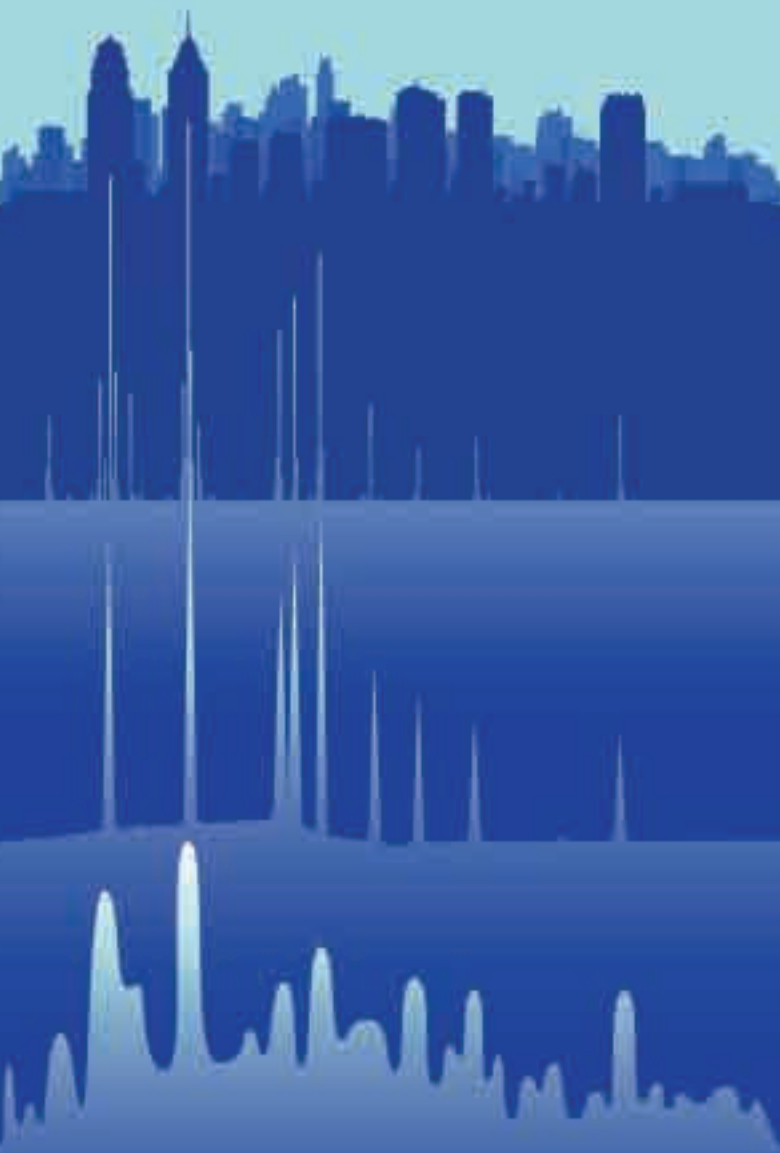


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## Message from the President

On behalf of the Pittcon 2013 Organizing Committee—welcome to this year's Conference and Exposition in Philadelphia—the city in the center of it all! This is the first time that Pittcon has been in Philadelphia, and we are looking forward to a most productive and enjoyable week.

This year, we are very pleased to announce the co-location of the two-day Food Labs Conference which will be taking place in conjunction with Pittcon on March 19 & 20. Registration for Food Labs also includes unlimited, full access to the Pittcon exposition and technical program.

Other highlights include the Wallace H. Coulter Plenary Lecture (Nobel Laureate Sir Harry Kroto) and Keynote Lecture (R. Michael Barnett). To help you navigate through all of the information, keep track of all that is happening at this year's event, and to customize your agenda, be sure to download the free Pittcon 2013 mobile app which is available for Android and iOS devices.

We would like to also acknowledge the ACS ANYL (American Chemical Society Division of Analytical Chemistry) which will once again be contributing to our Technical Program along with other co-programming partnerships that include ALMA, ANALÍTICA Latin-America, CACO, Chemical Heritage Foundation, Coblenz Society, IAEAC, JAIMA, Lab Manager Magazine, PAI-NET, RSC, SAS, and SEAC. To help conferees minimize scheduling conflicts, there will be no technical presentations between the hours of 11:00 a.m. and 2:00 p.m. daily, to allow time to visit the exhibits without missing any important technical sessions.

Special thanks to C&EN (*Chemical & Engineering News*) for producing this Pittcon 2013 Pocket Guide and for their continuing support. This booklet will prove to be a valuable resource during conference week by providing a wealth of information regarding the highlights at Pittcon, as well as Philadelphia's fine restaurants and robust nightlife.

Finally, we would like to thank all our sponsors, exhibitors, and conferees for their ongoing support, and hope that Pittcon 2013 proves to be a week jam-packed with exploration, discovery, and innovations in laboratory science for everyone. Your attendance helps us to continue our mission to advance scientific education, as the proceeds from Pittcon are used to fund science education and outreach programs at all levels from kindergarten through adult education.



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# Technical Program



## Awards and Lectures

---

### Sunday | afternoon

**Pittcon Heritage Award**, Room Ballroom B, 4:30 pm

**Wallace H. Coulter Plenary Lecture**, Room Ballroom B, Level 300, 4:30 pm

### Monday | morning

**Chromatography Forum of the Delaware Valley Dal Nogare Award**, Room 126A, 8 am

**Pittsburgh Conference Achievement Award**, Room 114, 8 am

### Monday | afternoon

**SEAC - Charles N Reilley and Young Investigators Awards**, Room 114, 2 pm

### Tuesday | morning

**Pittsburgh Analytical Chemistry Award**, Room 114, 8 am

**The Coblenz Society/ABB - Bomem-Michelson Award**, Room 126B, 8 am

### Tuesday | afternoon

**Pittsburgh Spectroscopy Award**, Room 114, 2 pm

**RSC - Robert Boyle Prize for Analytical Science**, Room 126B, 2 pm

### Wednesday | morning

**ACS Division of Analytical Chemistry Award for Young Investigators in Separation Science**, Room 114, 8 am

### Wednesday | afternoon

**Ralph N Adams Award**, Room 126A, 2 pm

**The Coblenz Society - Williams-Wright Award**, Room 114, 2 pm

**Wallace H. Coulter Keynote Lecture**, Room Ballroom B, Level 300, 5 pm



## Bioanalytical

---

### Sunday | afternoon

**Human Exposome Discovery and Disease Investigation**, Room 125, 1 pm

**New Spectroscopic Approaches to Protein Structure - Understanding Amyloid Fibrils**, Room 120C, 1 pm

**Bioanalytical Analysis**, Room 115C, 1 pm

**Biological Sample Preparation**, Room 116, 1 pm

### Monday | morning

**Integrated Metabolomics: New Strategies and Innovations**, Room 125, 8 am





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## Bioanalytical (cont.)

---

**A Survey of Recent Advances in Protein Analysis**, Room 126B, 8 am  
**Industrialized Metabolomics - From Tools to Workflow to Data**, Room 202B, 8 am

### Monday | afternoon

**ACS ANYL w/AAPS APQ - Bioanalytical Method Validation: Concepts, Expectations and Challenges in Small Molecule and Macromolecule**, Room 201B, 2 pm

**Biological Roles of Glycan Isomers Defined Through Chromatographic and Electrophoretic Techniques**, Room 123, 2 pm

**New Reagents and New Technologies for Biological Imaging**, Room 125, 2 pm

**Next Generation Approaches to Clinical and Chemical Sensing**, Room 118A, 2 pm

**Graphene for Biosensing Applications**, Room 203B, 2 pm

**New Frontiers in Protein Quantitation: Enabling Technologies, Methods, and Workflows**, Room 121C, 2 pm

**Bioanalytical: Tissues and Cells**, Room 119B, 2 pm

### Tuesday | morning

**Advances in Blood Glucose Monitoring**, Room 117, 8 am

**Bioanalytical Tools for the Selection and Molecular Analysis of Rare Cells**, Room 124, 8 am

**Functional Nucleic Acid Probes for Bioanalysis and Biomedicine**, Room 125, 8 am

**Portable Miniaturized Analytical System for Biochemical Analysis**, Room 118C, 8 am

**Neurochemistry**, Room 120C, 8 am

### Tuesday | afternoon

**New Analytical Techniques for Monitoring ATP and Adenosine**, Room 122A, 2 pm

**Metabolomics**, Room 202B, 2 pm

### Wednesday | morning

**ACS ANYL - Mass Spectrometry of Proteins in the Pharmaceutical and Biophysical Sciences**, Room 201A, 8 am

**Dynamic Monitoring of Neurochemicals - A Journey Throughout the Body**, Room 123, 8 am

**Structure and Dynamics of Intrinsically Disordered Proteins**, Room 121B, 8 am

**Bioanalytical Application with LC-MS**, Room 115C, 8 am

### Wednesday | afternoon

**ACS ANYL - Bioanalytical Chemistry - Advances in Analysis of Living Systems**, Room 125, 2 pm

**Detecting the Cytokine Network: Towards Understanding Chemical Communication in the Immune System**, Room 122A, 2 pm

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## Bioanalytical (cont.)

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### Thursday | morning

**ACS ANYL - Metals in Biology - Characterization of Moiety and Function**, Room 125, 8 am

**Challenges, Opportunities, and Innovation in DNA and RNA Screening**, Room 123, 8 am

**Novel Techniques for Biomedical Analysis**, Room 116, 8 am



## Data

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### Monday | morning

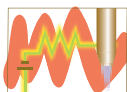
**Data Standards for Analytical Chemistry - The ASTM AnIML Solution**, Room 202A, 8 am

### Thursday | morning

**Laboratory Data and Information Management**, Room 120B, 8 am

### Thursday | afternoon

**Laboratory Information Management: Integration and Implementation**, Room 120A, 2 pm



## Electrochemistry

---

### Monday | morning

**Electrochemistry of Living Cells**, Room 124, 8 am

### Monday | afternoon

**Bioanalytical: Electrochemistry**, Room 115C, 2 pm

**Electrochemistry: Electrodes and Interfaces**, Room 120B, 2 pm

### Tuesday | morning

**SEAC - Pivotal Ideas in Electroanalysis**, Room 118A, 8 am

### Tuesday | afternoon

**Electroanalytical Chemistry Applied To Neurochemical Problems**, Room 120A, 2 pm

**Electrochemistry: Bioanalytical and Neurochemical Applications**, Room 120B, 2 pm

### Wednesday | afternoon

**Voltammetric and Other Electroanalytical Techniques**, Room 203B, 2 pm

### Thursday | morning

**Electrochemistry at Nanoscale Structures**, Room 121A, 8 am



## Environment & Fuels

---

### Sunday | afternoon

**Immunoanalysis for Environmental Analysis**, Room 122A, 1 pm

**New Instrumentation for Biofuels Research - And How To Deal with the Flood of New Data**, Room 121B, 1 pm

**Environmental Sensors**, Room 118A, 1 pm

### Monday | afternoon

**Water Quality and Environmental Issues**, Room 118C, 2 pm

**On-Line Monitoring for Nutrients and Chemical Contaminants**, Room 126A, 2 pm

**Environmental Analysis of Organics**, Room 120C, 2 pm

### Tuesday | morning

**A Decade of QuEChERS, I**, Room 121C, 8 am

**Environmental Analysis with GC-MS**, Room 119B, 8 am

### Tuesday | afternoon

**A Decade of QuEChERS, II**, Room 202A, 2 pm

**Advances in Energy Research: Biofuels Analysis and Biomaterials**, Room 115C, 2 pm

**Analysis Related to Shale Gas Drilling**, Room 115C, 3:35 pm

**GCMS: Fuel, Energy, Petrochemical, Polymers, and Plastics**, Room 121A, 2 pm

### Wednesday | morning

**Emerging Environmental Contaminants: Methodologies and Practices for Meeting New Performance Requirements**, Room 202A, 8 am

**Improvements in Sensors and Process Analyses for Energy Applications**, Room 120A, 8 am

### Wednesday | afternoon

**Environmental: Gas Chromatography**, Room 115A, 3:35 pm

### Thursday | morning

**Environmental Applications of High Resolution Mass Spectrometry**, Room 118C, 8 am

**Advances in Energy-Related Hydrocarbon Analysis**, Room 122B, 8 am

**Environmental: Water Analysis**, Room 121C, 8 am

**Sample Preparation for Environmental Analysis**, Room 121B, 8 am

### Thursday | afternoon

**Rapid Methods for Determination of Additives, By-Products, and Contaminants in Technical Oils**, Room 117, 2 pm

**Environmental Analysis**, Room 116, 2 pm



## Food Analysis

---

### Sunday | afternoon

**Standard Reference Materials (SRMs) for Food, Environmental, Nutritional, and Proteomic Measurements**, Room 126B, 1 pm

### Monday | morning

**Food Science: Pathogens and Pesticides**, Room 115C, 8 am

### Monday | afternoon

**Food Science: Pesticides and Contaminants**, Room 121A, 2 pm

### Tuesday | morning

**Training in Food Analytical Techniques Using LC-MS, HPLC, Spectroscopic, and Molecular Instrumentation**, Room 126A, 8 am

### Tuesday | afternoon

**Advanced Mass Spectrometry for Food Safety and Cosmetics**, Room 201A, 2 pm

### Wednesday | morning

**New Developments in Food Analysis**, Room 122A, 8 am

### Wednesday | afternoon

**Sensors for Food Quality and Safety: From the Lab to Unobtrusive Applications**, Room 119B, 2 pm

### Thursday | morning

**Analysis of Agricultural Samples**, Room 115A, 8 am

**Food Components and Characteristics**, Room 120A, 8 am



## Forensics & Homeland Security

---

### Sunday | afternoon

**ACS ANYL - Forensic Science: Preparing Students for the Job**, Room 123, 1 pm

### Monday | morning

**Homeland Security: Analysis of Drugs, Explosives, and Chemical Warfare Agents**, Room 116, 8 am

### Tuesday | morning

**Forensic Science for Chemical and Biological Threats**, Room 203B, 8 am

**GCMS: Homeland Security/Food Science**, Room 120A, 8 am

### Tuesday | afternoon

**New and Emerging Analytical Technologies in Forensic Science**, Room 118C, 2 pm

### Wednesday | morning

**Ion Mobility Spectrometry: The Analytical Method of Choice for Security, Public Safety, and National Defense**, Room 122B, 8 am



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## Forensics & Homeland Security (cont.)

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### Wednesday | afternoon

**Forensic Analysis in the Lab and Crime Scene**, Room 122B, 2 pm

**Homeland Security: Improved Methods and Techniques of Analysis**, Room 116, 2 pm



## General

---

### Sunday | afternoon

**The Wallace H Coulter Plenary Lecture**, Ballroom B, 4:45 pm

### Monday | morning

**Chemical Heritage Foundation - Instrumentation Innovation: A Personal History of Instruments and Innovation**, Room 201A, 8 am

**Practical Methods for Implementing the Undergraduate Analytical Science Curriculum**, Room 121C, 8 am

### Monday | afternoon

**Specialty Gas**, Room 121B, 2 pm

### Tuesday | morning

**ACS ANYL - General Topics in Analytical Chemistry**, Room 202A, 8 am

**Fluorescence/Luminescence Materials Analysis**, Room 120B, 8 am

### Tuesday | afternoon

**SEAC - Highlighting Young Investigators**, Room 118A, 2 pm

**High-Throughput Chemical Analysis**, Room 117, 2 pm

### Wednesday | morning

**Brazilian Analytical Chemistry: Focus on Trace Analysis**, Room 118C, 8 am

**Emerging Diagnostic Technologies for Resource-Limited Countries**, Room 124, 8 am

**Proteins in Artworks: Identification, Modification and Localization**, Room 121C, 8 am

**Bringing Research into the Analytical Teaching Lab: A Win-Win for All Involved**, Room 126B, 8 am

**Art Conservation and Analysis**, Room 115A, 8 am

### Wednesday | afternoon

**The Wallace H Coulter Keynote Lecture**, Ballroom B, Level 300, 5 pm

**Analytical Chemists Easing World Poverty**, Room 201A, 2 pm

### Thursday | morning

**Analytical Chemistry in the Next Ten Years**, Room 201A, 8 am

**The Role of the Analytical Laboratory in Biomonitoring Studies**, Room 122A, 8 am

**ALMA - Lab Management: Basics and Beyond**, Room 126B, 8 am





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## General (cont.)

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**NSF Division of Undergraduate Education: Strategies for Successful Proposals and Projects**, Room 202B, 8 am

**Gas Analysis**, Room 118A, 8 am

**Process Analytical Chemistry**, Room 119B, 8 am

**Materials Science: Characterization**, Room 118A, 9:35 am

**Chemical Methods**, Room 115A, 9:35 am



## Mass Spectrometry

---

### Sunday | afternoon

**New Ionization Approaches in Mass Spectrometry: Molecular Imaging**, Room 121A, 1 pm

### Monday | morning

**MALDI**, Room 118C, 8 am

**Mass Spectrometry Analysis**, Room 118A, 8 am

### Monday | afternoon

**Miniature Mass Spectrometers: Reaching the Exponential of the Growth Curve**, Room 201A, 2 pm

**Shootout in the (Elemental) MS Corral**, Room 122B, 2 pm

**New Instrumentation/Software with Mass Spectrometry**, Room 120A, 2 pm

### Tuesday | morning

**Novel Approaches to Ambient Desorption/Ionization Mass Spectrometry**, Room 122A, 8 am

**Recent Developments and Applications of Mass Spectrometry in Analytical Characterization of Biotherapeutics**, Room 201B, 8 am

### Tuesday | afternoon

**Bioanalytical: Mass Spectrometry**, Room 119B, 2 pm

### Thursday | morning

**Analysis of Pathogenic Bacteria in Complex Mixtures and Microbial Communities by Proteomics Mass Spectrometry**, Room 124, 8 am

**Ion Mobility Spectrometry as a Primary Analytical Technology in the Laboratory and in the Field**, Room 117, 8 am



## Micro- & Nanoscale

---

### Sunday | afternoon

**Emerging Simple and Inexpensive Microdevice Technologies for Point-of-Care Assays**, Room 124, 1 pm



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#### Monday

- Better Food Contamination Testing through New Innovations in UHPLC and MS/MS Technology 11:30 AM
- Principals and Benefits of Micro UHPLC for a Range of Applications – a Primer 12:30 PM

#### Tuesday

- Fundamentals of LC/MS/MS Technology 10:00 AM
- Versatility for your Analytical Challenges with the QTRAP® System 11:30 AM
- A Novel Method for the Separation and Confirmation of Lipids Using Differential Mobility Mass Spectrometry 12:30 PM
- How Compliance and Validation Services Can Help You 2:00 PM

#### Wednesday

- New Workflows Using High Resolution MS/MS to Find Assorted Contaminants in Food, Environmental, or Forensic Samples 11:30 AM
- Fundamentals of LC/MS/MS Technology 12:30 PM

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## Micro- & Nanoscale (cont.)

**IAEAC - Nanoparticles and Nanomaterials: Analytical and Health Aspect**, Room 122B, 1 pm

**Nanotechnology Against Cancer: A Fight in Progress**, Room 121C, 1 pm

### Monday | morning

**Microfluidic Approaches to Quantitative Biology and Medicine**, Room 122B, 8 am

**Biomedical Applications of Microfluidic Devices**, Room 120B, 8 am

**Nanotechnology: Biotechnology**, Room 120A, 8 am

### Monday | afternoon

**Single Molecule Characterization with Nanofluidic Devices**, Room 122A, 2 pm

### Tuesday | morning

**ACS ANYL SCSC - Nanoparticles in Separation Science**, Room 123, 8 am

**JAIMA - The State-of-the-Art Technologies from Japan: Analytical Instruments with / for Nano-Physics Technology I**, Room 122B, 8 am

**Nanotechnology: Fluorescence/Luminescence**, Room 120B, 9:35 am

### Tuesday | afternoon

**JAIMA - The State-of-the-Art Technologies from Japan: Analytical Instruments with / for Nano-Physics Technology II**, Room 122B, 2 pm

**Microfluidics for Detection of Circulating Tumor Cells**, Room 124, 2 pm

### Wednesday | morning

**Hyphenated Microfluidic Techniques**, Room 125, 8 am

**Bioanalytical: Microfluidics**, Room 116, 8 am

**Nanotechnology: Sensors**, Room 120C, 8 am

### Wednesday | afternoon

**ACS ANYL - Translating Microfluidics into the Analytical Curriculum: Making Innovation Practical**, Room 124, 2 pm

**SAS - Elemental Analysis at the Nano Scale**, Room 201B, 2 pm

**Fluorescence/Luminescence Bio and Nano Applications**, Room 115C, 2 pm

**Microfluidics/Lab-on-a-Chip: Applications**, Room 120B, 2 pm

**Nanotechnology**, Room 120C, 2 pm

**Nanotechnology: Synthesis**, Room 120C, 3:35 pm

### Thursday | morning

**Microfluidics/Lab-on-a-Chip: Devices**, Room 203B, 8 am

### Thursday | afternoon

**Advances in Applications of Surface Analytical and Microscopic Imaging Techniques for the Characterization of Nanostructured Materials**, Room 201B, 2 pm



## Micro- & Nanoscale (cont.)

**Nanomaterials and Analytical Chemistry: A Blissful Marriage**, Room 201A, 2 pm

**Microfluidics/Lab-on-a-Chip: Fundamentals**, Room 120C, 2 pm

**Nanoparticles and SPR**, Room 121B, 2 pm



## Pharmaceuticals/Pharmacology

### Sunday | afternoon

**ACS ANYL - Pharmaceutical and Bioanalytical Chemistry**, Room 115A, 1 pm

### Monday | morning

**ACS ANYL w/AAPS APQ - Understanding Analytical Method Variance and the Impact for QbD Filing for Pharmaceutical Products**, Room 201B, 8 am

**Current Status and Emerging Trends of Chromatography and Mass Spectrometry in the Analysis of Small Molecules, Biologics, and Biosimilars**, Room 123, 8 am

**Pharmaceutical: Other Analytical Methods**, Room 120C, 8 am

### Monday | afternoon

**Counterfeit Pharmaceuticals and Identification**, Room 124, 2 pm

### Tuesday | morning

**ACS ANYL - Ion Mobility Spectrometry in Pharmaceutical Analysis**, Room 201A, 8 am

**Recent Advances in Ion Chromatographic Analyses of Pharmaceuticals and Biopharmaceuticals**, Room 201C, 8 am

**Pharmaceutical: Chromatography Methods**, Room 121A, 8 am

### Tuesday | afternoon

**Best Practice of Ultra-High-Pressure LC (UHPLC) in Pharmaceutical Analysis**, Room 201B, 2 pm

**Near-Infrared: What It Is, Should, and Will Do in Pharmaceutical Analyses**, Room 125, 2 pm

**Quantitative Analysis of Biomarkers in Drug Discovery and Development: Advances and Challenges**, Room 121C, 2 pm

### Wednesday | morning

**Pharmaceutical: Spectroscopy Methods**, Room 118A, 9:35 am

### Thursday | afternoon

**Adaptation of Platform Analytical Technologies in Pharmaceutical Development**, Room 119B, 2 pm

**Drug Discovery**, Room 115A, 3:35 pm



## Polymers & Plastics

---

### Sunday | afternoon

**Polymers and Plastics Characterization**, Room 202A, 1 pm

### Tuesday | afternoon

**GC-MS: Fuel, Energy, Petrochemical, Polymers and Plastics**, Room 121A, 2 pm

### Wednesday | afternoon

**Polymer Studies by Mass Spectrometry**, Room 118A, 2 pm



## Sensing Technologies

---

### Sunday | afternoon

**Biosensors**, Room 117, 1 pm

### Monday | morning

**Ionic Liquid-Based Sensors**, Room 203B, 8 am

### Monday | afternoon

**Bioanalytical: Sensors**, Room 116, 2 pm

### Tuesday | morning

**Bioanalytical: Surfaces and Materials**, Room 115C, 8 am

**Biomedical: Sensors**, Room 116, 8 am

### Tuesday | afternoon

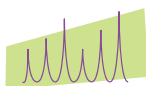
**Sensors and Assays with Uncommon Capabilities**, Room 121B, 2 pm

### Wednesday | morning

**Ionophore-Based Chemical Sensors, I**, Room 121A, 8 am

### Thursday | afternoon

**Biosensors**, Room 115A, 2 pm



## Separations

---

### Sunday | afternoon

**GC: Optimization**, Room 118C, 1 pm

**Liquid Chromatography: Columns**, Room 120A, 1 pm

**Liquid Chromatography: Fundamentals**, Room 119B, 1 pm

### Monday | morning

**Recent Advances in Detection for Ion Analysis**, Room 117, 8 am

**Two-Dimensional GC (GCxGC)**, Room 118C, 9:35 am



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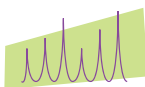
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## Separations (cont.)

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### Tuesday | morning

**Bioanalytical: CE and HPLC**, Room 115A, 8 am

### Tuesday | afternoon

**GC-MS: Applications**, Room 120C, 2 pm

### Wednesday | morning

**The Analysis of Challenging Samples Using Ion Analysis Techniques**, Room 117, 8 am

**LC-MS Analysis**, Room 120B, 8 am

**Separation Sciences: Applications to Bioanalysis, Food, Drug, and Nanotechnology**, Room 203B, 8 am

### Wednesday | afternoon

**Applications of Two-Dimensional High-Performance Liquid Chromatography**, Room 123, 2 pm

**LC-MS: Method Developments**, Room 120A, 2 pm

### Thursday | morning

**The Present and Future of Core-Shell Column Technology**, Room 202A, 8 am

**Liquid Chromatography: Biomedical, Bioanalytical, and Pharmaceutical**, Room 120C, 8 am

**Separation Sciences: Applications to Pharmaceuticals and Others**, Room 121C, 9:35 am

### Thursday | afternoon

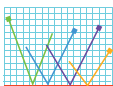
**ACS ANYL SCSC - Supercritical Fluid Chromatography**, Room 118C, 2 pm

**Advances in Orthogonal Separations**, Room 121A, 2 pm

**Capillary Electrophoresis: Method Development**, Room 115C, 2 pm

**GC-MS: Analysis**, Room 118A, 2 pm

**Liquid Chromatography: Method Development**, Room 120B, 2 pm



## Spectroscopy

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### Sunday | afternoon

**Molecular Spectroscopy in the Small – Advances in NMR, IR, Terahertz, and Raman**, Room 120B, 1 pm

**Raman/FTIR Analytical Applications**, Room 202B, 1 pm

### Monday | morning

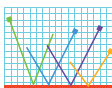
**Recent Advances in Raman Spectroscopy and Instrumentation**, Room 201C, 8 am

**Bioanalytical: Spectroscopy**, Room 115A, 8 am

**Molecular Spectroscopy Advances**, Room 119B, 8 am

**Vibrational Spectroscopy**, Room 119B, 9:35 am





## Spectroscopy (cont.)

### Monday | afternoon

**The Twenty-Fourth James L Waters Symposium: Chemical Imaging Spectroscopy**, Room 126B, 2 pm

**Vibrational Spectroscopy and Imaging for Point-of-Care Diagnoses: From the Benchtop to the Bedside**, Room 117, 2 pm

### Tuesday | morning

**Raman SERS and Imaging**, Room 121B, 8 am

### Tuesday | afternoon

**Frequency Comb Based Spectroscopy**, Room 123, 2 pm

**Atomic Spectroscopy**, Room 116, 2 pm

**Portable Instruments**, Room 117, 3:35 pm

### Wednesday | morning

**SAS - Vibrational Spectroscopy of Biological Systems: From Fundamental Studies to Clinical Practice**, Room 119B, 8 am

**Biospectroscopy**, Room 118A, 8 am

**Nuclear Magnetic Resonance**, Room 115A, 9:35 am

### Thursday | morning

**Applications of Surface Analysis and Microscopic Imaging Techniques**, Room 115C, 8 am

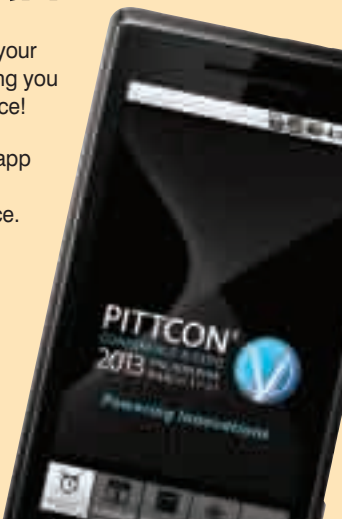
### Thursday | afternoon

**Spectroscopic Dissection and Quantification of Biomolecular Assemblies**, Room 125, 2 pm

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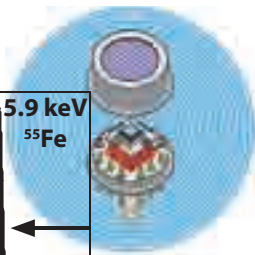
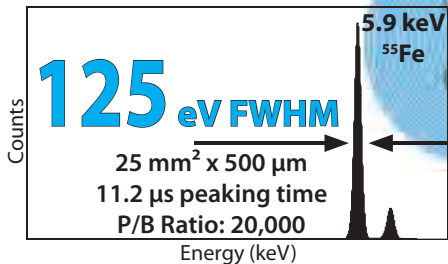


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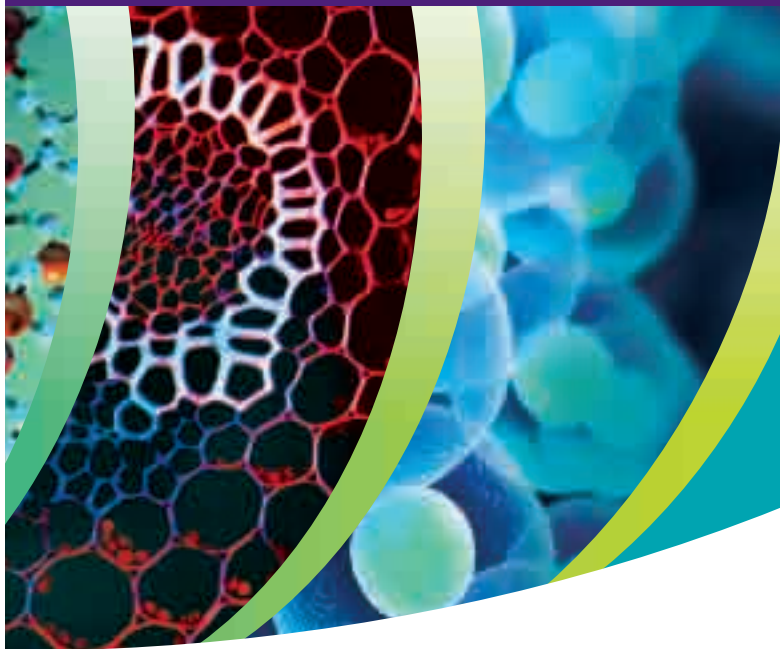
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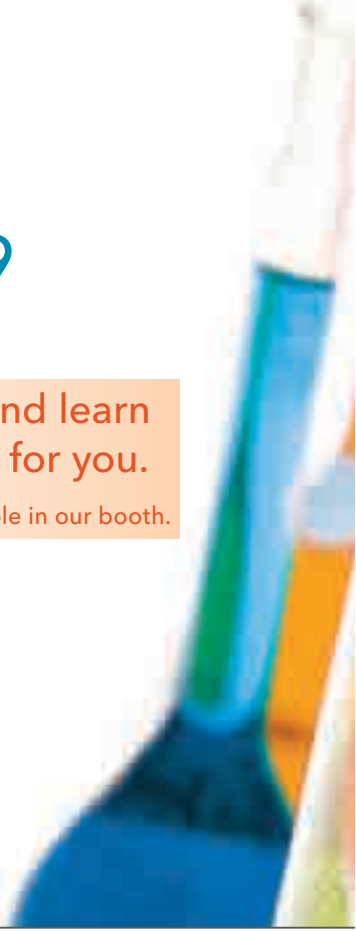
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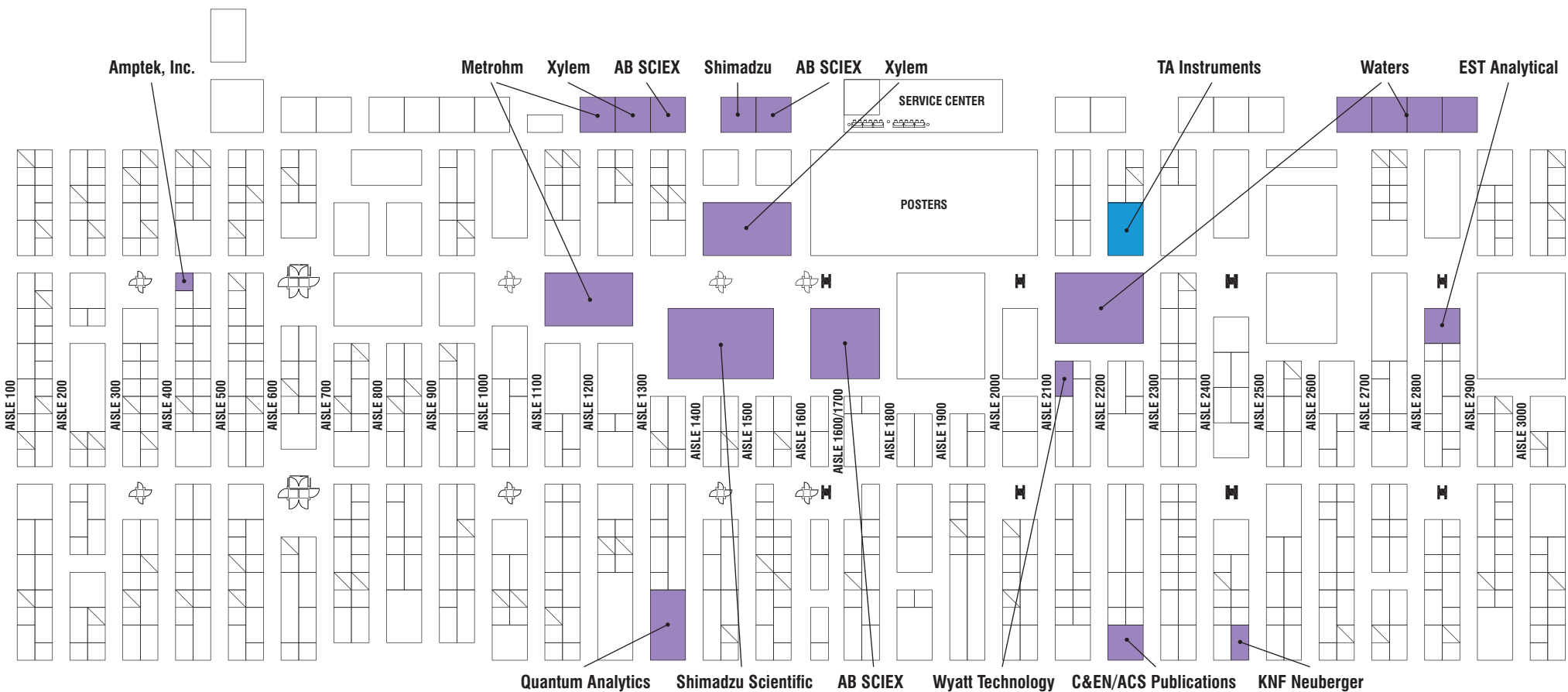


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High quality, convenient childcare will be available within the Marriott Hotel, in Independence Ballroom, Salon 2. Pittcon will provide a subsidized childcare program that will utilize the expertise of a nationally known professional childcare organization. Each member of the Camp Pittcon staff is a childcare professional trained to supervise and entertain your child. We are committed to making your Pittcon 2013 experience family-friendly.

#### Hours of Operation:

Sunday, March 17, 2013

1 pm to 5:30 pm

Monday, March 18 - Thursday, March 21, 2013

7:30 am to 5:30 pm

#### Registration Costs:

(Visa and MasterCard accepted)

Advance Registration by February 1, 2013

(Minimum 3 hours)

6 months to 35 months \$10.00 per hour

3 years and older \$9.00 per hour

After February 1, 2013 (Minimum 3 hours)

6 months to 35 months \$12.00 per hour

3 years and older \$10.00 per hour

Parents of participants must be registered Pittcon 2013 conferees or exhibitors.



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### Gifts and Souvenirs

The Pittcon Store is located on the bridge over Arch Street, which is located near rooms 201-204. The store is ideal for purchasing souvenirs and fun items to remind you of Pittcon 2013 all year long! A new 2013 mascot, apparel, gifts, and business items are available at affordable prices. Stop by to see what we have to offer!

## Mixers

Relax and enjoy refreshments or fit some networking into your busy schedule!

### Sunday Mixer after the Wallace H. Coulter Plenary Lecture

Enjoy complimentary refreshments and snacks while you view informative posters and meet your colleagues. This event is an annual tradition where many conferees meet year after year. It takes place in the Grand Hall.

### Wednesday Mixer after the Wallace H. Coulter Keynote Lecture

There will be a complimentary mixer immediately following the Wallace H. Coulter Keynote Lecture in the Grand Hall.

### Exposition Mixers

There will be complimentary mixers on the exposition floor on Tuesday, from 2 pm to 4 pm, and Thursday, from 1 pm to 3 pm. Take a break from your busy day to enjoy snacks and refreshments. It's a great chance to network, too!

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Key features of the Pittcon 2013 mobile app include the ability to ...

- Create a personalized agenda
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- View exposition and convention center floor maps
- Search for restaurants, evening entertainment, and other local resources
- Send a post show report that includes your notes and favorites
- Receive real time messages and alerts that keep you updated throughout the week

# Local Attractions

## Amish Farm and House 2395 Lincoln Hwy. E.

10 am – 4 pm  
amishfarmandhouse.com

## American Philosophical Society (APS) Museum

104 S. 5th St.  
10 am – 4 pm  
apsmuseum.org

## American Swedish Historical Museum

1900 Pattison Ave.  
10 am - 4 pm  
americanswedish.org/

## Betsy Ross House

239 Arch St.  
10 am - 5 pm  
historicphiladelphia.  
org/betsy-ross-house/  
what-to-see/

## Chemical Heritage Foundation Museum

315 Chestnut St.  
10 am – 4 pm  
chemheritage.org/

## Declaration House

7th and Market Streets  
9 am – 5 pm  
nps.gov/inde/declaration-  
house.htm

## The Fabric Workshop and Museum

1214 Arch St.  
10 am – 6 pm  
fabricworkshopandmuseum.  
org/

## Fleisher Art Memorial

719 Catherine St.  
10 am – 5 pm  
fleisher.org

## Fort Mifflin on the Delaware

Fort Mifflin & Hog Island  
Roads  
10 am – 4 pm  
fortmifflin.us

## Free Library of Philadelphia

1901 Vine St.  
9 am – 9 pm  
freelibrary.org

## Independence Hall

Between 5th and 6th on  
Chestnut St.  
9 am – 5 pm  
nps.gov/inde/index.htm

## Institute of Contemporary Art (ICA)/ University of Pennsylvania

118 S. 36th St. at Sansom  
Philadelphia  
11 am – 8 pm  
icaphila.org

## Liberty 360/Light of Liberty, Inc.

6th and Chestnut Streets  
10 am – 6 pm  
Lightsofliberty.org

## Longwood Gardens

U.S. Rte. 1  
Kennett Square, PA  
9 am – 5 pm  
Longwoodgardens.org

## The Mütter Museum

19 South 22nd St.  
10 am – 5 pm  
collegeofphysicians.org/  
mutter-museum/

## National Constitution Center

525 Arch St.  
9:30 am – 5 pm  
constitutioncenter.org

## Peddler's Village

Routes 202 and 263  
10 am - 6 pm  
peddlersvillage.com

## Pennsylvania Academy of the Fine Arts

118 & 128 N. Broad St.  
10 am – 5 pm  
pafa.org

## Philadelphia History Museum

15 S. 7th St.  
10:30 am - 4:30 pm  
philadelphiahistory.org

## Philadelphia Zoo

3400 W. Girard Ave.  
9:30 am - 5 pm  
philadelphiazoo.org

## Wagner Free Institute of Science

1700 W. Montgomery Ave.  
9 am - 4 pm  
wagnerfreeinstitute.org



# Local Transportation

## **SEPTA Rail Line:** (215-580-7800)

<http://www.septa.org>  
SEPTA Rail Lines service the entire Philadelphia Region. The Regional High Speed Airport Line connects Philadelphia International Airport directly to downtown Philadelphia in just 20 minutes. (To get to the Pennsylvania Convention Center, you're going to want to disembark at the Market East Station.) The fare is \$7 if purchased on board, or \$6 if purchased at a station in center city. An unlimited ride day pass may be purchased either at a station or on board for \$11 for all SEPTA services except to stations in New Jersey.

SEPTA's Customized Community Transport (CCT Connect) service picks up registered passengers, seniors and individuals with disabilities at Zone 1 located outside of each bag claim area. To schedule a pick-up, registered users may call 215-580-7700.

**Taxi Cab Companies:** All taxi rates are based per trip, not per person. Most taxis can accommodate up to 3 passengers. Certain vehicle types can accommodate 4 passengers. Taxi services can be accessed at Zone 5 on the Commercial Transportation Roadway at the Philadelphia International Airport. Taxis charge a \$28.50 flat rate from the airport to Central Philadelphia Area.

- **Abc Express Taxi** 215-970-8903
- **All City Taxi** 215-467-6666
- **City Cab Company** 215-492-6600
- **PHL Taxi** 215-232-2000
- **Victory Dispatch** 215-225-5000

## **PHLASH:** (215-389-8687)

<http://www.visitphilly.com/tours/philadelphia/plash/>  
Phlash is a seasonal trolley route designed to be a quick and easy connection between Center City attractions and most downtown hotels. Use the stop at 12th

and Market Street to access the Convention Center. A Phlash ticket costs \$2 per person per ride. An individual all-day PhlashPass is just \$10, and an all-day family Phlash pass (two adults and two children ages 6-17) is just \$15. Children under 5 and seniors are always free.

## **Amtrak:** (1-800-872-7245)

<http://www.amtrak.com/>  
Amtrak operates trains from 30th Street Station with high-speed service along the Northeast Corridor and points north, east, west, and south. From Amtrak's 30th Street Station take the SEPTA Regional Rail to the Convention Center. A regional rail train departs every few minutes. With your Amtrak ticket, the ride to Center City is free.

**Parking:** Both garages and lots are conveniently located within blocks of the Pennsylvania Convention Center. Below are just a few options. Please note that you may need to call ahead to confirm availability and rates.

- **Central Parking Systems**  
1030 Race St.  
**877-717-0004**
- **Convention Center Parking**  
142 North Broad St.  
**215-563-4264**
- **E-Z Park**  
912 Arch St.  
**215-733-0700**
- **Parkway Corporation**  
150 N. Broad St.  
**215-575-4005**
- **Philadelphia Parking Authority**  
913 Filbert St.  
**215-561-3636**
- **Standard Parking**  
Convention Center District  
1835 Market St.  
**215-568-4025**

# Dining Guide

## American

### The Farm and Fisherman

1120 Pine St.  
267-687-1555

### Talula's Garden

210 W. Washington Sq.  
215-592-7787

### Tommy DiNic's

1136 Arch St.  
215-923-6175

### Village Whiskey

118 South 20th St.  
(215) 665-1088

## Asian

### Chinese, Japanese, & Asian Fusion

### Buddakan – Asian Fusion

325 Chesnut St.  
215-574-9440

### Doma – Japanese

1822 Callowhill St.  
215-564-1114

### E Mei Restaurant – Chinese

915 Arch St.  
215-627-2500

### Fat Salmon – Japanese (Sushi)

719 Walnut St.  
215-928-8881

## French

### Amuse

1421 Arch St.  
215-422-8222

## Greek

### Kanella

1001 Spruce St.  
215-922-1773

## Indian

### Palace at the Ben

834 Chestnut St.  
267-232-5600

## Italian

### Giorgio on Pine

1328 Pine St.  
215-545-6265

## Latin American

### Alma De Cuba

1623 Walnut St.  
215-988-1799

## Mediterranean

### Barbuzzo

110 S 13th St.  
215-546-9300

## Mexican

### Lolita

106 S 13th St.  
215-546-7100

## Seafood

### Oyster House

1516 Sansom St.  
215-567-7683

## Steak

### Fogo de Chao – Brazilian Steakhouse

1337 Chestnut St.  
215-636-9700

## Wine, Cheese & Beer

### Tria

18th & Sansom Streets  
215-972-8742

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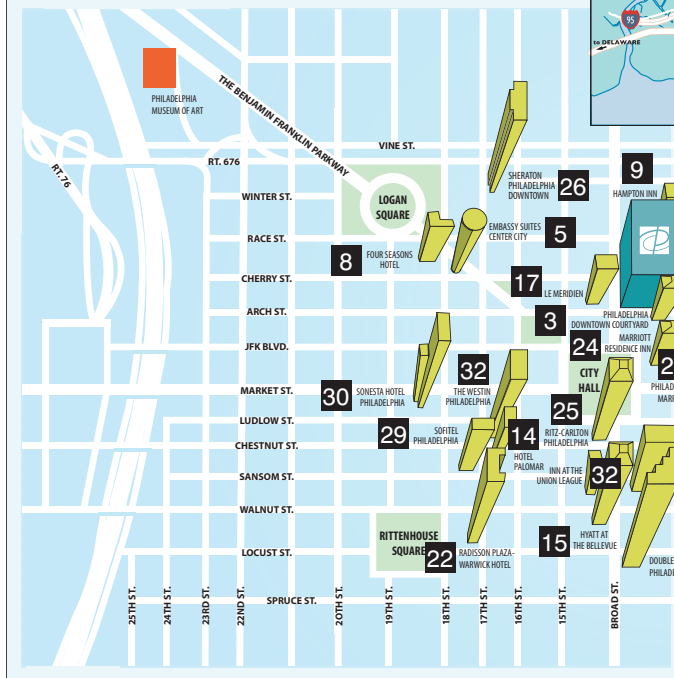
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| <p><b>1 Aloft Philadelphia Airport</b><br/>4301 Island Ave<br/>215-298-1700</p> <p><b>2 Courtyard by Marriott Philadelphia Airport</b><br/>8900 Bartram Ave<br/>215-365-2200</p> <p><b>3 Courtyard by Marriott Philadelphia Downtown</b><br/>21 North Juniper St<br/>215-496-3200</p> <p><b>4 Doubletree by Hilton Hotel Philadelphia Center City</b><br/>237 South Broad St<br/>215-893-1668</p> | <p><b>5 Embassy Suites Philadelphia Center City</b><br/>1776 Benjamin Franklin Parkway<br/>215-561-1776</p> <p><b>6 Four Points by Sheraton Philadelphia Airport</b><br/>4101A Island Ave<br/>215-492-0400</p> <p><b>7 Four Points by Sheraton Philadelphia Center City</b><br/>1201 Race St<br/>215-496-2700</p> <p><b>8 Four Seasons Hotel Philadelphia</b><br/>One Logan Square<br/>215-963-1500</p> |
|---|---|



**9 Hampton Inn Philadelphia Center City Convention Center**

1301 Race St  
215-665-9100

**10 Hilton Garden Inn Philadelphia Center City**

1100 Arch St  
215-923-0100

**11 Holiday Inn Express Philadelphia Midtown**

1305-11 Walnut St  
215-735-9300

**12 Holiday Inn Philadelphia Historic District**

400 Arch St  
215-923-8660

**13 Hotel Monaco Philadelphia**

433 Chestnut St  
215-925-2111

**14 Hotel Palomar Philadelphia**

117 South 17th St  
215-563-5006

**15 Hyatt at the Bellevue**

200 South Broad St  
215-893-1234

**16 Hyatt Regency Philadelphia at Penn's Landing**

201 South Columbus Blvd  
215-928-1234

- 17 Le Meridien Philadelphia**  
1421 Arch St  
215-422-8200
- 18 Loews Philadelphia Hotel**  
1200 Market St  
215-627-1200
- 19 Omni Hotel at Independence Park**  
401 Chestnut St  
215-925-0000
- 20 Philadelphia Airport Marriott**  
One Arrivals Rd,  
Terminal B  
856-982-8774
- 21 Philadelphia Marriott Downtown**  
1201 Market St  
215-625-2900
- 22 Radisson Plaza Warwick Hotel Philadelphia**  
220 South 17th St  
215-790-7780
- 23 Residence Inn Philadelphia Airport**  
4630 Island Ave  
215-492-1161
- 24 Residence Inn Philadelphia Center City**  
One East Penn Square  
215-557-0005
- 25 Ritz-Carlton Philadelphia**  
10 Ave of the Arts  
215-523-8000
- 26 Sheraton Philadelphia Downtown Hotel**  
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215-365-6600
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120 South 17th St  
215-589-8300
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1800 Market St  
215-561-7500
- 31 The Inn at the League**  
140 South Broad St  
215-563-6500
- 32 The Westin Philadelphia**  
99 South 17th St  
215-563-1600



# Shuttle Bus Routes

## Conference Shuttle Bus Service

Schedule of service between hotels on shuttle bus routes and Convention Center:

### Sunday, March 17

9:00 am – 12:00 pm	20 Minutes
12:00 pm – 4:00 pm	15 Minutes
4:00 pm – 8:00 pm	20 – 25 Minutes

### Monday, March 18

6:30 am – 9:30 am	15 Minutes
9:30 am – 3:30 pm	20 – 25 Minutes
3:30 pm – 7:30 pm	15 Minutes

### Tuesday, March 19

7:00 am – 10:00 am	15 Minutes
9:00 am – 3:00 pm	20 – 25 Minutes
3:00 pm – 6:00 pm	15 Minutes

### Wednesday, March 20

7:00 am – 10:00 am	15 Minutes
9:00 am – 3:00 pm	20 – 25 Minutes
3:00 pm – 7:00 pm	15 Minutes

### Thursday, March 21

7:00 am – 10:00 am	15 Minutes
9:00 am – 3:00 pm	20 – 25 Minutes
3:00 pm – 6:00 pm	15 Minutes

Please call at least 1 hour in advance for special assistance or shuttle questions: 800-795-9907



# Hotel Shuttle Bus Boarding Locations

Route 1 – RED	Boarding Location
Embassy Suites City Center	Curbside, 18th St
Four Seasons	Embassy Suites CC
Sheraton Downtown	Curbside, 17th St (Across St)

Route 2 – BLUE	Boarding Location
Sonesta	Outside Main Lobby
Ritz-Carlton	Curbside, S. Penn. Square

Route 3 – GREEN	Boarding Location
Sofitel	Outside Main Lobby
Westin	Board at Sofitel
Radisson Plaza Warwick	Outside Main Lobby
DoubleTree	Outside Main Lobby
Holiday Inn Express Midtown	Board at DoubleTree
Hyatt at the Bellevue	Board at DoubleTree

Route 4 – YELLOW	Boarding Location
Holiday Inn Historic District	Outside Main Lobby
Hotel Monaco	Corner, 4th and Chestnut St
Omni at Independence Park	Corner, 4th and Chestnut St
Sheraton Society Hill	Outside Main Lobby
Hyatt Regency at Penn's Landing	End of Driveway, to left

AIRPORT HOTELS	Boarding Location
Aloft Philadelphia Airport	Board at Sheraton Suites
Courtyard by Marriott	Outside Main Lobby
Four Points	Board at Sheraton Suites
Marriott PHL	Outside Main Lobby
Residence Inn	Outside Main Lobby
Sheraton Suites	Outside Main Lobby

WALKING HOTELS
Four Points by Sheraton City Center, Hampton Inn Center City Convention Center, Hilton Garden Inn Center City, Le Meridien, Loews Hotel, Courtyard by Marriott Downtown, Residence Inn City Center







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## Pittcon Short Courses

For more information, contact the Pittsburgh Conference, Short Course Registration, 300 Penn Center Blvd., Ste. 332, Pittsburgh, PA 15235-5503 (800-825-3221; 412-825-3220; fax 412-825-3224), or go to [www.pittcon.org/short/index.html](http://www.pittcon.org/short/index.html).

### Saturday, March 16

- Accessories and Techniques for FT-IR Sample Analysis
- Advanced Excel I: Least Squares and Error Propagation
- Bio Nano Materials and Tissues - Technology & Applications
- Essentials of Modern HPLC/UHPLC 1: Fundamentals and Applications
- Laboratory Technology Management
- Language and Matter: Technical Writing for Analytical Scientists and Managers
- Solid-State Light Sources: Utilize the Benefits of Light-Emitting Diodes and Laser Diodes as the Light Sources of the 21st Century
- Statistically Sound Calibration Studies - Detection Limits and Quantitation Limits - Part 1 of 2 - Theory
- 101 Ways To Build A Better Lab on a Smaller Budget
- Creating Killer Poster Presentations
- Grants 101
- Virtual Labs and Scenario Based Learning Resources for Introductory Chemistry Courses
- Writing a Grant Proposal

### Saturday, March 16/Sunday, March 17

#### One and a Half Day Course

- Advances in Countercurrent Chromatography and Related Techniques

### Saturday, March 16/Sunday, March 17

#### Two-Day Course (8:30 am - 5:00 pm)

- Advanced Topics in Capillary Gas Chromatography – Getting More from your GC
- Application of Inductively Coupled Plasma Atomic Emission (ICP-AES) Spectrometry
- Headspace Analysis -Theory and Practice
- Integrated Analytical Instrument Qualification (AIQ) and Computerized System Validation (CSV)
- Methods Development, Validation Procedures, and Regulatory Compliance Issues
- Practical Gas Chromatography

### Sunday, March 17

- Advanced Excel II: Write Your Own Functions and Macros
- Analytical Method Validation, Verification, and Transfer: Using a QbD Approach to Method Lifecycle
- Audit of IT Suppliers
- Chemometric Techniques for Quantitative Analysis
- Essentials of Modern HPLC/UHPLC 2: Operation, Troubleshooting, and Method Development
- Industrial Problem Solving Using Thermal Analysis Techniques
- Introduction to Bioseparations
- Introduction to GLP Regulations and Bioanalytical Method Validation By LC/MS/MS

**Short Courses** (cont.)

LC/MS: Method Development and Applications to Small Molecules  
 Nanomaterials for Energy  
 Pharmacokinetics for the Analytical Scientist  
 Powerful Communications: Public Speaking for Scientists  
 Sample Preparation for Chromatography  
 Solventless Sampling and Sample Preparation Technologies for Laboratory and On-Site  
 Statistically Sound Calibration Studies, Detection Limits, and Quantitation Limits – Part 2 of 2 – Computer Workshop  
 Understanding and Using the Analytical Information Markup Language (AnIML) Specification  
 A SIMPLE, Exciting New Way To Manipulate, Fly Liquids In Analytical Chemistry From TLC to LC/MS and Beyond  
 High Enantiomeric Separations  
 Long-Term Archival of Laboratory Data  
 Arsenic Compounds in Food and Drink: Measurement, Speciation, and Toxicity  
 Basic Techniques of Mass Spectrometric Imaging  
 Cost-Effective Data Management in Laboratories  
 Hydrophilic Interaction Chromatography (HILIC) - Companion to Reversed Phase HPLC  
 Introduction to Modern Ion Chromatography

**Sunday, March 17 / Monday, March 18****Two-Day Course**

Sampling and Sample Preparation  
 Stability Testing of Pharmaceutical Products

**Monday, March 18**

Advanced Excel III: Matrix Algebra and Extended Precision  
 Applying Lean Principles in the Analytical Laboratory  
 Conducting Effective Investigations of Atypical and Out of Specification Laboratory Results  
 Designing and Implementing the Electronic Laboratory  
 Gas Chromatography/Infrared Spectrometry  
 Interpretation of Electrospray Mass Spectra of Small Molecules  
 Laboratory Accreditation  
 LC-MS-MS (QqQ, Q TOF , Q TRAP and Orbitrap) of Endocrine Disruptors, Pharmaceuticals, Illicit Drugs, Perfluorinated Compounds, and Nanomaterials in the Environment  
 LC/MS Strategies for the Identification of Impurities, Degradants, and Metabolites  
 LIMS and ELN: How To Select, Plan and Implement the Right Software Solutions for Your Laboratory (Kyle McDuffie, CSols Inc)  
 Practical Validation of IT Systems in the Regulated Industries  
 Real-Time PCR  
 Safety in the Laboratory (Part I)  
 Understanding ISO/IEC 17025:2005  
 America Invents Act (Patent Reform)  
 Basic HPLC Method Development  
 Characterization of Coated Polymers

**Short Courses** (cont.)

Digital Imaging for Materials and Products Characterization: Industrial Applications

Handheld Vibrational Spectrometers (Raman, Mid- and Near-Infrared): Has Their Performance For On-Site Measurements Reached Market Maturity?

Introduction to ICP Mass Spectrometry

Lab-on-a-Chip Devices I

Laser Ablation Chemical Analysis: LA-ICP-MS and LIBS

Biosensors for Food Safety: Immunoassay Design and Detection Techniques

Digital Imaging for Materials and Products Characterization: Laboratory Applications

Elemental Impurities in Pharmaceuticals

Intellectual Property Documents and Drafting

Ionic Liquids in GC

Lab-on-a-Chip Devices II

Physical Chemistry of Macromolecules, Part I

Preparative HPLC - Basic Fundamentals and Applications

Scanning Probe Microscopy: Overview and Industrial Applications

**Monday, March 18/Tuesday, March 19****One and a Half Day Course**

Introduction to Multivariate Statistics and Dynamic Multivariate Analysis

Legal and Not So Legal Highs: Emerging Designer Drugs

Statistics for the Non-Statistician with Applications to Analytical Chemistry

**Tuesday, March 19**

Analytical Organic Mass Spectrometry

Attack the Variance, Course 1: Tools To Understand Variance in Analytical Methods

Basic Laboratory Skills Workshop

Chemical Reaction Hazards Workshop

Coaching as a Powerful Leadership Tool

Control of Impurities in Pharmaceutical Products: Impurities, Degradants, Residual Solvents, and Elemental Impurities

Fundamentals of Particle Size Analysis with an Emphasis on Light Scattering Techniques

Getting Started with an Electronic Laboratory Notebook

Impurities in Pharmaceuticals - A Survey Course

Ion Mobility Spectrometry with Mass Spectrometry

Laboratory Information Management Systems LIMS

Managing Conflict

Safety in the Laboratory (Part II)

Technical Writing at Work

Wastewater Microbiology: A Laboratory Program for Operators

Advanced Closed Domains (Particles, Grains, Cells, etc.) Morphological and Morphometrical Characterization by 2D and 3D Imaging

Developing and Implementing Calibration Programs (Andy Ferrell, PCI-LLC)

Maintaining the Validated State of Analytical Laboratory Instrumentation in GMP/GLP Environments

Measurement and Interpretation of pH in Aqueous and NonAqueous Solutions and Other Stuff

**Short Courses** (cont.)

Physical Chemistry of Macromolecules, Part II  
 Professional Analytical Chemists in Industry: What Does An Analytical Chemist Do?  
 Some Approaches to Analytical Data Treatment Using Microsoft® Excel  
 Trace Level Method Development and Validation Practice in the Pharmaceutical Industry  
 Ambient Desorption/Ionization - Mass Spectrometry: From Fundamentals to Applications  
 Color Measurement - It's More Than Just Aesthetics  
 Cyanide Analysis Using the Newly Approved ASTM Cyanide Methods  
 How To Select an ICP-MS: The Most Important Analytical Considerations  
 Hyperspectral Imaging Applied to Complex Particulate Solids Systems  
 Instrument Control Fundamentals  
 Introduction to Two-Dimensional X-ray Diffraction  
 Light Scattering Techniques for Absolute Macromolecular Characterization  
 Maintaining Calibration Programs – Compliance Perspective (483s, Warning Letters & Consent Decree)  
 Particle Size by Dynamic Light Scattering and Zeta Potential Characterization  
 Physical Chemistry of Macromolecules, Part III  
 Primer on XRF Spectrometry:

**Tuesday, March 19/Wednesday, March 20****One and a Half Day Courses**

Atomic Force Microscopy, a Toolkit for Nanotechnology Characterization: From Basic Modes to Advanced Applications

**Tuesday, March 19/Wednesday, March 20****Two-Day Courses**

Raw Data, Results, and Reportable Values; A Compliant Approach to QC Laboratory Data Management  
 Understanding and Utilizing Ion Chromatography Methods

**Wednesday, March 20**

Advanced Gas Chromatography: Specialized Techniques  
 Analysis of Corrosion Control Parameters  
 Attack the Variance, Course 2: Strategies for Building Robust Analytical Methods  
 Conducting Out-of-Spec Investigation for Analytical Testing  
 Developing, Validating, and Troubleshooting Dissolution Methods  
 Green Analytical Chemistry  
 High-Speed Open Innovation  
 Highlights of FDA GLP  
 Highly Successful Strategies for LC/MS Quantitation: Current Applications and Emerging Technologies  
 How To Be a More Effective Chemical Hygiene Officer  
 Practical Introduction to Near IR and Raman Spectroscopy  
 Quality Assurance in Real-Time PCR  
 Speciation Analysis for Environmental, Nutrition, and Industrial Applications using Hyphenation ICP/MS  
 Supercritical Fluid Chromatography in the Pharmaceutical Industry  
 Supervisory Skills for Technical Managers

**Short Courses** (cont.)

- Writing at Work
- Hyperspectral Imaging II: Applications
- Multivariate Calibration as an Aid To Develop Atomic Spectroscopy Methods
- Physical Chemistry of Macromolecules, Part IV
- Practical Handheld (HH) XRF, pXRF in the Workplace
- Selection and Preparation of Buffers for Aqueous and Partially Aqueous Solvents, for Example, LC Mobile Phases
- Techniques for the Handling of Biological Samples I
- Nanoparticles and Risk Assessment
- Optimizing the GC Performance Through Process and Gas Delivery Systems Enhancements
- Root Cause Analysis
- Sampling for Particle Size Analysis
- Techniques for the Handling of Biological Samples II
- User and Safety Training for Handheld XRF (PXRF) in the Workplace

**Wednesday, March 20/Thursday, March 21****One and a Half Day Courses**

- Basic HPLC - Fundamentals, Applications, and Troubleshooting
- HPLC Method Development for LC/MS: Practical Theory, Concepts, and Emerging
- OSHA 10 Hour General Industry: Emphasis on Laboratory Setting

**Wednesday, March 20/Thursday, March 21****Two-Day Courses**

- Basic Theory, Instrumentation, and Applications of Vibrational Spectroscopy (Raman, Mid-Infrared and Near-Infrared) in Chemical Quality and Process Control
- ISO 17025

**Thursday, March 21**

- Analytical Metrology
- Confidence in Analytical Results and Measurement Uncertainty
- Emerging IT for the Laboratory
- Fast Two-Dimensional Liquid Chromatography: Theory and Practice
- Hazardous Wastes - Sampling, Sample Preparation (Leaching Tests), Compliant Analysis using ICP-AES and MS, Regulations, Risk Assessment, and Recycling
- HPLC Method Development for Small Molecule Pharmaceuticals
- Introduction to Drug Discovery and Development Processes for Analytical Scientists
- Introduction to LCMS for Chromatographers and Beginners
- Managing Paradox To Improve Planning and Decisions and Performance
- Modern Methods for Chemometric Analysis
- Qualification and Validation of Laboratory Instruments and Equipment for Regulatory and QS Compliance (IQ, OQ, PQ)
- Recent Advances in Solvent Microextraction (SME) and Liquid Phase Microextraction (LPME) Techniques
- Separations: Beyond the Basics
- Simplified Methods for Nutrient Testing - HACH



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## Short Courses (cont.)

Writing Testable and Verifiable User Requirements for Computerized Laboratory Systems

A Hands-On Example on How To Develop a PLS Regression Model

Choosing and Troubleshooting Sample Preparation Methods

Delivering a Successful Laboratory Informatics Project

QM/LIMS/SDMS/ELN - Reaching the Promised Land: The Role of Lab Informatics in the LEAN Lab

Qualification of Analytical Instruments for the Pharmaceutical Laboratory

Side Illuminated Optical Fiber Sensor with a High Density of Sensing Points

Understanding your Laboratory Equipment Needs: Fume Hoods and Biosafety Cabinet Use

Game Over or Project Reset: Rescuing Failed Informatics Projects

Improving Teamwork and Task-Focus in the Analytical Laboratory

OSHA's Hazard Communication Standard (HCS) Is Changing: Are You Ready?

Social Media for Life Science Instrument Marketers: Boost Awareness, Increase Leads, and Avoid Time Wasting Failures

UniQuant - Learning To Swim in the Deep End of the Standardless Pool

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The Pittcon Pocket Guide is produced by C&EN, the flagship publication of the American Chemical Society.

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