Inorganic, Materials, and Supramolecular Chemistry, University of Oregon, United States of America

The cycloparaphenylenes, or carbon nanohoops, are the smallest possible slices of carbon nanotubes. In this presentation, I will describe my group's development of the key macrocyclization reaction in flow to prepare these materials.

09:00

Keynote Presentation

The Use of Continuous Flow to Facilitate Sustainable Fine Chemical and API Manufacturing in Africa
Paul Watts, Professor & Research Chair, Nelson Mandela Metropolitan University, South Africa

The talk will address how fine chemicals may be manufactured from natural feedstocks and how APIs such as AIDS medicine may be produced within the country.

09:45 **Analyzing in Flow**
Michael Organ, Professor, York University, Canada

Discussion will focus around the development of in-line sampling and analysis for reaction process optimization and production run monitoring.

10:15 **Coffee & Networking in Exhibition Hall**

10:45 **Towards Development of Chemo-Enzymatic Continuous-Flow Strategies for API's Synthesis**
Rodrigo Souza, Professor, Federal University of Rio De Janeiro, Brazil

Development of Chemo-enzymatic continuous-flow cascade reaction will be presented

11:15 **Development of Continuous Flow Chemistry Using Online PAT**
Matt Bio, President / CEO , Snapdragon Chemistry, United States of America

The integration and use of in-line process monitoring tools to facilitate the discovery and rapid optimization of flow chemistry processes will be discussed through case studies.

11:45 **Novel Conditions for the Preparation of Diazo Reagents in Flow and their Applications**
Andre Charette, Professor, Universite De Montreal, Canada

Diazo compounds are versatile reagents in organic synthesis. A new set of conditions has been developed for their preparation in continuous flow. The diazo reagents are produced in solution free of contaminants that may interfere with the subsequent reactions.

12:30 **Lunch & Networking in the Exhibition Hall**

13:30 **Poster Viewing Session**

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Reaction Chemistry & Engineering

14:00

Conference Chair

Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions
Aaron Beeler, Assistant Professor, Boston University, United States of America

Development of reactions in flow has many advantages, but perhaps the most enabling is the ability to facilitate transformations that are otherwise challenging or impossible. We are working to develop such reactions and apply them to synthesis and medicinal chemistry. This presentation will discuss the optimization and application of photochemical reactions and reactions utilizing highly reactive, short-lived intermediates.

14:45 **Bridging Industry and Academia with Enabling Technologies**
Claudio Battilocchio , Research Associate, University of Cambridge , United Kingdom

This talk will show specific examples of industrial challenges that were solved using specific enabling solutions.

15:15 **Coffee & Networking in Exhibition Hall**

15:45 **Developing A Compact, Portable 4.7 T Driven NMR System for At-Line Reaction Monitoring**
David Strand, President & CEO, Protasis Corporation, United States of America

16:15 **Development of Continuous Flow Micro-reactors for Fast Liquid and Liquid-liquid Reactions**
Arturo Macchi, Professor of Chemical and Biological Engineering, University of Ottawa, Canada

The reactor design for fast liquid and liquid-liquid reactions was optimized based on the impact of phase physical properties, mixer geometry, method of energy input and scale.

Web site: http://selectbiosciences.com/conferences/index.aspx?conf=FCC2016