CPAC Rome Workshop 2014

March 24-26, 2014, University of Washington Rome Center, Conference Room

Piazza del Biscione 95, Rome, Italy 00186

Sponsored by: art photonics, Rollo Agro Enterprises, UOP

Monday, March 24

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30</td>
<td>Registration Opens</td>
</tr>
<tr>
<td>13:15</td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td>Mel Koch, CPAC/APL, University of Washington, USA</td>
</tr>
<tr>
<td>13:30</td>
<td>Welcome Comments from the US Embassy in Rome, Italy</td>
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</tbody>
</table>

Day One "On a Process Scale - Production and Process Integration"

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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</thead>
<tbody>
<tr>
<td>13:45</td>
<td>Chemical and Process-Design Intensification in Flow - seen Holistically</td>
</tr>
<tr>
<td></td>
<td>Ray Chrisman, Atochemis and Kurt vandenBussche, UOP, USA</td>
</tr>
<tr>
<td>14:30</td>
<td>The Changing Face of Flow Chemistry: From Micro Reactors to Continuous Production</td>
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<td></td>
<td>Paul Watts, Nelson Mandela University, South Africa</td>
</tr>
<tr>
<td>15:00</td>
<td>Case Study, Need for Process Monitoring for Process Control</td>
</tr>
<tr>
<td></td>
<td>Giuseppe Caire, Infineum Italia, Italy</td>
</tr>
<tr>
<td>15:20</td>
<td>Break</td>
</tr>
<tr>
<td>15:45</td>
<td>University of Washington Rome Center Welcome, Sheryl Brandalik, Director, and Introduction of Participants</td>
</tr>
<tr>
<td>16:00</td>
<td>Analytics in Power to Gas Applications</td>
</tr>
<tr>
<td></td>
<td>Stefan Malcharek and Peter Berghauser, Siemens, Germany</td>
</tr>
<tr>
<td>16:30</td>
<td>Control Technologies for PAT / QbD and Process Improvements,</td>
</tr>
<tr>
<td></td>
<td>Marco Banti, ABB, Italy</td>
</tr>
<tr>
<td>17:10</td>
<td>Discussion</td>
</tr>
<tr>
<td></td>
<td>Ray Chrisman, ATOCHEMIS srl, Italy</td>
</tr>
<tr>
<td>17:30</td>
<td>Con Apertivo, UW Rome Center, Apartment 422, 4th Floor</td>
</tr>
</tbody>
</table>
**Tuesday, March 25**

**Day Two AM "Utilizing Developments in Continuous Process Units - Process Control, Sampling, and Sensing"**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Introduction</td>
<td>Mel Koch, CPAC/APL, University of Washington, USA</td>
</tr>
<tr>
<td>9:15</td>
<td>Micro-structured Flow Reactors as a Versatile Lab-Tool for Two and Three-Phase Reactions</td>
<td>Laurent Vanoye, Régis Philippe, Alain Favre-Réguillon, and Claude de Bellefon, University of Lyon, France</td>
</tr>
<tr>
<td>9:45</td>
<td>Developing Multi-Step Chemical Synthesis Using Micro-Reactors</td>
<td>Frank Gupton, Virginia Commonwealth University, and Tyler McQuade, Florida State University, USA</td>
</tr>
<tr>
<td>10:15</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>Developing Process Control for Flow Chemical Reactions – Using Unique Approaches to Sampling, Sensing, and Data Handling</td>
<td>Brian Marquardt CPAC/APL University of Washington, USA</td>
</tr>
<tr>
<td>11:15</td>
<td>Choosing the Right Reactors for the Right Reactions: Implementing Flow Processes in Production Environments</td>
<td>Peter Poechlaier and Kai Dombach, DSM, Austria</td>
</tr>
<tr>
<td>11:45</td>
<td>A Case Study on the Conversion of a Batch to a Continuous Process</td>
<td>Vincenzo Fusillo, Atochemis srl, Italy</td>
</tr>
<tr>
<td>12:15</td>
<td>Lunch, Pancrazio Lunch, Da Pancrazio, Palazzo Pio Ground Floor</td>
<td></td>
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</tbody>
</table>

**Day Two PM "On a Process Unit Scale - Reaction and Separation"**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:45</td>
<td>Following Successful Reactions There is a Need for Separation and Purification</td>
<td>Ray Chrisman, ATOCHEMIS srl, Italy</td>
</tr>
<tr>
<td>14:05</td>
<td>Micro-Extruder Technology Developments for Solids handling</td>
<td>Simone Maccagnan, GIMAC, Italy</td>
</tr>
<tr>
<td>14:35</td>
<td>Development of Predictive Model Control Approaches</td>
<td>Olav Martin Kvalheim, University of Bergen, Norway</td>
</tr>
<tr>
<td>15:15</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>15:40</td>
<td>Data Fusion and Managing Big Data from the Laboratory to Manufacturing</td>
<td>Martin Gadsby, Optimal Industrial Automation Limited, UK</td>
</tr>
<tr>
<td>16:05</td>
<td>On-line Technology that Enables Process Control in the Food Industry</td>
<td>Jens Petter Wold, Nofima, Norway</td>
</tr>
<tr>
<td>16:30</td>
<td>Discussion</td>
<td></td>
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<tr>
<td>17:30</td>
<td>Reception Con Apertivo, UW Rome Center, Apartment 422, 4th Floor</td>
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**Wednesday, March 26**

**Day Three “Solution Providers”**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>9:00</td>
<td>Introduction, Mel Koch, CPAC/APL, University of Washington, USA</td>
</tr>
<tr>
<td>9:10</td>
<td>Developments and Implementation of Smart Sampling Systems</td>
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<tr>
<td></td>
<td>Graham Johnson, Parker Hannifin Manufacturing, UK</td>
</tr>
<tr>
<td>9:35</td>
<td>Useful Applications of Smart Micro-Gas Chromatography with the NeSSI™ Platform</td>
</tr>
<tr>
<td></td>
<td>Spencer Parker and John Crandall, Falcon Analytical, USA</td>
</tr>
<tr>
<td>9:50</td>
<td>Improvements in Sampling and Monitoring Bop-Processes</td>
</tr>
<tr>
<td></td>
<td>Brian Marquardt, CPAC / APL, University of Washington, USA</td>
</tr>
<tr>
<td>10:15</td>
<td>Break</td>
</tr>
<tr>
<td>10:40</td>
<td>MEMS-Based Spectrometer and Fiber Probes for Process Spectroscopy</td>
</tr>
<tr>
<td></td>
<td>Slava Artyushenko, ART Photonics, Germany</td>
</tr>
<tr>
<td>11:05</td>
<td>Final Discussion and Action Plans</td>
</tr>
<tr>
<td>12:00</td>
<td>Conclusion of Rome Workshop</td>
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Informal Reception, UW Rome Center, Apartment 422, 4th Floor