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"Serving The World of Chemical Analysis"

110th Meeting

2014 Program

October 14 - 15, 2014

Galveston Island, Texas


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2014 Conference Schedule

Monday October 13, 2014

Gulf Golf Tournament
Moody Golf Course

11:00 AM Lunch
12:00 PM Shotgun Start
Golf Awards Night - Lone Star Flight Museum
7:00 - 9:30 PM

Tuesday October 14, 2014

8:50 AM - 4:30 PM Technical Sessions
5:00 PM - Keynote Speech
U.S. Senator Ted Cruz

Kick-off Breakfast 7:30 - 9:00 AM Sponsored by Premier Lab Supply, Shimadzu, & Envantage

7:30 AM - 5:00 PM Exhibits

New Product Showcase - 11:30 AM - 1:00 PM - Exhibit Hall

Lunch - 11:30 AM - 1:30 PM - Sponsored by **Chemplex Industries**

5:00 PM - 6:00 PM Vendor Meeting - Floral Hall A

Wednesday October 15, 2014

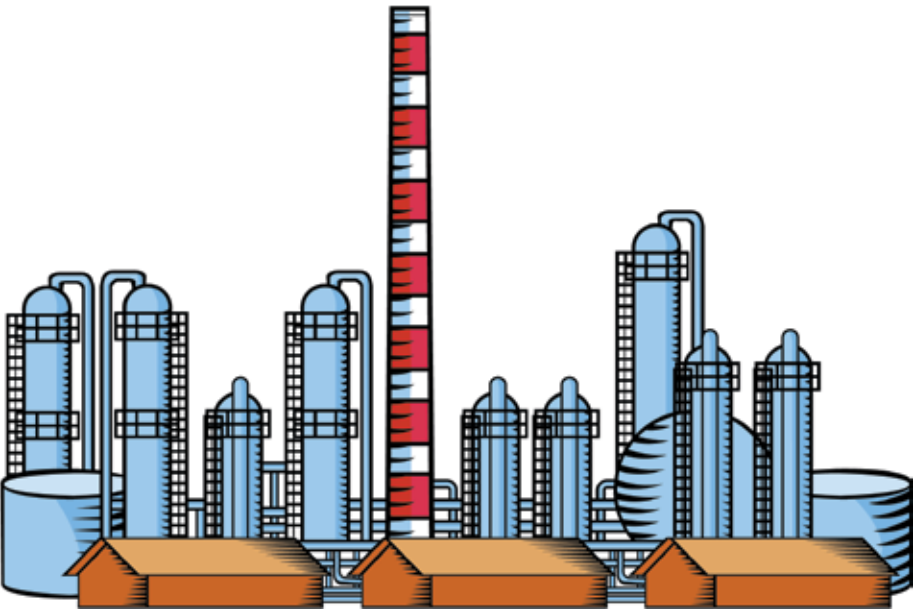
8:45 AM - 4:00 PM Technical Sessions

8:00 AM - 5:00 PM Exhibits

9:00 AM - 5:00 PM Poster Sessions

New Product Showcase - 11:30 PM - 1:00 PM

Lunch - 11:30 AM - 1:30 PM - Sponsored by **Agilent Technologies**



Gulf Coast Conference Program

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Submissions for publication are encouraged and should be sent to the Editor at the above addresses. Advertising rates, material requirements, deadlines, etc. should be addressed to the above addresses as well.

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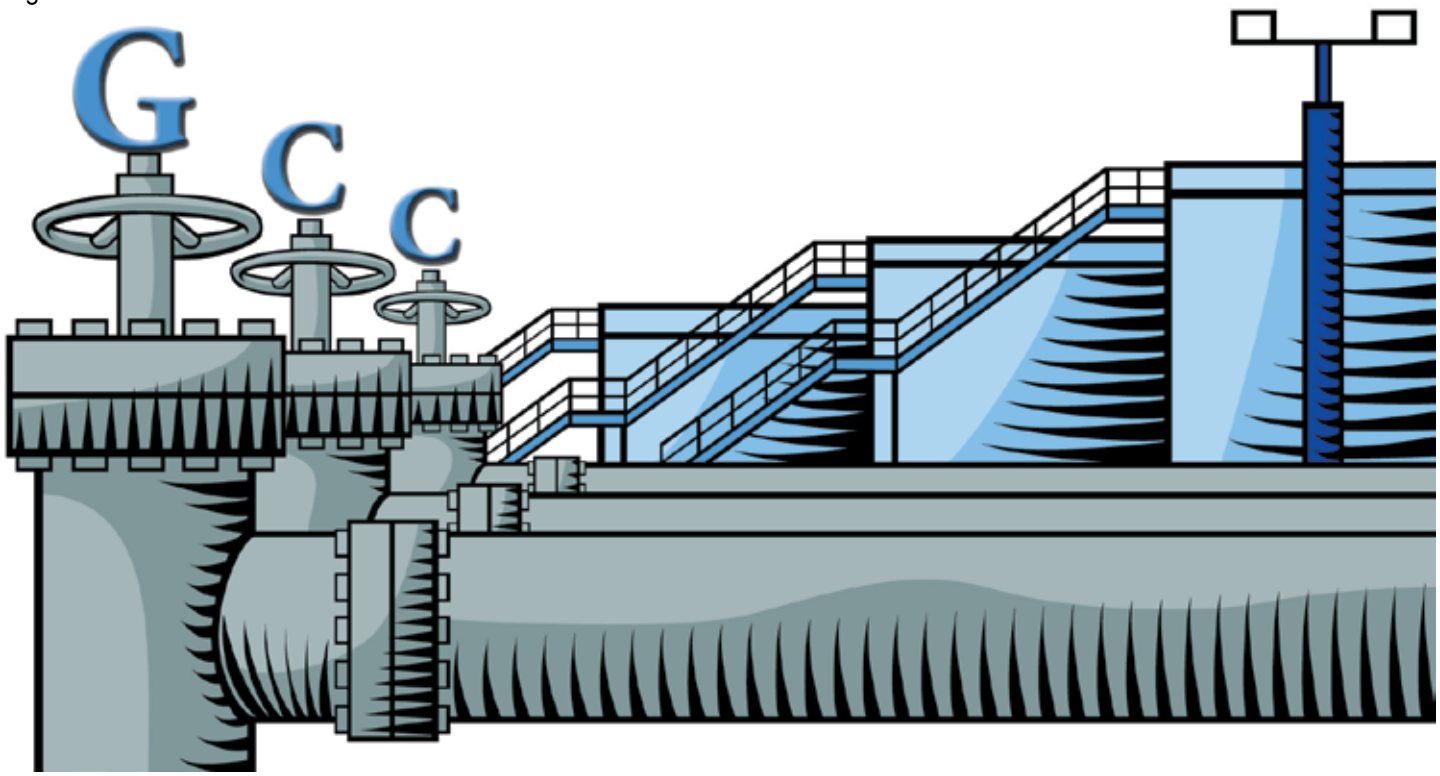
Mission Statement

"To provide GCC attendees with news, technical & business information which will educate about the petrochemical, refining, environmental, and industrial hygiene fields and professions." The Gulf Coast Conference program will focus on the industry trends and news, regulatory activities, technical information, and the successful implementation of various technical & business methodologies important to those professions. Conference business, events and activities will also be communicated. -- Opinions, claims, conclusions and positions expressed in this publication are the authors' or persons quoted and do not necessarily reflect the opinions of the editor, GCC or the Gulf Coast Conference Program.



Notes from the rolltop...

Welcome to the 2014 Gulf Coast Conference Program! . This is the 110th meeting of GCC and is expected to be the largest and most well attended of all of our past gatherings. This years program reflects our industry's current developments, progress, and achievements toward advancing the science of chemical analysis.

The growth and expansion of GCC over the years has been an exciting process, and 2014 will cap off a very interesting tenure at Moody Gardens. This is our 22nd year on Galveston Island and this will again be a terrific venue for our 110th meeting.

This year, GCC has launched a concerted effort to raise the visibility of the conference and our industry throughout the world. We have adopted and ad campaign that reaches colleagues throughout Europe, Asia, Middle East, and North and South America. As a result we have registrations from all 50 states and over 25 countries.

Additionally, we have attempted to raise the visibility of our industry and meeting to government officials and representatives throughout the country. If one reviews the industry as a whole for all markets that utilize chemical analysis, we find that there are over 2000 companies involved with total annual sales of over $50 billion. These facts demonstrate that chemical analysis has a significant impact on our nation's economy and influences our lives in many ways. Petrochemical, refining, oil & gas, and environmental chemical analysis is our focus, but we cannot forget the importance of our methods and instrumentation for the lifesciences, pharma, food, beverage, forensic, and health & safety markets.

As a result of the vast reach of our industry, we have spoken with and invited several individuals of national stature to come to GCC and learn about our business and the scope of our reach. One of these key people will visit the exhibit hall and provide a keynote speech on Tuesday afternoon at GCC. U.S. Senator Ted Cruz has committed to this event with several others expressing interest in our 2015 meeting. Senator Cruz will provide national insight to issues we are interested in e.g. Keystone Pipeline, national commitments to innovation and new product development, the impact of current and future regulations, economic trends, and an overall outlook on the business of energy. We are so very pleased that Senator Cruz has accepted our invitation and that he has made room for GCC on his schedule.

The 2014 GCC will continue with its tradition of providing the forum for these advancements, and when one reviews this program, we are confident that you will see that common sense analytical solutions will be on full display throughout the meeting. Simply because you can make a specific type of measurement is no longer good enough for most of our attendees. They are most interested in what that measurement can prove (or disprove), and what value does that measurement have for their business or the business of their customers. And lastly, is the solution truely cost effective. At this years meeting, you will see many cost effective techniques and solutions that could make a difference for your laboratory.

Community support is important to us all in the neighborhoods where we live and in the cities and towns where we work, but it also is essential in the industrial sectors in which we work. GCC would never have the growth and credibility that we have without the strong support of our vendors and sponsors. During the lunch hour on Tuesday and Wednesday, attendees and exhbitors all will be provided food in the exhibit hall through the generous and exclusive sponsorships of Chemplex Industries, Inc. and Agilent Technologies..On Tuesday morning, our first "Kick-off" Breakfast has been supported by Shimadzu, Envantage, & Analytical Services, Inc. We want to thank all of these fine vendors for their generous support!

Every exhibiting vendor at the GCC makes a significant investment and contribution toward the production of a quality meeting each year. Whether it is a group of new businesses joining together to share a booth, a single new technical idea for presentation in the technical session, or a large mega company displaying their newest innovations, the exhibiting vendors are the bedrock of the conference. Without this support, there would be no meeting, and the organizers of the meeting sincerely appreciate the efforts of all. Be sure to take the time to visit the exhibit hall during your breaks and at the sponsored lunches. For the third year in a row, the exhibit hall had to be expanded to accomodate demand, and for the third year in a row, we have sold out the exhibit hall. Make sure you plan enough time to take a spin around the entire hall. You will find technology and products of interest in almost every corner of the hall and something just might be there that will make your work easier and more productive.

New Product Showcase (NPS) - The 10th annual NPS will provide a central location in the center of the exhibit hall for selected vendors to show off and demonstrate their latest and newest advances in products, software, and methods. For 1 1/2 hours on Tuesday and Wednesday of the meeting, you are asked to stop by this special exhibit area and review what you see. Significant awards will be given to those vendors selected as "Best in Class" and for the reviewers (you) a special Lifetime GCC Conference Registration will be given to one individual randomly chosen from completed review forms (available through our volunteers in charge of the NPS). We are asking that you fill these forms out with your opinions. This will be helpful to the exhibiting vendors and perhaps provide new information for you and your company regarding new capaibilities. Last year's winner was a tie between products from Bruker and Agilent. Good luck to all that participate this year.

Hot Topics - Again this year, we have several talks scattered around in the schedule relating to the analytical needs associated with "fracking". Whether to increase production or to monitor the environment, this topic continues to grow. Thanks to John Crandall at Falcon, there is an entire day scheduled for presentations relating to Micro & Fast GC. The use of this technology for field and rapid screening work has exploded over the recent past and the flexibility, power, and performance of these techniques will be explored in great detail during these sessions. Several new applications will be presented.

There was a time when GCC was identified as a chromatography meeting. The actual genesis of GCC however was based in spectroscopy (for those of you old enough to remember). Today's meetings are a combination of organic and inorganic analysis as they relate to and represent the analytical needs of the petroleum, refining, and environmental marketplaces. You will notice in this program significant presentations relating to elemental analysis in which further growth at our conference is predicted.

There was also a time when GCC was identified as a "vendor" show. We think those days have past as the meeting continues to attract more and more technical presentations from industry community leaders like Dow, Chevron, Phillips 66, General Motors, etc. which have allowed some of their works in the laboratory to be presented for us all to learn from. GCC would like to thank these companies for their contributions to what appears to be one of the best technical programs GCC has ever produced.

Whether this will be your first GCC or your 30th, whether you are a lab tech, chemist, engineer, lab or plant manager, the "New Idea Machine" of the Gulf Coast Conference will be the premier place for education and innovation in your field. Register today on-line at www.gulfcoastconference.com

See you in October!

Bob Kibler
President
Gulf Coast Conference

About Senator Cruz

The 2014 Gulf Coast Conference is honored to host U.S. Senator Ted Cruz as our first Keynote Speaker on Tuesday afternoon at 5:00 PM in the Floral Hall at the Convention Center. His acceptance of our invitation was driven not only by his desire to better know our industry, but also to discuss issues that impact our industry and business. GCC hopes you will make plans to attend this first ever effort to forge new bonds between the enterpenure and innovative nature of our business with leadership from our government.

In 2012, Ted Cruz was elected as the 34th U.S. Senator from Texas. A passionate fighter for limited government, economic growth, and the Constitution, Ted won a decisive victory in both the Republican primary and the general election, despite having never before been elected to office.

In the Senate, Ted serves on the Committee on Commerce, Science, and Transportation; the Committee on Armed Services; the Committee on the Judiciary; the Special Committee on Aging; and the Committee on Rules and Administration.

Before being elected, Ted received national acclaim as the Solicitor General of Texas, the State's chief lawyer before the U.S. Supreme Court. Serving under Attorney General Greg Abbott, Ted was the nation's youngest Solicitor General, the longest serving Solicitor General in Texas, and the first Hispanic Solicitor General of Texas.

In private practice in Houston, Ted spent five years as a partner at one of the nation's largest law firms, where he led the firm's U.S. Supreme Court and national Appellate Litigation practice. Ted has authored more than 80 U.S. Supreme Court briefs and argued 43 oral arguments, including nine before the U.S. Supreme Court. During Ted's service as Solicitor General, Texas achieved an unprecedented series of landmark national victories, including successfully defending:

- U.S. sovereignty against the UN and the World Court in Medellin v. Texas;
- The Second Amendment right to keep and bear arms;
- The constitutionality of the Texas Ten Commandments monument;
- The constitutionality of the words "under God" in the Pledge of Allegiance;
- The constitutionality of the Texas Sexually Violent Predator Civil Commitment law; and
- The Texas congressional redistricting plan.

Prior to becoming Solicitor General, he served as the Director of the Office of Policy Planning at the Federal Trade Commission, as Associate Deputy Attorney General at the U.S. Department of Justice, and as Domestic Policy Advisor on the 2000 Bush-Cheney campaign.

Ted graduated with honors from Princeton University and with high honors from Harvard Law School. He served as a law clerk to Chief Justice William Rehnquist on the U.S. Supreme Court. He was the first Hispanic ever to clerk for the Chief Justice of the United States.

New Product Showcase

The 2014 Gulf Coast Conference will again sponsor the New Product Showcase event to provide a forum for the introduction of new technology and innovation to our attendees. On Tuesday and Wednesday of the meeting from 11:30 AM - 1:00 PM there will be special table top displays with new products and technology for your examination. Several vendors will provide these products and personnel to describe them during these specific times in the central section of the Exhibit Hall.

We are asking all Attendees to stop by and take a look at these products and complete an opinion survey about what you see. One survey will be drawn on Wednesday afternoon from the completed surveys and that person will receive a LIFETIME registration to the Gulf Coast Conference!

Congratulations to Agilent Technologies and Bruker Instruments for their tying for the prize for 2013 New Product of the Year!

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2014 CONFERENCE SCHEDULE

Tuesday

Bluebonnet Room

Thermo Fisher Scientific Seminar

Abstract # 60 – 9:00 AM - 30 minutes – "Applications of Discrete Analyzer for Chemical/Petrochemical Parameters"
Mark Griffin, Doug Tate, Kirk Chassaniol – Thermo Fisher Scientific

Abstract # 45 – 9:30 AM - 30 minutes – "High Pressure Ion Chromatography" - *Kirk Chassaniol,Paul Voelker – Thermo Fisher Scientific*

Abstract # 53 – 10:00 AM - 30 minutes – "Overcoming Challenging Matrices in Ion Chromatography" - *Kirk Chassaniol – Thermo Fisher Scientific*

Abstract # 32 – 10:30 AM - 20 minutes – "Analysis of Anions and Cations in Produced Water from Hydraulic Fracturing using Ion Chromatography" *Carl Fisher – Thermo Fisher Scientific*

Abstract # 61 – 10:50 AM - 30 minutes – "Coal Characterization by Organic Elemental Analysis" - *Guido Giazzi, Liliana Krotz, Francesco Leone – Thermo Fisher Scientific*

Abstract # 78 – 11:20 AM - 20 minutes – "Automatic Determination of Greenhouse Gases by GC" - *[1] Massimo Santoro, [2] Cristiane de Oliveira Silva, [2] Henrique Franciscato Melo, [2] Danilo Vinicius Pierone – [1] ThermoFisher Scientific, [2] NovaAnalitica, Brazil*

Abstract # 77 – 11:40 AM - 20 minutes – "Automated, Rapid and Reliable Determination of Dissolved Gases in Water by Static Headspace – Gas Chromatography" *Massimo Santoro, Andrea Caruso – Thermo Fisher Scientific*

Abstract # 160 – 2:00 PM - 60 minutes - "Process Mass Spectrometry as a Tool for Process Control, Monitoring and Development" *Todd Colin Ph.D - Thermo Fisher Scientific*

Abstract # 100 – 3:00 PM - 20 minutes - "X-Ray Analysis in Petrochemical and Polymer Industries: Challenges and Solutions" *Al Martin - Thermo Scientific*

Abstract # 13 – 3:20 PM - 60 minutes - "The Science and Art of pH in Petrochemical/Chemical Laboratories and in the Plant" *Susan Sedwick, Don Ivy - Thermo Scientific, Orion Products*

Floral Hall A

Shimadzu Scientific Instruments, Inc. - Seminar

Abstract # 115 – 9:00 AM - 30 minutes - "A New Detector for Gas Chromatography based on Vacuum Ultraviolet Absorption Spectroscopy" *Kevin A. Schug, Ian Sawicki, Doug D. Carlton Jr., Harold M. McNair, Phillip Walsh, Dale Harrison - University of Texas at Arlington*

Abstract # 121 – 9:30 AM - 60 minutes - "Analytical Methods Developed to Characterize Groundwater Possibly Impacted by Unconventional Drilling; Applied for a Time-Lapse Study of an Area of Increasing Hydraulic Fracturing" *Doug D. Carlton Jr., Zacariah L. Hildenbrand, Brian E. Fontenot, Jesse M. Meik, Jayme L. Walton, Jonathan Thacker, Kevin A. Schug - University of Texas at Arlington*

Abstract # 129 – 10:30 AM - 30 minutes - "Elemental Analysis for the Petrochemical Industry Utilizing Shimadzu's New Line of Energy-Dispersive X-Ray Fluorescence Spectrometers (EDXRF)" *Justin Masone, Dan Davis - Shimadzu Scientific Instruments, Inc.*

Abstract # 128 – 11:00 AM - 30 minutes - "Determination of Natural Gas Components in Drinking Water by Gas Chromatography and Vacuum Ultraviolet Detection" *Ling Bai, Hui Fan, Zacariah L. Hildenbrand, Jonathan Smuts, Phillip Walsh, Dale Harrison, Kevin A. Schug - University of Texas at Arlington*

Abstract # 119 – 1:00 PM - 30 minutes - "Analysis of Essential Chemicals in the Production of Ammonia using a Single Instrument with the Barrier Discharge Ionization Detector (BID) from Shimadzu" *Jeff Werner - Shimadzu Scientific Instruments, Inc.*

Abstract # 122 – 1:30 PM - 30 minutes - "Application of GC-MS and LC-MS for Analysis of Produced Water from Unconventional Drilling Operations" - *Jonathan Thacker, Doug D. Carlton Jr., Zacariah L. Hildenbrand, Brian E. Fontenot, Kevin A. Schug - University of Texas at Arlington*

Abstract # 116 – 2:00 PM - 30 minutes - "A New Method for the Determination of Total Nitrogen" - *William Lipps - Shimadzu Scientific Instruments, Inc.*

Abstract # 131 – 2:30 PM – 30 minutes - "Vacuum Ultraviolet Detection for the Identification and Quantification of Multiclass Pesticides using Gas Chromatography" - *Hui Fan, Jonathan Smuts, Phillip Walsh, Dale Harrison, Kevin A. Schug - University of Texas at Arlington*

Abstract # 114 – 3:00 PM - 30 minutes - "A New "Green" Method for the Determination of Oil & Grease in Water" *Mark Talbot - Shimadzu Scientific Instruments, Inc.*

Ivy I & II

Agilent Chromatography Workshop

Abstract # 117 – 8:50 AM Introduction
"Agilent Chromatography Workshop" - *Wayne Collins - Agilent Technologies*

Abstract # 127 – 9:00 AM - 60 minutes - "Converting a Complex GC Analysis into a Simple Chromatographic Report Using the New OpenLab Data Analysis and Intelligent Reporter" - *James McCurry - Agilent Technologies*

Abstract # 134 – 10:00 AM - 30 minutes - "EZChrom Elite to OpenLAB CDS Migration: Easier Than You Think" - *Steve Miller - Agilent Technologies*

Abstract # 125 – 10:30 AM – 30 minutes - "ChemStation to OpenLAB CDS Migration: How to Prepare and What You Get" - *Rich Mutkoski - Agilent Technologies*

Abstract # 143 – 11:00 AM - 30 minutes - "Optimizing Ultrafast Simulated Distillation on a Low Thermal Mass GC System" - *Roger Firor - Agilent Technologies*

Abstract # 120 – 11:30 AM - 30 minutes - "Analysis of Oxygenates in Gasoline via Gas Chromatograph Deans Switch Methodology" - *Shannon Coleman - Agilent Technologies*

Abstract # 124 – 1:00 PM - 30 minutes - "Changes and New Methods Proposed from ASTM—An Update on D02 Activities" - *James McCurry - Agilent Technologies*

Abstract # 150 – 1:30 PM - 30 minutes - "Improved Gas Tight Connections for Reliable GC Analysis" - *Daron Decker - Agilent Technologies*

Vine I & II

Agilent Spectroscopy Workshop

Abstract # 118 – 8:50 AM Introduction - "Agilent Spectroscopy Workshop" - *Wayne Collins - Agilent Technologies*

Abstract # 141 – 9:00 AM - 30 minutes - "High Throughput Lubricating Oils Analysis Using the Novel 5100 ICP-OES" - *Patrick Simmons and Christine Rivera - Agilent Technologies*

Abstract # 130 – 9:30 AM - 30 minutes - "Elemental Analysis of Crude Oils using a Microwave Plasma Atomic Emission Spectrometer" - *Jenny Nelson, Greg Gilleland, Laura Nannini, Paul Hajdu and Francisco Lopez-Linares*

Abstract # 147 – 10:00 AM - 30 minutes - "The Analysis of High Dissolved Solids Samples for Trace Metals using a Novel ICP-OES" - *Patrick Simmons and Christine Rivera - Agilent Technologies*

Abstract # 139 - 10:30 AM - 30 minutes - "The Determination of Target Elements in Oil and Aqueous Matrices Utilizing the Agilent 4200 Microwave Plasma Atomic Emission Spectroscopy (MP-AES)"
Christine Rivera - Agilent Technologies

Abstract # 79 – 11:00 AM - 30 minutes - "Avoiding Mechanical Failure of Laboratory and Refinery Machinery by FTIR Monitoring of In-Service Lubricants" - *K. Cory Schomburg – PerkinElmer*

Abstract # 48 – 11:30 AM - 30 minutes - "Kinematic Viscosity & VI Measurements of In-Service Engine oils by Stabinger Viscometer" - *Eric Swertfeger - Anton Paar*

Vine I & II
XRF

Abstract # 69 - 1:00 PM - 30 minutes - "The Accurate Analysis of Impurities and Additivies in Polymers by Sequential WDXRF Spectrometer" - *Arkady Buman, Kai Behrens, Dan Pecard - Bruker AXS*

Abstract # 112 – 1:30 PM - 30 minutes - "WDXRF with Seamless Integration of User calibrations, Predefined QUANT calibrations, and Semi-Quant (standard less) Calibrations in One Single Application"
Larry Arias - Bruker AXS Inc.

Abstract # 57 – 2:00 PM - 30 minutes - "XRF Analysis Characterization of Polyolefins - Survey Analysis and Signal Averaging" - *James Drew Ilger, Ph.D. - Chevron Phillips Chemical Company*

Abstract # 52 – 2:30 PM - 60 minutes - "Measuring Sub-PPM Chlorine in Distillates and Finished Products" - *Patrick Lillge - XOS Michael Palmer*

Orchid Room
Data Management

Abstract # 153 – 8:30 AM - 30 minutes - "Integrating QAQC Laboratory Procedures and Equipment to SAP/SAP-QM" - *Bill Wiersma – PerkinElmer*

Abstract # 155 – 9:00 AM - 30 minutes - "The Impact of "Big Data" on the Laboratory" - *Bill Wiersma – PerkinElmer*

Abstract # 18 – 9:30 AM - 60 minutes - "Workforce Planning and Analytics: Using data to drive Change"
Lori Morgan – OrcaEyes

Abstract # 140 – 10:30 AM - 60 minutes - "GHS Status Update: Get Compliant by 2016" - *Kendra Newton - Brady Corporation on behalf of Fisher Scientific*

Abstract # 56 – 11:30 AM - 30 minutes - "Your LIMS is the Key to Running Your Laboratory as a Business" *Terry Kibodeaux, Yves Dupont - LabAnswer*

Orchid
Process Analysis Symposia

Abstract # 001 – 1:00 PM - 20 Minutes - "A Case Study to Determine MTBE Content In Vacuum Distillation Products" - *Abraham George - Takreer Research Centre*

Abstract # 55 – 1:20 PM - 30 minutes - "Process Measurement of High Viscosity Fluids in Refineries Using Vibration at Resonance Frequency Technology and Applications" - *Corentin Thierry – Sofraser*

Abstract # 148 – 1:50 PM - 30 minutes - "Accuracy and Productivity Improvement using Data Acquisition Software and a Stream Selection Valve for Process Analyzers" - *Grace Feng - Applied Lab Automation Corporation*

Abstract # 102 – 2:20 PM - 20 minutes - "Real-time Process Monitoring with Mass Spectrometry for Engineering Applications" *Terry L. Ramus, Scott J. Hein - Diablo Analytical, Inc.*

Abstract # 95 - 2:40 PM - 30 minutes - "High Throughput Petroleum Stream Analysis in Refinery Process Laboratories: Benchtop NMR Offers Timely Results with Automation & Chemometrics" *Courtney Phillips, LEAP Technologies; John Edwards, Process NMR Associates*

Abstract # 41 – 3:10 PM - 30 minutes - "Fully Automated Sample Preparation and GC Analysis of Hydrocarbons in Pyrophoric Compounds to Increase Process Efficiency, Analysis Throughput and Safety"
Dr. Steven Stiller - LEAP Technologies, David Cuthbert - Wasson-ECE

Abstract # 64 -3:40 PM - 30 minutes - "Utilize Real-time Viscosity Analysis to Improve Asphalt Production" - *Jonathan Cole – PAC*

Abstract # 159 – 4:10 PM - 20 minutes - "What Vapor Pressure?" - *Daniel Merriman & Mark Turpin - Analytical Technology and Control*

Tulip Room

Abstract # 50 – 1:00 PM - 30 minutes - "Octane Engine Temperature Measurements in a Mercury-Free World" - *Thomas Leuthner, James Honan - The Protectoseal Company*

Abstract # 51 – 1:30 PM – 20 minutes - "Analysis Of Oil In Water By Laser Induced Fluorescence Spectroscopy" - *Aaron Mendez, Ph.D.; Duane Germenis and Larry Spino Ph.D. - PAC LLC*

Abstract # 37 – 1:50 PM - 30 minutes - "Common Oil and Grease Audit Findings and Appropriate Responses" - *David Gallagher, Chad Schewe - Horizon Technology*

Abstract # 67 – 2:20 PM - 20 minutes - "Quantitative Trace Metals Analysis using Hydrofluoric Acid Alternatives" - *Bill MacLuckie, Daniel Iversen, Michael Karney, Bob Lockerman - CEM Corporation*

Abstract # 144 – 2:40 PM - 30 minutes - "Raman Imaging of Polymer Laminants Using an Electron Multiplying CCD (EMCCD) Combined with a Rastering Stage" *Cam MacIsaac - Thermo Electron*

Abstract # 132 – 3:10 PM - 30 minutes - "FT-NMR for Reaction Monitoring" *Dr. Katherine Paulsen - Thermo Electron*

Daffodil
Chemical Analysis of Wells

Abstract # 107 – 8:30 AM - 30 minutes - "Testing Requirements Required in the Process of "Fracking" with a Focus on the Analysis of Methane, Ethylene, and Ethane in Drinking Water by Headspace-Gas Chromatography (HS-GC) with Flame Ionization Detection (FID)" - Lee Marotta, Dennis Yates, and Leeman Bennington - PerkinElmer

Abstract # 28 – 9:00 AM - 30 minutes - "Advancements in Micro Gas Chromatography (GC) - Fast Analysis of C1 to C8 Hydrocarbons for Mud Logging Applications within 2 minutes using a Temperature Programmable Micro GC Fusion" - *Debbie Hutt – INFICON*

Abstract # 20 – 9:30 AM - 20 minutes - "Real-time Mud-Gas Analysis Using SIFT-MS" - *Barry Prince, Daniel Milligan, Vaughan Langford Robert Wilson - Syft Technologies, Inc*

Abstract # 72 - 9:50 AM - 30 minutes - "Characterization of Oil Shale and Source Rock with Pyrolysis GC/MS" *Terry Ramus (1), Itsuko Iwai (1), Dave Randle (2), Chu Watanabe (3), Ichi Watanabe (3) - (1) Diablo Analytical, Antioch, CA, (2) Frontier Labs USA, (3) Frontier Labs, Koriyama, Japan*

Abstract # 16 – 10:20 AM - 20 minutes - "PetroVisION – A stable Isotope analytical tool for the 'Oil & Gas' Industry" - *Craig Barrie - Elementar Americas, Inc.*

Abstract # 108 – 10:40 AM - 30 minutes - "XRD and XRF Analyses of Horizontal Drill Cuttings: Tools for Optimizing Stimulation Programs for Unconventional Oil/Gas Wells" - *Dr. Nathan Henderson - Bruker AXS Dr.Raphael Wust - Trican Geological Solutions Dr. Brian Jones - Bruker AXS*

Abstract # 158 – 11:10 AM - 20 minutes - "Tunable Diode Laser Measurements of Trace Components in Natural Gas" - *Daniel Merriman & Mark Turpin - Analytical Technology and Control*

Abstract # 23 - 11:30 AM - 30 minutes - "The Role of Proppants in the Fracking Process" - *Michael C. Pohl, Gert Beckmann - HORIBA Instruments, Inc.*

Daffodil Room
Crude Oil Analysis Seminar

Abstract # 34 – 1:00 PM - 20 minutes - "Characterizing the Phosphorus, Sulfur and Chlorine Components of Incoming Crude Oil - how to do it Accurately and Consistently" - *Laura Oelofse - Rigaku Corp*

Abstract # 109 – 1:20 PM - 20 minutes - "Why Wavelength Dispersive X-Ray Fluorescence (WDXRF) Offers a Faster, Easier, More Reliable and Cost Effective Sub ppm Solution than ICP for Crude, Residual, VGO as well as Wear Metals in Oil" - *Daniel Pecard - Bruker AXS Inc*

Abstract # 68 – 1:40 PM - 60 minutes - "Real-time Quantification of Methanol, H2S Scavengers, Amines, Acetic Acid and other VOCs in Crude Oil and Water Right at the Point of Need--- Featuring Owlstone's Portable VOC Analyzer and Its Ion Mobility Platform" - *Steve Freshman - Owlstone Inc.*

Abstract # 76 -2:40 PM - 30 minutes - "Asphaltene Characterization by Flash Pyrolysis Coupled to Gas Chromatography High Resolution Time-of-Flight Mass Spectrometry" - *Naomi Diaz, Clécio F. Klitzke, David E. Alonso, Joe Binkley, Jeffrey Patrick - LECO Corporation*

Abstract # 86 – 3:10 PM - 30 minutes - "Enhanced Crude Oil Fingerprinting by GCxGC-TOF MS with Novel Ion-Source Technology" - *P. Grosshans, K. Collins, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International Inc.*

Abstract # 84 – 3:40 PM - 20 minutes - "EI & CI-High Resolution Time-of-Flight Mass Spectrometry Workflow for Comprehensive Analysis of Petroleum Samples" - *Clecio Klitzke, David E. Alonso, Jeff Patrick, and Naomi Diaz - LECO Corporation*

Hibiscus Room
Advances in Sample Introduction Techniques

Abstract # 19 – 9:00 AM - 60 minutes - "Injection techniques used in Petroleum GC analysis: How to make an optimal Injection using Split or Splitless using a syringe or valve?" - *Jaap de Zeeuw - Restek Corporation*

Abstract # 74 – 10:00 AM - 30 minutes - "Diaphragm Valves Deliver Longer Life, Better GC Results"
Yves Gamache and Chris Van Tilburg - Norgren AFP

Abstract # 103 – 10:30 - 30 minutes - "Recycle Capillary Gas Chromatography by Using a Nanovolume Valve and Micron Fittings" - *Stanley D. Stearns, Martin Brisbin, Max Loy, Huamin Cai - Valco Instruments Co. Inc.*

Abstract # 146 – 11:00 AM - 30 minutes - "Sample Introduction System for Direct Analysis of Real World Petrochemical Samples by ICP-AES" - *Dr. Sergei Leikin, Texas Scientific Products LLC and Dion Tsourides, Spectro Analytical Instruments*

Abstract # 75 – 11:30 AM - 20 minutes - "Analysis of Phosphorous in Oils at Low Level by ICP-AES after Closed Vessel High Pressure Microwave Digestion" *Sergei Leikin, Texas Scientific Products LLC; Ankur Sheth and Autumn Russek, Baker Hughes.*

Abstract # 11 – 11:50 AM - 20 minutes - "Determination of Selected Metals in Rice Grown in Gulf Coast States" - *Joseph Sneddon, Joel C. Richert, and Carey J. Hardaway - McNeese State University*

Hibiscus Room
Mettler Training Course

Abstract # 138 – 1:30 PM – Tuesday - 3 hours - "The Science and Practice of Karl Fischer Water Titration" *Tore Fossum - Mettler Toledo, LLC*

Floral Hall B
Mass Spec Tools

Abstract # 73 – 9:00 AM - 30 minutes - "Analysis of Non-polar Analytes with Direct Sampling Analysis (DSA) Source-Mass Spectrometry Using He/N2 as Reagent Gases" - *Sharanya Reddy, Thomas White, Craig M Whitehouse – PerkinElmer*

Abstract # 46 – 9:30 AM - 30 minutes - "Kerogen Characterization by TGA-GC-MS and TGA-FTIR"
Ekkehard Post, Ed Lim - NETZSCH Instruments North America, LLC

Abstract # 169 – 10:00 AM - 30 minutes - "Oil Source Fingerprinting in Heavily Weathered Residues and Coastal Marsh Samples" - *Edward B. Overton, M. Scott Miles, Buffy M Meyer, Greg Olson*

Abstract # 177 – 10:30 AM - 30 minutes - "Use of GCMS-SIM and GCMSMS in Studying the Composition of Petroleum Hydrocarbons in Environmental Samples Following Oil Spills" - *Edward B. Overton, Robert Wong, Scott Miles, Buffy Meyer, and Greg Olson*

Abstract # 80 – 11:00 AM - 30 minutes - "Catalytic Applications Using a High Pressure Bench-Top Tandem Micro-Reactor GC/MS System" - *Terry Ramus ([1]), Dave Randle ([2]), Chu Watanabe ([3]), Ichi Watanabe ([3]), N. Teramae ([4]) ([1]) Diablo Analytical, Antioch, CA, ([2]) Frontier Labs USA, ([3]) Frontier Labs, Koriyama, Japan, ([4]) Tohoku University, Sendai, Japan*

Abstract # 101 – 11:30 AM - 30 minutes - "Rapid Catalyst Characterization Using a High Pressure Tandem Micro-Reactor with GC/MS" - *Dave Randle ([1]), Terry Ramus ([2]), Chu Watanabe ([3]), Ichi Watanabe ([3]), N. Teramae ([4]) ([1]) Frontier Labs USA, ([2]) Diablo Analytical, Antioch, CA ([3]) Frontier*

Labs, Koriyama, Japan, ([4]) Tohoku University, Sendai, Japan

Floral Hall B
Fuels and Lubes Analysis

Abstract # 104 – 12:50 PM - 40 minutes - "Roadside Spot Testing for Fuel Markers Using Mobile GC/MS"
Philip Tackett, Ph.D. - FLIR Systems, Inc.

Abstract # 29 – 1:30 PM - 30 minutes - "Conditions and Limitations In The Use Of Spectrometry For Motor Fuel Property Prediction" PART 1 - *Marcus Trygstad, Brian Rohrback - Yokogawa Corporation of America*

Abstract # 30 – 2:00 PM - 30 minutes - "Conditions and Limitations In The Use Of Spectrometry For Motor Fuel Property Prediction" PART 2 - *Brian Rohrback, Marcus Trygstad - Infometrix, Inc.*

Abstract # 71 – 2:30 PM - 30 minutes - "Analysis of Benzene and FAME in Commercial Fuel Samples Using FTIR Spectroscopy with Precalibrated Quantitative Methods" - *K. Cory Schomburg – PerkinElmer*

Abstract # 93 – 3:00 PM - 30 minutes - "Gasoline light End by ASTM Method D6730" *Walter Spieksma - Envantage Inc.*

Abstract # 58 – 3:30 PM - 20 minutes - "Use of SIM DIS Gas Chromatography for the Analysis of Used Engine Oil at General Motors" - *Paul Harvath, Ngoc-Ha Nguyen, Meryn D'Silva - General Motors*

Abstract # 110 – 4:00 PM - 30 minutes - "What's New at ASTM? Moving Method D3606 from Packed to Capillary Technology" - *Lee Marotta and Leeman Bennington, PerkinElmer Instruments*

Wednesday

Bluebonnet Room
Crude Oil Methods

Abstract # 12 -9:00 AM - 40 minutes - "Driving Lab Quality through Proficiency Testing of Oil and Fuels" - *Roland St. Germain - VHG Labs-part of LGC Standards*

Abstract # 151 – 9:40 AM - 20 minutes - "Improved Method for Crude Oil Acidity Analysis" *Lori Carey - Metrohm USA, Inc.*

Abstract # 27 – 10:00 AM – 60 minutes - "Advanced Solution To Increase FCC Profits" - *Tal Cohen, Gregory Shahnovsky, Ronny McMurray*

Abstract # 42 – 11:00 AM - 30 minutes - "Integrated Technologies For Economic Crude Blending" - *Tal Cohen, Gregory Shahnovsky, Ronny McMurray - Modcon Systems ltd*

Abstract # 70 -11:30 AM - 20 minutes - "A New Spectrophotometric Method for the Detection and "Fingerprinting" of Petroleum" *John D. Hanby - Hanby PetroAnalysis*

Abstract # 49 -1:00 PM - 30 minutes - "Maximize Diesel Production with Accurate Boiling Point Analysis" - *Jonathan Cole – PAC*

Abstract # 88 – 1:30 PM - 20 minutes - "Determination of Light Hydrocarbons and Hydrocarbon Boiling Point Distribution and Cut Point Intervals in Live Crude Oils and Condensates via Gas Chromatography" *Dan Wispinski - Alberta Innovates- Technology Futures Chris Goss Alberta Innovates- Technology Futures Deepyaman Seth Alberta Innovates- Technology Futures; R.J. (Bob) Falkiner - Imperial Oil Engineering Services Canada*

Abstract # 59 -1:50 PM - 30 minutes - "Validation of a "Merge" Method on One Gas Chromatograph (GC) for Boiling Point Distribution and Individual Hydrocarbon Speciation of Stabilized Crude Oils" *Chris Goss, Dan Wispinski - Alberta Innovates Technology Futures, Lee Marotta - Perkin Elmer*

Abstract # 81 – 2:20 PM - 20 minutes - "Comprehensive Petroleum Characterization by Thermal Desorption and Flash Pyrolysis Coupled to Gas Chromatography High Resolution Time-of-Flight Mass Spectrometry" - *Clécio F. Klitzke, David E. Alonso, Naomi Diaz, Joe Binkley, Jeffrey Patrick - LECO Corp.*

Floral Hall B
Falcon Micro/Fast GC Seminar

Abstract # 178 – 8:50 AM – Introduction - "3rd Annual micro & Fast Gas Chromatography Symposium - The Revolution in Gas Chromatography! So What Took So Long?" - *John Crandall - Falcon Analytical*

Abstract # 167 – 9:00 AM - 30 minutes - "Historical Review: Fast & micro Gas Chromatography" - *Dr. Ed Overton, Professor Emeritus, Department of Environmental Sciences Louisiana State University School of the Coast & Environment*

Abstract # 174 – 9:30 AM - 20 minutes - "Rethinking the Anatomy of Gas Chromatography" - *Steve Bostic, Marketing Consultant; Ned Roques, Chief Chromatography Engineer; John Crandall, President Falcon Analytical Systems & Technology*

Abstract # 175 – 9:50 AM - 20 minutes - "The Case for Micro & Fast Gas Chromatography: A Market Overview" - *John Crandall, President Falcon Analytical*

Abstract # 166 – 10:10 AM - 20 minutes - "Expanding GC Use in Petroleum and Petrochemical Applications" *Carl Rechsteiner, CRechsteiner Consulting, LLC, Petaluma, CA*

Abstract # 171 – 10:30 AM - 20 minutes - "Recent Advancements in Batch Process Throughput with Fast, Automated Food Grade Fatty Acid Endpoint Analysis" - *Jonathan A. Blackwell, Production Process Manager Life Sciences Ingredients - Microbial Control Americas,Lonza, Inc.*

Abstract # 168 – 10:50 AM - 20 minutes - "Increasing Throughput AND Easier to Use: Refinery Support Laboratory Experience with micro and Fast Gas Chromatography" - *Dean Alcon, Laboratory Supervisor, Husky Lima Refinery*

Abstract # 164 – 11:10 AM - 20 minutes - "Data Processing in a Fast GC World" - *Brian Rohrback, Infometrix, Inc.*

Abstract # 173 – 11:30 AM - 40 minutes - "Recent Advances in Chromatography Data Systems Software: A More Complete Solution including Labs, At-Line, Online and Transportable" - *George Schreiner, Vice President Technology – ChromPerfect*

Abstract # 170 – 1:00 PM - 20 minutes - "Online Process Control using Modular Fluid Delivery and Fast & Micro Process Gas Chromatography: From the Sample Point to the DCS Connection" - *John Crandall, President - Falcon Analytical; Ned Roques, Chief Chromatography Officer - Falcon Analytical*

Abstract # 162 – 1:20 PM - 20 minutes - "An Online Fast GC for Gasoline Blending: Experience to Date at One Refinery" - *Dr.Carl Rechsteiner, CRechsteiner Consulting, LLC, Petaluma, CA*

Abstract # 161 – 1:40 PM - 20 minutes - "An Easy to Use Fast Liquid Chromatographic System using a Novel Sample Manager to Improve Work Flow for the Analysis of Samples Close to a Manufacturing Process" - *Charles H. Phoebe, Jr., Ernie J. Hillier, and Aaron D. Phoebe - Waters Associates*

Abstract # 176 – 2:00 PM - 20 minutes - "Where Is It Going: Micro and Fast Chromatography, a Panel Discussion" - *Carl Rechsteiner, CRechsteiner Consulting*

Daffodil
Gas Chromatography

Abstract # 94 – 1:00 PM - 30 minutes - "GC×GC Simulator: Try Before You Apply ! - *Walter Spieksma - Envantage Inc.*

Abstract # 89 – 1:30 PM - 20 minutes - "Enhancing Isomer Resolution and Identification for Light Hydrocarbons and Chlorinated Organcs in GC x GC" - *Bill Winniford, Anna Sandlin, Jeremy Reyes, James Griffith, Rob Edam, Chris Siegler, Yong Tae Kim, Zhouran Xu, George Huber - Dow Chemical*

Abstract # 83 – 1:50 PM - 30 minutes - "Detailed Hydrocarbon Analysis of a PIONA Sample Using Vacuum Ultraviolet Absorption Spectroscopy" - *Phillip Walsh, Jonathan Smuts, Daniel Klopp, and Dale Harrison - VUV Analytics, Inc.*

Abstract # 66 – 2:20 PM - 20 minutes - "Polyionic Ionic Liquid Stationary Phases for Capillary GC" - *Leonard M. Sidisky, Greg A. Baney, James L. Desorcie, Daniel L. Shollenberger, Gustavo Serrano, Katherine K. Stenerson - Supelco- Division of Sigma Aldrich*

Abstract # 8 – 2:50 PM - 60 minutes - "Application and Limitation of PLOT columns in Gas Chromatography" - *j de zeeuw - Restek Corporation*

Orchid Room
Data Management

Abstract # 98 – 1:00 PM - 30 minutes - "Novel Real-time Data-mining for Fast Screening of Petrochemicals" - *K. Collins, P. Grosshans, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International, Inc.*

Abstract # 92 – 1:30 PM - 30 minutes - "EZReporter for Automated Results Reporting in the Energy Business" - *Terry L. Ramus, Scott J. Hein - Diablo Analytical, Inc.*

Abstract # 152 – 2:00 PM - 20 minutes - "Improving Quality Assurance Analysis using Gas Chromatography while Improving Safety, Cost with an On-site Hydrogen Gas Generator" - *Erica Janas, John Speranza - Proton OnSite*

Abstract # 90 – 2:20 PM - 20 minutes - "Examination of the Effect of Alternative Carrier Gases on Three ASTM Methods" - *Leeman Bennington, John D. Walters, Jay Ferraro, Mamdouh Farag, Lee Marotta - PerkinElmer Corp*

Abstract # 135 – 2:40 PM - 30 minutes - "Managing Emission Test Data Quality and Test Firm Competency Using ASTM Standard D7036, Standard Practice for Competence of Air Emission Testing" - *Rick Krenzke, David Elam - TRC Environmental Corporation*

Tulip Room

Abstract # 105 – 10:00 AM - 20 minutes - "Vacuum UV GC Detection for Characterization of Isomers and Organic Functional Groups" - *Bill Winniford, Anna Sandlin, Jeremy Reyes, Chao Zheng, James Griffith, Rob Edam, Philip Walsh, Dale Harrison - Dow Chemical*

Abstract # 91 – 10:20 AM - 20 minutes - "The Detection of Underground Pipeline Leaks Using Air Concentration, Gas Chromatography, and Unique Halogenated Tracer Components" - *Allison Mason, Garrett Reese, David Cuthbert - Wasson-ECE Instrumentation*

Abstract # 106 – 10:40 AM - 20 minutes - "Sample Temperature Compensation in On-line Near-Infrared Measurements" - *Greg Ruff, Susan Foulk, Terry Todd - Guided Wave, Inc.*

Abstract # 54 – 11:00 AM - 30 minutes - "Particle Counting and Particle Wear Analysis Using Dynamic Imaging" - *Steve Bowen - Fluid Imaging Technologies, Inc.*

Abstract # 2 – 1:00 PM - 30 Minutes - "In The Field Or In The Lab – for Karl Fischer It Is All The Same" - *George Robertson - Ayalytical Instruments,Inc.*

Abstract # 154 – 1:30 PM - 30 minutes - "Petrochemical Titration Automation and Workflow Advancements" - *Matthew Eby - Mettler Toledo, LLC*

Vine I
Sample Prep

Abstract # 113 – 9:00 AM - 2 hours - "The Pyrolysis Workshop"
Dave Randle, Technical Director; Terry Ramus, Ph.D., Application Scientist; Itsuko Iwai, Senior Analyst - Frontier Lab USA

Abstract # 99 – 11:00 AM - 30 minutes - "Precise Heat Control: What Every Scientist Needs to Know About Pyrolytic Techniques to Solve Real Problems" - *Rodrigo V. Devivar - NASA-Jacobs Technology*

Abstract # 63 – 11:30 AM - 30 minutes - "Optimized Microwave Digestion for Simultaneous Mixed Sample Preparation in the Petroleum Industry" - *David Gunn, Njies Pedjie - Milestone Inc.*

Abstract # 111 – 12:00 Noon - 20 minutes - "Walk Away Sample Prep Automation in Polymer Companies before Analysis in R&D and QC Laboratories" - *Werner Martin, Peter Smith, Steven Stiller and Zach Dai - LEAP Technologies*

Vine I

Abstract # 22 – 1:00 PM - 60 minutes - "Providing Fumehood Bench Space Density While Lowering the Requirements of Conditioned Air Volume of your Laboratory" - *Tommy Lear, Dennis Brewer, Darryl Coenen - Gray & Green Laboratory Systems*

Abstract # 149 – 2:00 PM - 60 minutes - "Are You Handling Flammable Liquids/Hazardous Materials Safely In Your Laboratory?" - *Glen Carter - Justrite Manufacturing Company L.L.C.*

Ivy I & II
Agilent Technologies Workshops

Abstract # 126 – 8:50 AM - Introduction
"Chromatography Maintenance and Troubleshooting Workshop" - *Wayne Collins - Agilent Technologies*

Abstract # 123 – 9:00 AM - 3 hours - "Basic LC Maintenance and Troubleshooting Workshop" - *Sue D'Antonio and John Palmer - Agilent Technologies*

Abstract # 133 - 1:00 PM - 2 hours - "Troubleshooting Tips & Tricks for your GC Analyzer & CFT Application" - *Mario Aparicio - Agilent Technologies*

Orchid Room
Sulfur Analysis

Abstract # 10 -9:00 AM - 30 minutes - "Combustion Ion Chromatography for Petrochemical Industry"
Dr. Jay Gandhi, Dr. Anne Shearrow, Mr. Jay Shaffer - Metrohm USA

Abstract # 142 – 9:30 AM - 30 minutes - "Measuring Trace Sulfur in the Presence of High Amounts of Nitrogen via Combustion" *Tyson G. Rowland, Ralf Dunsbach, Calum McCusker- Elementar*

Abstract # 36 – 10:00 AM - 20 minutes - "A Novel Solution for the Analysis of Speciated Sulfurs and Nitriles in Various Hydrocarbon Streams" - *Garrett Reese, Allison Mason, David Cuthbert - Wasson-ECE Instrumentation*

Abstract # 65 – 10:20 AM - 20 minutes - "Performance Update and Review of Coatings Used to Improve Reliability and Accuracy of Sulfur, Mercury and NOx Sampling and Analysis Equipment" - *Gary Barone, Luke Patterson - SilcoTek Corporation*

Abstract # 26 -10:40 AM - 30 minutes - "Accurate Elemental X-ray Fluorescence Analysis for Fuels, Oils and Petrochemicals with a Single Mineral Oil Calibration" *Lieven Kempenaers, Taco van der Maten, Marco van der Haar - PANalytical, Inc.*

Abstract # 179 – 11:10 AM – 30 minutes - "Development of an innovative Test Technique to study the Iron Corrosion properties in a wide range of Petroleum Products" - Ms. Cindy Klager, Dr. Raj Shah and Mr. Imran Hussami - Koehler Instrument Company

Abstract # 180 – 11:40 AM – 30 minutes - "Development of an Automated Modular Permeation System for Creating Complex Calibration Gas Mixtures" - Ms. Danet M. Vrazel, Technical Sales & Service Mgr. - KIN-TEK Analytical Inc

Hibiscus Room
Mettler Training

Abstract # 137 – 9:00 AM – Wednesday - 3 hours - "Basics of Titration: A Primer on Potentiometric Titration" *Tore Fossum - Mettler Toledo, LLC*

Abstract # 136 – 1:00 PM – Wednesday - 3 hours - "Advanced Titration: Optimizing Methods on T50/T70/T90 Mettler Toledo Titrators" - *Tore Fossum - Mettler Toledo, LLC*

Poster Sessions

Wednesday October 15, 2014

Exhibit Hall A

Abstract # 3 - 9:00 AM - "A Novel Microwave-assisted Sample Preparation Method for the Determination of Chloride in Bitumen Samples" *Reynhardt Klopper - Anton Paar USA, Inc.*

Abstract # 4 - 9:00 AM - "Advances in a New Methodology for Sampling and Analyzing Elemental Sulfur in Natural Gas" *Alejandro Gonzalez - DCG Partnership*

Abstract # 5 - 9:00 AM - "Applied Ion Analysis of Various Water Matrices in Hydraulic Fracturing Process" *Dr. Jay Gandhi, Dr. Anne Shearrow - Metrohm USA*

Abstract # 6 - 9:20 AM - "Analysis of Micro Nutrients (anions and cations) in Water by Ion Chromatography" *Dr. Jay Gandhi, Mr. Brian Wilson, Dr. Carl Zhang - Metrohm USA*

Abstract # 7 – 10:30 AM - "Bringing the Future of Titration to the Present" *Kate Barnes - Ayalytical Instruments,Inc.*

Abstract # 9 - 9:40 AM - "CIC – Combustion Ion Chromatography – Old wine in a new Bottle"
Dr. Jay Gandhi, Dr. Anne Shearrow, Mr. Jay Shaffer - Metrohm USA

Abstract # 14 - 9:40 AM - "High Temperature Gel Permeation Chromatography using Dual flow Refractive Index Detection" *Amandaa K. Brewer - Tosoh Bioscience*

Abstract # 15 - 9:40 AM - "How to Recognize and Eliminate Ghost peaks in Gas Chromatography"
Jaap de Zeeuw - Restek Corporation

Abstract # 21 - 10:00 AM - "Analysis of Cations and Anions in Brine and Caustic matrices"
Tiffani Ricketson, James Heller - Dow Chemical

Abstract # 24 - 10:30 AM - "Use of Automated Autosampler Dillution in UHPLC and HPLC"
Greg Hunlen, Sue D'Antonio, Patrick Coleman, & Lynne Marshall - Agilent Technologies

Abstract # 25 - 11:00 AM - "Using FTIR to Determine the TBN of Unused Lubricating Oils"
Emily Totman - Martin Mega Lubricants

Abstract # 31 - 10:15 AM - "Analysis of Pesticides by Time of Flight MS" *Robert D'Antonio, Sue D'Antonio - Agilent Technologies*

Abstract # 33 - 9:45 AM - "Characterization of Coal and its by-products using Borate Fusions and ICP-OES analyses" *Marie-Ève Provencher and John A. Anzelmo - Claisse, Corporation Scientifique*

Abstract # 35 - 9:40 AM - "Determination of Nitrosamines in City of Houston Drinking Water at Various Purification Stages by Solid Phase Extraction (SPE) and Gas Chromatography with Chemical Ionization Tandem Mass Spectrometry (GC-MS/MS)" *Xinwei Yan, Narendra Joshi, Kira Smith, Fabian Heaney, Jisen Wu - Department of Public Works, City of Houston*

Abstract # 38 - 10:30 AM - "Determination of Wear Metal Components in Used Oil from Different Origins by WDXRF" *Andrea C. McWilliams, Research Triangle Institute Frank X. Weber, Research Triangle Institute Keith E. Levine, PhD, Research Triangle Institute Al A. Martin, Thermo Scientific*

Abstract # 39 - 9:30 AM - "High Resolution, Imaging Flow Cytometry Provides Comprehensive Analysis of Live Microalgae, Mixed Organism Cultures and Assesses High Value Commodities in Processed Biomass" *David Sharp, Benjamin Alderete, Haley Pugsley - EMD Millipore*

Abstract # 40 - 10:15 AM - "A Direct Measurement Method for the Characterization of Corrosion Inhibitors for Quality Metrics in Formulation and New Product Development" *[2]Sung Baek, [1]Philip Watson, [1]Randi Schilter, [1]Chao Yang,[1]Stephen W Almond, [2]Frank Kero, [2]Victor Vandell, [2]Elena Gairloch [2]Biotage ; [1] MeadWestVaco*

Abstract # 43 - 9:00 AM - "Improved Efficiencies In TOC Wastewater Analysis For Standard Method 5310B and EPA Method 415" *Tammy Rellar, Kristina Mason - Teledyne Tekmar*

Abstract # 44 - 9:30 AM - "Influence of Calibration Standards on Refractive Index of Hydrocarbon Liquids" *Mark Canestrano - Anton Paar USA*

Abstract # 47 - 10:00 AM - "Mass Spectral Determination of Organo-Metallic Compounds by Very High Resolution Mass Spec" *Robert Swaim, Thermo Scientific; Dr. Kei Murata, Profesor Dr. Todd B. Marder, University of Wurzburg, Germany; Dr. H. Bernhard Linden, Linden CMS GmbH;Alexander Makarov, Maciej Bromirski, Thermo Fisher Scientific, Bremen, Germany*

Abstract # 62 - 9:45 AM - "Combustion Ion Chromatography - Enhancing Halogen Detection Using Preconcentration Methods" *Kirk Chassaniol [2], Adelon Agustin [1], Mark Manahan [1], Bernard G. Sheldon [2] - [1]. Cosa Xentaur, [2] Thermo Fisher Scientific*

Abstract # 85 - 9:45 AM - "Eliminating ICP-MS Matrix Effects And Interferences In The Analysis Of Highly Volatile Solvents" *Anthony M. Palermo and Daniel H. Jones – PerkinElmer*

Abstract # 87 - 10:30 AM - "Enhanced Crude Oil Fingerprinting by GCxGC-TOF MS with Soft Electron Ionization" *P. Grosshans, K. Collins, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International, Inc.*

Abstract # 96 - 10:45 AM - "Instant Connect Gas Sampling Valve Module Introducing a New Flexibility in Gas Sampling for GC and GCMS" *Massimo Santoro, Stefano Pelagatti, Paolo Magni, Fausto Pigozzo - Thermo Fisher Scientific*

Abstract # 97 - 10:30 AM - "Novel Data Processing Software for Fast Screening of Complex Petrochemicals" *K. Collins, P. Grosshans, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International, Inc.*

Abstract# 156 - 10:45 AM – "Fast And On-Site Natural Gas Odorants Analysis Using Micro Gas Chromatography" - *Remko van Loon,Coen Duvekot - Agilent Technologies*

Abstract# 157 - 10:15 AM - "On-site Rapid Analyses of Well Gases for Mud Logging Applications using Micro Gas Chromatography" - *Remko van Loon Coen Duvekot*

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Abstracts 2014

Abstract # 001 – 1:00 PM - 20 Minutes – Orchid – Tuesday - "A Case Study To Determine MTBE Content In Vacuum Distillation Products" - *Abraham George - Takreer Research Centre* - This study was aimed to detect & quantify Methyl Tertiary-Butyl Ether (MTBE) carryover in the refinery vacuum distillation products namely Light and Heavy Vacuum Gasoil (LVGO & HVGO). A series of blending and laboratory procedures involving various distillations such as TBP (ASTM D2892), Hi-Vacuum Pot Still (ASTM D 5236) and Micro Spinning Band were conducted for separation of fractions followed by the GC analysis using ASTM D4815 / UOP 960 methods to quantify the carry over. Detailed steps involved in distillations, analysis and validation of the results with the Process simulation of the VDU are discussed. Paper Presentation

Abstract # 2 – 1:00 PM - 30 Minutes – Tulip – Wednesday - "In The Field Or In The Lab – for Karl Fischer It Is All The Same" - *George Robertson - Ayalytical Instruments,Inc.* - Measuring the amount of water in oils is of considerable economic importance to the industrial community, particularly to the crude oil and electric power industries. Water content determination by Karl Fischer titration is no longer restricted to being used by a chemist in a laboratory – now it can be used by engineers, plant operators, tanker drivers, distribution / maintenance engineers and other non-laboratory personnel. Karl Fischer titrations can now be performed on the tailgate of trucks, mobile laboratories, offshore installations, tankers, engineering workshops, dockside cabins, etc. It is now recognised that inaccuracies can occur when oil is sent to a central laboratory or workshop for water content analysis. Local testing allows decisions to be made there and then. Tests carried out properly on-site may produce results that are more reliable than those obtained in a laboratory because of possible changes during long distance transport and prolonged storage of oil samples. Battery pack power supplies, printing results, data storage and ease of transportability are only some of the problems. Much more important is the design of the titration glassware and how the system is sealed from ingress of atmospheric moisture. This presentation will discuss the application of a unique low drift cell titration glassware design which enables users to transport the instrument with reagents already in the titration cell so that it can be used immediately on arrival. It is not necessary to charge the titration cell whilst on-site, this can all be done in the laboratory or workshop prior to departure. Seminar Presentation

Abstract # 3 - 9:00 - Exhibit Hall – Wednesday - "A Novel Microwave-assisted Sample Preparation Method for the Determination of Chloride in Bitumen Samples" - *Reynhardt Klopper - Anton Paar USA, Inc.* - Accurate chloride content determination in petrochemical products is of utmost importance. Its presence causes several problems during transportation and the downstream refining processes, such as corrosion to transportation lines, fouling, and deactivation of catalysts. Standard lab-scale test methods, such as solvent extraction under atmospheric conditions combined with titration or potentiometric measurement, are time consuming and laborious. This poster presents a novel microwave-assisted sample preparation technique using the Multiwave PRO microwave system. The applicability of the microwave sample preparation technique was evaluated by processing a variety of bitumen samples over several days, with subsequent chloride determination via ion chromatography. Poster Presentation

Abstract # 4 - 9:00 - Exhibit Hall – Wednesday - "Advances in a New Methodology for Sampling and Analyzing Elemental Sulfur in Natural Gas" - *Alejandro Gonzalez - DCG Partnership* - The presence of even small amounts of elemental sulfur in natural gas is known to seriously affect the distribution lines. Just as dry solid, sulfur will accumulate in valves and, fittings, but in the presence of moisture it will be very reactive causing corrosion problems, increasing the costs of maintenance and the risk of safety issues. Now, if the sulfur gets throughout the system and to the final user, the environmental and health problems can be very serious indeed. Just the sulfur fumes can cause irritation of the eyes, nose and respiratory tract. In the presence of O2, elemental sulfur turns easily into SO2 which can cause vascular damage in the brain, heart and kidneys, enzyme system misbalance and so forth. So, it is clear the importance of finding a way to detect and quantify elemental sulfur in the natural gas. Last year we presented a new approach to fulfill this need. In the present work we want to share new results and advances in our way to develop a method for collecting and analyzing elemental sulfur in natural gas. A regular sample cylinder is used as a base for a simple mechanical trap to collect the sulfur from a known amount of gas. This cylinder is send to the lab, where is washed with a known volume of a solution of triphenylphosphine and n, n-dimethylformamide in a blend of aromatic solvents, in order to get the sulfur in a stable organic compound: (C6H5)3PS. This solution has been analyzed with a series of different sulfur detectors; a comparison between these results is presented. Poster Presentation

Abstract # 5 - 9:00 - Exhibit Hall – Wednesday - "Applied Ion Analysis of various water matrices in Hydraulic Fracturing Process" - *Dr. Jay Gandhi, Dr. Anne Shearrow - Metrohm USA* - Hydraulic fracturing is the use of fluid and material to create or restore small fractures in a formation in order to stimulate production from new and existing oil and gas wells. This creates paths that increase the rate at which fluids can be produced from the reservoir formations. The process includes steps to protect water supplies. To ensure that neither the fluid that will eventually be pumped through the well, nor the oil (or gas) that will eventually be collected enters the water supply, steel surface or intermediate casings are inserted into the well to depths of between 1,000 and 4,000 feet. Once the cement has set, then the drilling continues from the bottom of the surface or intermediate cemented steel casing to the next depth. This process is repeated, using smaller steel casings each time, until the oil and gas-bearing reservoir is reached (generally 6,000 to 10,000 ft). Water and sand make up 98 - 99.5% of the fluid used in hydraulic fracturing. In addition, chemical additives such as acid solutions, scale inhibitors, stabilizing agents, corrosion inhibitors, friction reducing agents, gelling agents, etc. are used - exact formulation will

vary depending on the well. There is a growing concern and anxiety among environmentalists regarding catastrophic events and ground water contamination. In this presentation, collaborative approach with USEPA to perform chemical analysis methodologies for ground water, drinking water, surface water and "produced" water using ion analytical instruments will be discussed. Poster Presentation

Abstract # 6 - 9:20 - Exhibit Hall – Wednesday - "Analysis of Micro Nutrients (anions and cations) in Water by Ion Chromatography" - *Dr. Jay Gandhi, Mr. Brian Wilson, Dr. Carl Zhang - Metrohm USA* - Only 3% of water on Earth is in the form of drinking water. Out of this 3%, 2% is in the form of ice. Thus, only 1% of the drinking water on Earth is readily available for consumption. As populations grow, demand for drinking water is increasing. In order to provide more drinking water, the need to analyze pollutants in water, recycle water, and desalinate seawater is on the rise. This presentation will demonstrate successful use of ion analysis techniques for measuring pollutants and micro nutrients such as Nitrite-N, Nitrate-N, Phosphate-P and Ammonium ion in various sources of drinking water (surface water, ground water, seawater). This poster presents simple and robust method for micro-nutrients analysis by suppressed conductivity tandem with direct UV/Vis detection. Poster Presentation

Abstract # 7 – 10:30 AM Exhibit Hall – Wednesday - "Bringing the Future of Titration to the Present" - *Kate Barnes - Ayalytical Instruments,Inc.* - Bringing the Future of Titration to the Present Titration analysis has stepped up to the next level in the Petrochem industry leaving a trail of redundant titrators behind! Capacitance touch screen and automatic electrode recognition technology (ERT) are the principles of the PAT940, breaking new ground in electrochemistry. The Petrochem Analysis Titrator from GR Scientific has a cutting-edge look, designed with the user in mind to offer simplicity and easy-operation without sacrificing accuracy and precision. A compact controller module utilizes a 'light touch and scratch resistant' interface enabling the user to navigate easily through the firmware, faster than other titrators in the market place. Selecting a method could not be easier with the new advancements in ERT. Simply plug in an EChem® electrode and the controller module automatically lists which methods are associated with that electrode in an instant. Pre-programmed methods conforming to ASTM standards as well as the ability to edit and save, guarantees ease of use. A unique colour coding system provides visible association between workspace and media so you always know at what stage you are during your Advancing the technology further, PAT940 had multiple burette capability allowing up to 15 simultaneously connected devices which means the possibility of running TAN and TBN methods side by side is now a reality! Poster Presentation

Abstract # 8 – 2:50 PM - 60 minutes – Daffodil – Wednesday - "Application and Limitation of PLOT columns in Gas Chromatography" *j de zeeuw - Restek Corporation* - For the analysis of Volatiles, PLOT columns are a very good choice. They separate at higher temperatures, have high separation power, show low bleed and are difficult to destroy. Typical applications done are trace sulfurs, hydrocarbon impurities, permanent gases, CO/CO2, and all types of solvents. PLOT columns do behave different then liquid phase coated columns. In this seminar we will discuss the latest PLOT column technologies and how they can be applied for the separation of gases and volatiles. We will zoom in molsieves, alumina, silica and porous polymer type materials. Seminar Presentation

Abstract # 9 - 9:40 AM - Exhibit Hall – Wednesday - "CIC – Combustion Ion Chromatography – Old wine in a new Bottle" - *Dr. Jay Gandhi, Dr. Anne Shearrow, Mr. Jay Shaffer - Metrohm USA* - Since 1950s, off-line combustion techniques like Wickbold apparatus and Schoeninger flask for petrochemicals and petroleum products is popular. However, these techniques are very labor intensive and not cost effective in fast pace laboratories in modern times. The fully automated combustion ion chromatography (CIC) system presented here combines a highly efficient combustion system with the separation power of ion chromatography (IC). CIC allows for the simultaneous speciation of halides (F, Cl, Br and I) and sulfur compounds (as sulfate) from sub-ppm to per cent levels in any sample matrix. Various applications for real world samples like Diesel fuel, gasoline, petroleum products, and polymers will be presented. Poster Presentation

Abstract # 10 -9:00 AM - 30 minutes – Orchid – Wednesday - "Combustion Ion Chromatography for Petrochemical Industry"
Dr. Jay Gandhi, Dr. Anne Shearrow, Mr. Jay Shaffer - Metrohm USA - Since 1950s, off-line combustion techniques like Wickbold apparatus and Schoeninger flask for petrochemicals and petroleum products is popular. However, these techniques are very labor intensive and not cost effective in fast pace laboratories in modern times. The fully automated combustion ion chromatography (CIC) system presented here combines a highly efficient combustion system with the separation power of ion chromatography (IC). CIC allows for the simultaneous speciation of halides (F, Cl, Br and I) and sulfur compounds (as sulfate) from sub-ppm to per cent levels in any sample matrix. Various applications for real world samples like Diesel fuel, gasoline, petroleum products, and polymers will be presented. Paper Presentation

Abstract # 11 – 11:50 AM - 20 minutes – Hibiscus – Tuesday - "Determination of Selected Metals in Rice Grown in Gulf Coast States"
Joseph Sneddon, Joel C. Richert, and Carey J. Hardaway - McNeese State University - Rice (Oryza sativa) is a staple food for many people and is grown around the world. In US it is grown in Gulf Coast States (Louisiana, Mississippi and Texas) as well as Arkansas, California, and Missouri. Many metals in low concentrations can present adverse health effects, and, hence, the concentration of metals in rice is important for risk assessment. This work presents the results of study of selected metals (As, Cd, Cu, Cr, Fe, K, Mg, Mn, and Zn) in rice from Gulf coast states as well as a comparison from selected areas from around the world (India and Bangladesh). Paper Presentation - 20 minutes Abstract # 011

Abstract # 12 -9:00 AM - 40 minutes – Bluebonnet – Wednesday - "Driving Lab Quality through Proficiency Testing of Oil and Fuels"
Roland St. Germain - VHG Labs-part of LGC Standards - Discuss the interpretation of proficiency test results and how they can assist in driving lab quality. Presentation will be discussed in the context of #2 Diesel, Ultra Low Sulfur in Diesel, Oil, Turbine aviation fuel, Crude and Engine oil lubricants. Seminar will cover the position of proficiency testing within quality assurance programs and various structures of different proficiency test schemes. In addition, benefits of independent checks and peer evaluation will be explored. Will review interpretation of proficiency test results, monitoring trends, and need for investigation as well as strategy for proficiency test participation and its use as a management tool. Will discuss the need to meet requirements of accreditation bureaus, customers and regulatory bodies. Seminar Presentation

Abstract # 13 – 3:20 PM - 60 minutes – Bluebonnet - Tuesday - "The Science and Art of pH in Petrochemical/Chemical Laboratories and in the Plant" - *Susan Sedwick, Don Ivy - Thermo Scientific, Orion Products* - Monitoring the pH of liquids in petrochemical, chemical, boiler water, and waste water samples is essential to improve production efficiency, maximize up-time, and assure regulatory compliance. This seminar will introduce the concepts you need to understand in order to ensure that your pH QC/monitoring efforts are accurate and reproducible and that your pH equipment is working at maximum efficiency. Some of the topics discussed will include, suitability of different electrodes for specific applications, the effect of temperature on the measurement of pH, two point versus three point calibration and when to use each, as well as common sources of pH error. You will also learn methods for extending the life of electrodes and electrode troubleshooting and cleaning tips. Seminar Presentation

Abstract# 14 - 9:40 AM - Exhibit Hall – Wednesday - "High Temperature Gel Permeation Chromatography using Dual flow Refractive Index Detection" - *Amandaa K. Brewer - Tosoh Bioscience* - Single detector high temperature gel permeation chromatography (GPC) is used to extract quantitative information from the elution curves obtained via a refractive index (RI) detector with accuracy and precision. Here, we have studied the repeatability, reproducibility, and baseline stability of a dual flow RI detector in the EcoSEC® High Temperature GPC System for the determination of molar mass averages at temperatures up to 220 °C. Additionally, we will demonstrate how single detector high temperature GPC with a dual flow RI detector can be used for the characterization of polyolefins, polyethylenes of varying density, and polyphenylene sulfide (PPS) compounds. Poster Presentation

Abstract# 15 - 9:40 AM - Exhibit Hall – Wednesday - "How to Recognize and Eliminate Ghost peaks in Gas Chromatography" - *Jaap de Zeeuw - Restek Corporation* - The chromatogram is like a fingerprint. If you can read the chromatogram by looking at peak shapes, retention, base line and by comparing with "normal" situation, you have a good chance to solve problems and improve the analysis. A ghost peak is a peak that is showing up, but is not supposed to be there. Sometimes it is referred as a "system" peak. Ghost peaks can be created in many ways. It's a component that is added/created somewhere in the system, it is injected/trapped/focused onto the column, and will elute. Problems will escalate if a ghost peak interferes with an analyte that has to bequantified. Sources for ghost peaks can be sample vials, gloves, syringes, reagents, carrier gas, tubing, the injection port, operation, memory effects and even the column-phase itself. In this poster the most prominent contributions to ghost peaks will be discussed by showing practical examples and how to check for. Poster

Abstract # 16 – 10:20 AM - 20 minutes – Daffodil – Tuesday - "PetroVisION – A stable Isotope analytical tool for the 'Oil & Gas' Industry" - *Craig Barrie - Elementar Americas, Inc.* - With ever increasing exploration & exploitation of hydrocarbon resources, including unconventionals such as shale gas, the drive to understand the origins, history and importance of these resources has never been more important. High-throughput, high-precision isotopic measurements are therefore a key tool in this industry to both understand the hydrocarbons generated and monitor development & stability of wells through time. The PetroVisION platform from elementar Americas, Inc. represent a leap forward in instrument automation & capability while also showcasing powerful, intuitive software. PetroVisION is the first IRMS designed specifically to meet the needs of the Oil & Gas Industry. Paper

Abstract # 18 – 9:30 AM - 60 minutes - Orchid - Tuesday - "Workforce Planning and Analytics: Using data to drive Change" - *Lori Morgan – OrcaEyes* - As companies work to optimize talent management and recruiting programs, the need to implement a workforce analytics and planning strategy becomes increasingly apparent, yet many are left wondering where to start or searching for best practices to get it right. In this session, we'll discuss the realities of WF planning is and what to expect on your journey. Learning Objectives • Learn how to understand what your data is telling you and get comfortable with what you already have. We'll explore how to use the right data, account for and communicate data discrepancies and understand predictive logic. • Learn how to properly prepare for the conversation with managers, and keep it simple while explaining the numbers and trends, ask the right questions, and when to introduce benchmarks (internal and external). • Discover the Do's and Don'ts of guiding the process and potential roadblocks, who should own the process and what to expect along the way (the 30, 30, 30 rule). Seminar Presentation

Abstract # 19 – 9:00 AM - 60 minutes – Hibiscus – Tuesday - "Injection techniques used in Petroleum GC analysis: How to make an optimal Injection using Split or Splitless using a syringe or valve?" - *Jaap de Zeeuw - Restek Corporation* - Most of the problems in GC are related to the injection of the sample. Our goal is to introduce the sample as a narrow band. In this seminar, an overview is presented of the different injection techniques commonly used in petroleum analysis . We will zoom in the backgrounds, application and limitation of the Split and Splitless techniques using syringe/valve injection, and how they need to be operated for optimal injection of the sample In this seminar also the choice of liners will be discussed. Seminar Presentation

Abstract # 20 – 9:30 AM - 20 minutes – Daffodil – Tuesday - "Real-time Mud-Gas Analysis Using SIFT-MS" - *Barry Prince, Daniel Milligan, Vaughan Langford Robert Wilson - Syft Technologies, Inc.* - High-penetration-rate drilling technologies present a challenge to current mud-gas analysis techniques: they are limited in either analysis speed and/or the range of compounds measured. Selected-ion flow tube mass spectrometry (SIFT-MS) is a recently commercialized technique that detects and quantifies volatile organic compounds (VOCs) directly in air to part-per-trillion (ppt) concentrations within seconds. SIFT-MS uses multiple reagent ions to provide highly selective, quantitative analysis of wide range of hydrocarbons and other compounds of interest in this field.

In this paper, we present analytical results for C1 – C11 that were acquired in a field test of SIFT-MS instrumentation for mud-tank headspace analysis. Paper Presentation

Abstract # 21 - 10:00 AM - Exhibit Hall – Wednesday - "Analysis of Cations and Anions in Brine and Caustic matrices" - *Tiffani Ricketson, James Heller - Dow Chemical* - Caustic (Sodium Hydroxide) is manufactured using saturated Sodium Chloride (Brine) solutions. Manufacturing process may be diaphragm or membrane based processes. Anionic and Cationic impurities need to be monitored to protect and prevent expensive plant maintenance. These impurities are controlled for quality control of final product as well. Certain states require regulatory reporting of certain tracer anion and cations for Brine mining industry. Traditionally, titration technologies have been used for many decades in the industry for analysis. As we all know that titration techniques are labor intensive and limited in detection limit. Nowadays newer technologies permit operations to analyze at lower detection limits for impurities. In this poster presentation, details of instrumentation and data will be presented for simplicity, ruggedness and reproducibility for the analysis of anions, cations in Brines and Caustic. Presenter: Ms. Tiffani Ricketson Analytical Technologist, Chlor Alkali Quality Assurance Lab, Dow Chemical, Texas Operations Mr. James Heller Business Quality Specialist, Chlor Alkali Quality Assurance Lab, Dow Chemical, Texas Operations Poster Presentation

Abstract # 22 – 1:00 PM - 60 minutes – Vine I - "Providing Fumehood Bench Space Density While Lowering the Requirements of Conditioned Air Volume of your Laboratory" - *Tommy Lear, Dennis Brewer, Darryl Coenen - Gray & Green Laboratory Systems* - Recent innovations in filtration technology have resulted in proven success for capturing the chemical vapors emitted during Laboratory processes. Thus providing a more comfortable work environment, more constant results due to better temperature control, along with cleaner air in the laboratory during these processes. The net gains for the laboratory facility are lower overall cost in HVAC installations, lower daily operating cost, lower maintenance cost, plus a safer work environment. Seminar Presentation

Abstract # 23 - 11:30 AM - 30 minutes – Daffodil – Tuesday - "The Role of Proppants in the Fracking Process" - *Michael C. Pohl, Gert Beckmann - HORIBA Instruments, Inc.* - Fracking is playing an ever increasing role in oil production throughout the continental U.S. One of the key elements of this process is the use of proppant beads to "prop open" the pores of shale formation to allow the liquid or gas to exit the formation. As such it plays a critical role in the overall efficiency of the process. These ceramic type of materials must have very tight specifications for size and roundness. Historically the only parameter measured was the particle size by the use of sieves. Newer technologies have now been developed which can provide both parameters in under five minutes. The various types of proppants will be discussed and their size and shape requirements explained. Paper Presentation

Abstract # 24 - 10:30 AM - Exhibit Hall – Wednesday - "Use of Automated Autosampler Dillution in UHPLC and HPLC" - *Greg Hunlen, Sue D'Antonio, Patrick Coleman, & Lynne Marshall - Agilent Technologies* - In this poster we will show how to reduce sample prepation time and reduce errors in HPLC Analysis. We will show examples of dillution with the Agilent Autosampler. We will examine linearity and reproducablity of the ALS using Caffiene. This capability exists in all Agilent systems begining with the 1090 in the 1980s to all the present day systems. Poster Presentation

Abstract # 25 - 11:00 AM - Exhibit Hall – Wednesday - "Using FTIR to Determine the TBN of Unused Lubricating Oils" - *Emily Totman - Martin Mega Lubricants* - Many combustion engines produce acidic by-products that can damage the system. To combat damage, lubrication oils are produced with an excess of base: the Total Base Number. The ASTM method uses expensive reagents, so the Martin Mega Lubricants lab developed an alternative method using FTIR. The results show large quantities of spectra at varying TBN generate a training method producing precise predictions. The two main concerns of the ASTM method are the cost and time required. This alternative does not require expensive reagents; however the data manipulation does take about the same amount of time as the ASTM method. Poster Presentation

Abstract # 26 -10:40 AM - 30 minutes – Orchid – Wednesday - "Accurate Elemental X-ray Fluorescence Analysis for Fuels, Oils and Petrochemicals with a Single Mineral Oil Calibration" - *Lieven Kempenaers, Taco van der Maten, Marco van der Haar - PANalytical, Inc.* - Accurate analysis of sulfur and other elements in different fuel/blends typically requires many different conventional calibrations. Similarly, analysis of wear metals in used lubricants is often difficult as calibration standards are often not readily available. With the Oil-Trace solution, a single set of matrix calibration standards provides the flexibility to handle many different matrices, e.g. additives in lubes, sulfur in fuel/biofuels, wear metals in used lubricants, etc. This saves time for setting up and maintaining calibrations, and equals savings on expensive reference materials. The Oil-Trace solution, proven on market-leading Axios WDXRF spectrometers, is now available on PANalytical bench-top Epsilon 3X EDXRF spectrometers. Paper Presentation

Abstract # 27 – 10:00 AM – 60 minutes – Bluebonnet – Wednesday - "Advanced Solution To Increase FCC Profits" - *Tal Cohen, Gregory Shahnovsky, Ronny McMurray* - In the past refineries predominately distilled light sweet crudes to produce mainly gasoline. The increased demand of diesel oil in combination with high costs of sweet crude force modern refineries to move to cheaper heavy and opportunity crude oils and crude blends. Switching to heavy crude oils increases the production of heavy distillates, further cracked by the FCC into naphtha, for utilization in gasoline blending. The FCC is a complex system, comprising a reactor, a catalyst regenerator and a fractionator. Each of these units operates interdependently. Highest profitability from the FCC process is gained by maximized production of naphtha at minimal energy consumption, where unit must operate with highest attainable efficiency. Commercially available FCC process optimization software to calculate optimized operation and production parameters is based on a static database. Physical properties of vacuum gasoil fluctuate according to the source of the VGO, which turns the FCC into a highly dynamic process. Any deviation from model-calculated data affects the FCC optimization process. This makes advanced on-line process analytics of primary need. All FCC process stream are interlinked. Fluctuation in quality parameters of one stream has its impact on the quality of other process streams. The fundamental to optimize FCC process conditions is based on real time analytical data. NMR process analytics allows immediate modification of process conditions by correlation between physical properties of different process streams. Short optimization time enables production at highest yield, highest capacity, and lowest energy consumption, and by that to maximize the FCC profit. Paper Presentation

Abstract # 28 – 9:00 AM - 30 minutes – Daffodil – Tuesday - "Advancements in Micro Gas Chromatography (GC) - Fast Analysis of C1 to C8 Hydrocarbons for Mud Logging Applications within 2 minutes using a Temperature Programmable Micro GC Fusion" - *Debbie Hutt - INFICON* - Continuous measurement of hydrocarbon gas concentration is crucial to mud loggers at the drilling site. Hydrocarbon measurement information provides operators with valuable geological formation insight during vertical, intermediate, lateral, and hydraulic fracturing drilling processes. As a result of technological advancement in gas detection, sample composition can now be measured within minutes leading to nearly real-time analysis. Gas chromatography (GC) is a well established technique used to analyze extracted gas to provide accurate, on-site gas composition information. The INFICON Micro GC Fusion is the latest innovation that utilizes temperature programmable columns and micro-machined components to analyze C1-C8 compounds in less than two minutes or C1-C5 compounds in less than 30 seconds on a 24x7 basis. This expanded compound range and speed allow for more data to be acquired compared to traditional GC equipment. The instrument's transportable and compact architecture makes it ideal at drilling sites where space is limited. Paper Presentation

Abstract # 29 – 1:30 PM - 30 minutes – Floral Hall B – Tuesday - "Conditions and Limitations In The Use Of Spectrometry For Motor Fuel Property Prediction" PART 1 *Marcus Trygstad, Brian Rohrback - Yokogawa Corporation of America* - A disparity often exists between the

promise of chemometric-based NIR spectrometry and refiners' experience in its application for predicting motor fuel properties. Generally, modeling is the focus of analyzer performance issues; rarely is the role of spectrometer performance and spectral quality discussed. This presentation will examine instrumentation factors that impact model performance. The focus of Part 1 is on the following three areas: • Sample temperature variation; • The fidelity and precision of a spectrometer's spectral registration function; and • The relationship between chemical components in samples, their aggregate spectral expression, their variation as a function of changes in blend recipes, and chemometrics. Paper Presentation

Abstract # 30 – 2:00 PM - 30 minutes – Floral Hall B – Tuesday - "Conditions and Limitations In The Use Of Spectrometry For Motor Fuel Property Prediction" PART 2 *Brian Rohrback, Marcus Trygstad - Infometrix, Inc.* - Many different technologies have been promoted for motor fuel properties. Rarely employed, objective measures are available which allows comparison of different analyzer approaches, both as it relates to the expected reliability of the spectrometers themselves and on the software approaches that accompany them. This presentation reviews current practices and shows what can be done with logical extensions to those practices. Software will ultimately determine how stable a calibration should be expected for a particular application. The focus of Part 2 is on the following three areas: • Appropriate samples for calibration; • Selecting portions of the spectra; and • Non-linearities in the system. Paper Presentation

Abstract # 31 - 10:15 AM - Exhibit Hall – Wednesday - "Analysis of Pesticides by Time of Flight MS" - *Robert DAntonio, Sue Dantonio - Agilent Technologies* - In this presentation we used quenchers to extract pesticides from nutraceutical sample and ran them on an Agilent Time of Flight LCD MS, we used a accurate mass data base to search for pesticides. We then reran the samples with all ion methodogy to confirm by MS/MS like spectra. Poster Presentation

Abstract # 32 – 10:30 AM - 20 minutes – Bluebonnet - Tuesday - "Analysis of Anions and Cations in Produced Water from Hydraulic Fracturing using Ion Chromatography" - *Carl Fisher - Thermo Fisher Scientific* - Treatment and reuse of wastewater from hydraulic fracturing has reduced the water and disposal requirements of this process. Knowing the composition of ions in wastewater can be used to develop effective treatment strategies and optimize fracturing fluids created from this water. This presentation describes the use of ion chromatography (IC) to determine anions and cations in produced water from three different hydraulic fracturing sites. Considerable variation in ion concentration was found, which was attributed to differences in the geology of the locations from which samples were obtained. Seminar Presentation

Abstract # 33 - 9:45 AM - Exhibit Hall – Wednesday - "Characterization of Coal and its by-products using Borate Fusions and ICP-OES analyses"
Marie-Ève Provencher and John A. Anzelmo - Claisse, Corporation Scientifique - Introduction Coal has been used for centuries as a major energy source. It is beneficial to characterize coal, ash and fly ash, using Standard methods including the ASTM D6349-11 and the AS 1038.14.1-2003 use ICP-OES or AAS. The purpose of this project is to demonstrate that the accuracy and precision mentioned in these standard methods can be achieved when using automated borate fusion as a method of dissolution for analysis by ICP-OES. Materials and Methods Three different samples and three reference materials were prepared by borate fusion and tested: NCS FC28127 – (Coal), VS-7177-95 (Coal ash) and EOP 12-1-02 (Fly ash). Significance The results, simplicity of the method, its speed, automation and the complete absence of harsh acids will be discussed. Poster Presentation

Abstract # 34 – 1:00 PM - 20 minutes – Daffodil – Tuesday - "Characterizing the Phosphorus, Sulfur and Chlorine Components of Incoming Crude Oil - how to do it Accurately and Consistently" - *Laura Oelofse - Rigaku Corp.* - Fracking uses a host of chemicals to liberate the trapped oil from shale formations, residual chemicals from this process make their way into the end products, crude oils, being supplied to refineries. Refineries need to do due diligence to understand what quality crude they are placing into the feed stream and a quick reliable analysis is necessary to give the refinery engineers a good understanding of what quality of crude they are dealing with. Paper Presentation

Abstract # 35 - 9:40 AM – Exhibit Hall – Wednesday - "Determination of Nitrosamines in City of Houston Drinking Water at Various Purification Stages by Solid Phase Extraction (SPE) and Gas Chromatography with Chemical Ionization Tandem Mass Spectrometry (GC-MS/MS)" *Xinwei Yan, Narendra Joshi, Kira Smith, Fabian Heaney, Jisen Wu - Department of Public Works, City of Houston* - After N-nitrosodimethylamine (NDMA) was first found in a drinking water in 1998, more nitrosamine compounds were subsequently identified as a byproduct of drinking water treatment. Eventually, these nitrosamine compounds were added to the list of unregulated contaminants by US EPA. This paper provides an overview of the development and applications of a nitrosamine determination method by solid phase extraction (SPE) and gas chromatography with chemical ionization tandem mass spectrometry (GC-MS/MS). Based on EPA Method 521, this method employs an automated solid phase extraction device, simple splitless GC injection, high-resolution capillary gas chromatography, followed by highly specific chemical ionization MS/MS detection. Seven Nitrosamines (N-Nitrosodimethylamine (NDMA), N-Nitrosomethylethylamine (NMEA), N-Nitrosodiethylamine (NDEA), N-Nitrosodi-n-propylamine (NDPA), N-Nitrosodi-n-butylamine (NDBA), N-Nitrosopyrollidine (NPYR) and N-Nitrosopiperidine (NPIP)) were detected and determined in drinking water samples at various stages of purification in the City of Houston drinking water system. Poster Presentation

Abstract # 36 – 10:00 AM - 20 minutes – Orchid – Wednesday - "A Novel Solution for the Analysis of Speciated Sulfurs and Nitriles in Various Hydrocarbon Streams" - *Garrett Reese, Allison Mason, David Cuthbert - Wasson-ECE Instrumentation* – The Hydrocarbon Processing Industry needs to evaluate feed stocks for trace sulfur and nitrogen compounds to ensure product quality and protect process catalysts. Two of the primary analyte types of interest are trace sulfurs and trace nitrogen components. While several analyzers exist to perform these analyses, they are dedicated to specific hydrocarbon product types. The presented system analyzes samples in gases, LPG, light distillates, and middle distillate products using a single gas chromatograph. This extensively modified GC simultaneously gathers data from flame ionization, sulfur chemiluminescence, and nitrogen chemiluminescence detectors. Analytical and design challenges will be discussed. Paper Presentation

Abstract # 37 – 1:50 PM - 30 minutes – Tulip - Tuesday - "Common Oil and Grease Audit Findings and Appropriate Responses" - *David Gallagher, Chad Schewe - Horizon Technology* - While the 1664 method (Oil and Grease) is a simple measurement, the past 5 years have had more clarifications made to the method than it has since its original promulgation. From what sample size is appropriate, to the extraction solvents you can use; from the correct drying techniques, to the temperature that should be used for evaporation; it seems like almost all aspects of the method have been affected. It's no surprise then that the most recent method revision has managed to generate some confusion for all parties involved in the audit process. The intent of this paper is to address some of the more common audit findings or individual concerns using statements taken directly from the method itself or from official releases made by EPA. In addition, a special focus will be made with regards to addressing both user and auditor concerns regarding the use of automated Solid Phase Extraction (SPE) for this analysis. Paper Presentation

Abstract # 38 - 10:30 AM - Exhibit Hall – Wednesday - "Determination of Wear Metal Components in Used Oil from Different Origins by WDXRF" - *Andrea C. McWilliams, Research Triangle Institute Frank X. Weber, Research Triangle Institute Keith E. Levine, PhD, Research Triangle Institute Al A. Martin, Thermo Scientific* - Wavelength dispersive x-ray fluorescence (WDXRF) is an excellent tool to monitor wear metal components at low ppm concentrations with minimal sample preparation. Sources of used oil range from process control components to combustion engines for this study. PetroilQuant, a powerful multi-element

software program is utilized to obtain quantifiable and repeatable results at low ppm. Validation of the method is performed by a secondary technique and the analysis of certified standards to confirm validity of results. Poster Presentation

Abstract # 39 - 9:30 AM - Exhibit Hall – Wednesday - "High Resolution, Imaging Flow Cytometry Provides Comprehensive Analysis of Live Microalgae, Mixed Organism Cultures and Assesses High Value Commodities in Processed Biomass" - *David Sharp, Benjamin Alderete, Haley Pugsley - EMD Millipore* - Typical analytical systems used to study microalgae and biomass derived commodities only address single or limited parameters. To address multiple parameters on the same platform we employ high resolution imaging flow cytometry (IFC) which allows for rapid data collection of high resolution, multispectral imagery at the single cell level in an objective, quantitative, and statistically robust manner. In this study we investigate the use of high resolution IFC to simultaneously evaluate: microalgae concentration, culture debris, screen biomass for biotic contamination and quantitate the relative concentration and intracellular compartmentation of neutral lipids using a lipophilic fluorescent dye. Poster Presentation

Abstract # 40 - 10:15 AM - Exhibit Hall – Wednesday - "A Direct Measurement Method for the Characterization of Corrosion Inhibitors for Quality Metrics in Formulation and New Product Development" - *2Sung Baek, 1Philip Watson, 1Randi Schilter, 1Chao Yang,1Stephen W Almond, 2Frank Kero, 2Victor Vandell, 2Elena Gairloch 2Biotage ; 1 MeadWestVaco* - Corrosion costs the petroleum industry an estimated $1.3 billion in non-productive time, materials and labor annually. Imidazolines prepared from fatty acids and amines are a widely-used class of chemical corrosion inhibitor, due to excellent performance and ease of handling. However, imidazolines actually comprise a mixture of several different chemical compounds, and the relative proportions of these species can have a large impact on both corrosion inhibition and product physical properties. The absence of gold standard analytical methods to characterize the active ingredients in imidazoline formulations limit the understanding of the chemistry of these materials. It is for this reason that a SPE-LC-MS method was developed to supplement the chemical information afforded by bulk testing / wet chemistry methods (e.g. titrations etc). A high resolution quadrupole time-of-flight (QTOF) mass spectrometer was selected based on the fast scanning platform. This feature allows for low level sample interrogation in non-targeted analysis. Preliminary method development work was completed at the Biotage US Applications Lab (Charlotte, NC). The optimized sample preparation parameters were transferred to MWV (Charleston, SC).It is anticipated that this method will have significant impact in the formulation of new corrosion inhibitors for oil pipeline field applications as well as the quality control of finished products in manufacturing. Poster Presentation

Abstract # 41 – 3:10 PM - 30 minutes – Orchid - Tuesday - "Fully Automated Sample Preparation and GC Analysis of Hydrocarbons in Pyrophoric Compounds to Increase Process Efficiency, Analysis Throughput and Safety" - *Dr. Steven Stiller - LEAP Technologies, David Cuthbert - Wasson-ECE* - Some classes of catalysts for hydrocarbon cracking and polymerization are pyrophoric and are difficult and dangerous to handle. It is useful to understand the amount of hydrocarbons remaining in recycled catalyst to understand the efficiency of the process. In order to measure the hydrocarbons the samples of catalyst must be hydrolyzed in order to free hydrocarbons in the samples so they can be analyzed by gas chromatography. We describe a CTC robotic sample handling system with automated tool changing mounted on an Agilent GC, specially modified for the hydrocarbon analysis. We demonstrate the improvements in throughput and laboratory worker safety. Paper Presentation

Abstract # 42 – 11:00 AM - 30 minutes – Bluebonnet – Wednesday - "Integrated Technologies For Economic Crude Blending" - *Tal Cohen, Gregory Shahnovsky, Ronny McMurray - Modcon Systems ltd.* - In the past refining of sweet crude oils, and production of refinery products with the highest market consumption dictated the construction of refineries. Nowadays global competition and increasing demand of diesel oil forces refineries to adapt their distillation units towards maximized utilization of low cost heavy, sour and opportunity crudes. High TAN and sulphur contents obstruct their neat consumption. These crudes enhance corrosion, and make efficient fractionation complicated. To facilitate processing, without affecting the production capacity of most demanded refinery products, blending of these crudes to its highest extent, with light crude oils or blends is inevitable. Based on historical data, Linear Programming Software (LP) calculates refining yields and product ratio producible from different crude oils or blends. Real-Time and On-Line analytical data of incoming crude oil streams and the final blend is essential to guarantee full compliance between "LP predicted" and "real measured" physical properties characterizing a certain blend. These are the fundamentals to optimize process conditions towards the highest production capacity of in-spec material. NMR, magnetic resonance spectrometry based process analyzers are correlative analyzers. They perform multiple physical property analyses in different process streams by one single measurement, notwithstanding whether transparent or opaque. Correlation between physical properties of each feedstock and the final blend is the fundamental to successful and efficient blending optimization. It provides immediate feed-back of the efficiency, following adjustment of process conditions. Integration of NMR analyzer data with the LP system for automatic update of the LP models with real-time analyses enables continuously to optimize the crude blend composition. This concept prevents production of uneconomic blends and inefficient non-optimized blending conditions. The strategy of integrating different technologies provide a sophisticated solution to guaranty economic crude blending. Seminar Presentation

Abstract # 43 - 9:00 AM - Exhibit Hall – Wednesday - "Improved Efficiencies In TOC Wastewater Analysis For Standard Method 5310B and EPA Method 415" - *Tammy Rellar, Kristina Mason - Teledyne Tekmar* - TOC measurement is of vital importance to the operation of water treatment due to organic compounds comprising a large group of water pollutants. TOC has been around for many years, and although it is a relatively simple analysis in theory, operational efficiency is paramount. Laboratories are continually looking to increase sample throughput, decrease overall cost of analysis, and improve ease of use while maintaining reproducibility. This poster will demonstrate the ability to test petroleum contact water and waste water samples showing a >25% improvement in laboratory efficiency following Standard Method 5310B and US EPA Method 415.1 guidelines. Poster Presentation

Abstract # 44 - 9:30 AM - Exhibit Hall – Wednesday - "Influence of Calibration Standards on Refractive Index of Hydrocarbon Liquids" *Mark Canestrano - Anton Paar USA* - Good laboratory practices include regular checks and calibrations, in order to validate that measurements taken are accurate and precise. As noted in ASTM D1218, "a refractometer must be calibrated using one or more reliable calibration standards". This poster will discuss important features of reference standards needed to maximize refractive index measurement accuracy and precision. Poster Presentation

Abstract # 45 – 9:30 AM - 30 minutes – Bluebonnet - Tuesday - "High Pressure Ion Chromatography" - *Kirk Chassaniol, Paul Voelker - Thermo Fisher Scientific* - High-pressure ion chromatography systems enable continuous operation at system pressures up to 5000 psi, making it possible to use new, smaller 4 µm particle-size ion-exchange columns in capillary and analytical scale formats. Smaller particle sizes can increase chromatographic efficiency, with benefits for analyte resolution. In this seminare we will suplement the theory with applications of interest to the chemical and petrochemical analysts. Paper Presentation

Abstract # 46 – 9:30 AM - 30 minutes – Floral Hall B – Tuesday - "Kerogen Characterization by TGA-GC-MS and TGA-FTIR" - *Ekkehard Post, Ed Lim - NETZSCH Instruments North America, LLC* - Kerogen from Green River formation was investigated by TGA-GC-MS and TGA-FTIR. The TGA-GC-MS measurements were performed in quasi-continuous mode and cryo mode. The quasi-continuous mode allows a relative good time resolution of the TGA-MS results, the cryo mode gives a better separation of the different evolved substances. TGA-FTIR results on the Kerogen can confirm the data or even deliver new interpretation possibilities. Both coupling methods will be explained. The TGA-GC-MS and TGA-FTIR results of a Green River Kerogen sample will be presented

and discussed. Paper Presentation

Abstract # 47 - 10:00 AM - Exhibit Hall – Wednesday - "Mass Spectral Determination of Organo-Metallic Compounds by Very High Resolution Mass Spec" - *Robert Swaim, Thermo Scientific; Dr. Kei Murata, Profesor Dr. Todd B. Marder, University of Wurzburg, Germany; Dr. H. Bernhard Linden, Linden CMS GmbH;Alexander Makarov, Maciej Bromirski, Thermo Fisher Scientific, Bremen, Germany* - Liquid introduction field desorption ionization (LIFDI) is a soft mass spectrometry ionization technique which is specifically useful for organo-metallic compounds that are difficult to characterize with other methods. The novel interface of this technique coupled to a very high resolution Q Exactive Orbitrap mass spectrometer will be discussed and spectra of catalytic compounds will be displayed. Poster Presentation

Abstract # 48 – 11:45 AM - 30 minutes – Vine I & II - Tuesday - "Kinematic Viscosity & VI Measurements of In-Service Engine oils by Stabinger Viscometer" *Eric Swertfeger - Anton Paar* - Viscosity is one of the most important factors in determining the quality of engine oils. The Viscosity Index (VI) provides information on the engine's oil temperature stability – the higher the VI, the less the oil is influenced by temperature changes. In-Service engine oil reflects a lower VI than a fresh one of the same type, and also shows a different viscosity. In-Service engine oil's viscosity and/or VI are more reliable indicators for its condition than mileage or time of use. Evaluating the engine oil's viscosity by Stabinger viscometer is an effective way to monitor these changing conditions. Paper Presentation

Abstract # 49 -1:00 PM - 30 minutes – Bluebonnet – Wednesday - "Maximize Diesel Production with Accurate Boiling Point Analysis" *Jonathan Cole – PAC* - In order to separate a liquid feed mixture into its components, refineries use a distillation process to separate crude and determine key characteristics of their feed. These characteristics significantly impact the safety and performance of end-products, particularly with fuels and solvents. The boiling range gives information on the composition, the properties, and the behavior of the fuel during storage and use. ASTM D86 is the historical test method to determine the boiling range of a petroleum product. It determines the boiling range by performing a simple batch distillation. ASTM published the ASTM D975-12, which includes an alternate distillation method, ASTM D7345, which uses the process of microdistillation to provide fast results using small sample volume. This paper discusses the benefits of using a process application of the ASTM D7345 test method to provide real, online distillation analysis to prevent product giveaway and reprocessing, and to meet tight blending specifications at the most reasonable cost. In addition, a case study with a major Brazilian refinery that evaluated this instrument will be discussed. Paper Presentation

Abstract # 50 – 1:00 PM - 30 minutes – Tulip - Tuesday - "Octane Engine Temperature Measurements in a Mercury-Free World" - *Thomas Leuthner, James Honan - The Protectoseal Company* - The ASTM D2699, D2700, and D2885 standards specify the use of CFR (Octane testing) engines to determine octane numbers of motor vehicle fuels. These engines have used mercury thermometers to monitor several process-critical temperatures. Mercury thermometers are rapidly being eliminated on CFR engines, and being replaced by RTDs. For many years, RTDs have been used concurrently with mercury thermometers at numerous sites. At sites where both are present, the mercury thermometer has been used as a standard to compare the RTD against. In the absence of mercury thermometers, how can we ensure accurate RTD calibration? Paper Presentation

Abstract # 51 – 1:30 PM – 20 minutes – Tulip - Tuesday - "Analysis Of Oil In Water By Laser Induced Fluorescence Spectroscopy" - *Aaron Mendez, Ph.D.; Duane Germenis and Larry Spino Ph.D. - PAC LP* - The determination of oil in water streams has an enormous impact in oil producing and oil refining operations not only from the environmental stand point but also as a mean for process and operation control. There is a need for fast, accurate and rugged analyzers, not only to monitor the quality of the world water resources but to assist the operations of industrial processes and to comply with regulations for water disposal of treated industrial waters. Three important characteristics define our analyzers: simplicity, accuracy and reliability. Advanced Sensors by PAC is the leader in the manufacturing of cutting edge technologies for oil in water analysis. There are many analytical gravimetric, spectroscopic and chromatographic methods to measure the concentrations of oil in water, each one with different scopes, advantages and disadvantages. Several of those are considered as reference methods so the correlations of alternate procedures could be established. The present work describes and reports results showing the suitability of a portable hand held analyzer of oil in water by Laser Induced Fluorescence. Since sampling and sample conditioning is a fundamental stage of a reliable method, care has been taken to reduce matrix effects data dispersion and to prolong the validity of the calibration files. Paper Presentation

Abstract # 52 – 2:30 PM - 60 minutes – Vine I & II - Tuesday - "Measuring Sub-PPM Chlorine in Distillates and Finished Products" *Patrick Lillge - XOS Michael Palmer* - Once chlorides get past the desalter, it becomes more difficult to determine where problems will occur in the process. The levels become much lower but the impact can be just as great on the process. The current technology available does allow for some sub-ppm measurements in petroleum products but the sample prep and analysis can sometimes be tedious. Recent advances in MWDXRF technology will allow for a quick, quantitative measurement at 0.5ppm and below in products such as naphtha and gasoline. XOS' CLORA 2XP analyzer gives you more precision and more performance than currently available for chlorine testing via XRF. Paper Presentation

Abstract # 53 – 10:00 AM - 30 minutes – Bluebonnet - Tuesday - "Overcoming Challenging Matrices in Ion Chromatography" - *Kirk Chassaniol - Thermo Fisher Scientific* - Ion Chromatography methods are used to routinely measure anions, organic acids, cations and amines in a wide variety of water (and mostly water) sample matrices. This seminar will focus on techniques used when approaching a high ionic strength sample or one with limited solubility. All aspects of the method will be discussed including column choice and mode of suppression. You will learn how techniques for solid phase extraction and combustion can now be automated. New techniques for sample enrichment after combustion will be presented. Paper Presentation

Abstract # 54 – 11:00 AM - 30 minutes – Tulip – Wednesday - "Particle Counting and Particle Wear Analysis Using Dynamic Imaging" *Steve Bowen - Fluid Imaging Technologies, Inc.* - Automated particle counters and particle shape analyzers for wear analysis using optical technology already exist in the market. However, one key issue of such particle analyzers is the inability to quickly verify the accuracy of the data without resorting to other analytical means such a ferrography. New dynamic imaging technology not only images each individual particle in the sample, 35 different shape parameters are calculated in the precise mathematical definition of wear categories. Furthermore, as the particle wear categories are evaluated for accuracy, the actual images of each individual particle can be viewed for verification of accuracy. Paper Presentation

Abstract # 55 – 1:20 PM - 30 minutes – Orchid - Tuesday - "Process Measurement of High Viscosity Fluids in Refineries Using Vibration at Resonance Frequency Technology and Applications" - *Corentin Thierry – Sofraser* - In the recent years, process viscosity measurement has significantly increased in refineries. Unfortunately, high viscosity products are often not monitored due to the lack of knowledge about the instruments and technologies available for high viscosity products. In this paper, we will detail the design of a process viscometer based on the vibration at resonance frequency principle, a technology currently recognized as the best available for viscosity measurement of difficult fluids. We will then give examples of applications with results obtained in refinery environment and expand over some potential applications that have been considered but not trialed. Paper Presentation

Abstract # 56 – 11:30 AM - 30 minutes – Orchid - Tuesday - "Your LIMS is the Key to Running Your Laboratory as a Business" - *Terryl Kibodeaux, Yves Dupont – LabAnswer* - Many in-house laboratories provide testing services to their organization in support of manufacturing products, representing the company revenues. As such, the laboratory is a cost center for the organization; a natural tendency is cost reduction.

Independent contract laboratories provide testing services as a revenue. The laboratory is a revenue center and, while reducing costs is always good, increasing revenue is critical to company's success. This paper examines business practices present in successful commercial testing laboratories, argue that such practices can be used for in-house laboratories, and how a sound Informatics platform backboned by a LIMS can support such business practices. Paper Presentation

Abstract # 57 – 2:00 PM - 30 minutes – Vine I & II - Tuesday - "XRF Analysis Characterization of Polyolefins - Survey Analysis and Signal Averaging" - *James Drew Ilger, Ph.D. - Chevron Phillips Chemical Company* - Signal averaging is a technique used to increase the intensity of a signal relative to noise or background. FT-NMR and FT-IR are analytical techniques that use signal averaging. Signal averaging in XRF can be used to determine elemental concentrations typically below the LLD. Examples of XRF signal averaging will be presented for the determination of fluorine in polyethylene at ~ 100 ppm and Zr in polyethylene at ~ 0.5 ppm. Paper Presentation

Abstract # 58 – 3:30 PM - 20 minutes – Floral Hall B – Tuesday - "Use of SIM DIS Gas Chromatography for the Analysis of Used Engine Oil at General Motors" - *Paul Harvath, Ngoc-Ha Nguyen, Meryn D'Silva - General Motors* - Simulated distillation gas chromatography with flame ionization detection (SIM DIS) is a well-established method for determining the boiling-point-range distribution of products related to the petroleum industry. However, the use of this methodology in the automotive industry for the analysis of used engine oil has not been widely studied. When compared to standard temperature gas chromatography, the higher temperature range SIM DIS offers allows for the full elution of the engine oil base stock that was not previously possible. This full elution has been found to be valuable for monitoring the degradation of the product over time. Also, the higher temperature range can provide valuable information regarding the fuel used. For example, it can determine if exotic fuels, such as vegetable oil, were used in the engine or provide a reasonable estimate of diesel fuel contamination without the need for standard curves. Paper Presentation

Abstract # 59 -1:50 PM - 30 minutes – Bluebonnet – Wednesday - "Validation of a "Merge" Method on One Gas Chromatograph (GC) for Boiling Point Distribution and Individual Hydrocarbon Speciation of Stabilized Crude Oils" - *Chris Goss, Dan Wispinski - Alberta Innovates Technology Futures, Lee Marotta - Perkin Elmer* - The accuracy of the boiling point distribution by method ASTM D7169 is compromised by carbon disulfide interference/quenching in the C4 to C8 boiling point range. The method ASTM D7900 solves the quenching issue and provides detailed composition to C9but requires two gas chromatographs.. This paper will discuss innovative multidimensional techniques of performing boiling point distribution and individual hydrocarbon speciation of stabilized crude oils on a single GC with improvements in accuracy. With this new technique, not only is boiling point accuracy improved, speciation of C30 minus is achieved allowing for the determination of bio-markers, benzene value and wax speciation all in one analysis, Validation and stability experiments have been performed since the introduction of this single configuration. These new studies will be discussed. Paper Presentation

Abstract # 60 – 9:00 AM - 30 minutes – Bluebonnet - Tuesday - "Applications of Discrete Analyzer for Chemical/Petrochemical Parameters" - *Mark Griffin, Doug Tate, Kirk Chassaniol - Thermo Fisher Scientific* - The discrete analyzer provides an integrated platform for two common chemistry measurement techniques, photometric and electrochemical (ECM), which can be run in parallel. Simultaneous determination of several analytes from a single sample and many automated features ensure efficiency in analysis. The unique low-volume cuvette design allows less reagent usage for lowered operating costs. Ready-to-use system kits for common applications eliminate time-consuming reagent preparation, allowing additional cost savings. Paper Presentation

Abstract # 61 – 10:50 AM - 30 minutes – Bluebonnet - Tuesday - "Coal Characterization by Organic Elemental Analysis" - *Guido Giazzi, Liliana Krotz, Francesco Leone - Thermo Fisher Scientific* - Elemental analysis is fundamental for the characterization of coal to ascertain the quality needed to utilize it in a efficient and environmentally sound manner. Therefore, the use of exact analytical techniques, better still if they are automatic, is required. The FLASH 2000 CHNS/O Analyzer, which is based on the dynamic combustion of the sample, provides quantitative and automatic simultaneous CHNS determination and the Oxygen determination by pyrolysis. The dedicated software Eager Xperience allows automatic heat value calculation and the evaluation of the CO2 emission trade. This paper will show CHNS/O data of several coal samples to demonstrate the performance of the system. Paper Presentation

Abstract # 62 - 9:45 AM - Exhibit Hall – Wednesday - "Combustion Ion Chromatography - Enhancing Halogen Detection Using Preconcentration Methods" - *Kirk Chassaniol 2, Adelon Agustin 1, Mark Manahan 1, Bernard G. Sheldon 2 - 1. Cosa Xentaur 2. Thermo Fisher Scientific* This poster will demonstrate enhanced method sensitivity of adding sample preconcentration to Combustion Ion Chromatography. Combustion ion chromatography is an inherently dilutive technique, with a relatively small amount of sample gases being trapped in a relatively larger volume of water,resulting in low analyte concentrations in the injection sample. The solution studied in this work is to adapt sample preconcentration methodology for ion chromatography to this application. Poster Presentation

Abstract # 63 – 11:30 AM - 30 minutes – Vine I – Wednesday - "Optimized Microwave Digestion for Simultaneous Mixed Sample Preparation in the Petroleum Industry" - *David Gunn, Njies Pedjie - Milestone Inc.* Standard protocols for sample preparation of solvents, oils, spent oil and catalysts in the analysis of trace metals have been limited. Sample size, challenges across multiple reactive matrices and limited technology developments have continued to offer little solution for a productive petro analytical environment. Techniques such as sample ashing generally requires a second sample step to go along with variable metals recovery, while conventional bench microwave systems provide higher productivity, but still suffer from batch-type processing. Single reaction chamber (SRC) microwave technology has provided a way to digest different samples simultaneously while utilizing a single program. Sample selection, acid combination screening and microwave method optimization approaches will be presented. Paper Presentation

Abstract # 64 -3:40 PM - 30 minutes – Orchid - Tuesday - "Utilize Real-time Viscosity Analysis to Improve Asphalt Production" - *Jonathan Cole – PAC* - Substantial variation of asphalt viscosity during processing can cause significant problems for a refinery. Fluctuations in raw material and process manufacturing mean periodic laboratory testing didn't truly represent the asphalt being produced and therefore were not enough to enable process control and optimization. In addition, refineries located in areas where temperatures drop below 50 °F for part of the year face unique challenges when it comes to heating and transferring heavier products like asphalt. Without accurate inline viscosity measurements, a significant amount of time and money can be spent on post-process blending to meet minimum targets. In this paper, we will discuss the following: • The challenges refineries face with asphalt production, especially in colder environments • Two applications of on-line viscosity analysis in refineries • Details on the temperature compensated viscosity technique • How these measurements help refineries meet product specifications, reduce energy costs, and improve margins • Two Refinery case studies featuring their implementation of real-time viscosity measurement of asphalt in the process line Paper Presentation

Abstract # 65 – 10:20 AM - 20 minutes – Orchid – Wednesday - "Performance Update and Review of Coatings Used to Improve Reliability and Accuracy of Sulfur, Mercury and NOx Sampling and Analysis Equipment" - *Gary Barone, Luke Patterson - SilcoTek Corporation* - The last 15 years have shown an increasing need for coatings to improve analytical results obtained in systems used for mercury and sulfur sampling. New flare monitoring regulations, sub part –Ja, go into effect in 2015 and require inert flow paths for low level sulfur analysis. New regulations for mercury emissions from coal fired boilers are now enacted and industry sampling initiatives for natural gas and oil

wells drives a renewed need for inert sample paths. As a result of increased regulation, sampling system performance must be rugged and stable, even in challenging and corrosive environments, while also reliable to meet frequent calibration inertness checks. To meet stringent standards, the use of coatings has been specified or highly recommended. This presentation will address and summarize reports to date on how coatings have been used to effectively improve the accuracy and reliability of sampling systems across many applications and industries. Industries and application data presented will range from flare gas and stack gas sampling to gas and oil exploration. All of these industries have unique challenges which must be addressed and solved by high durability, inert coatings that are designed for chemical compatibility. Paper Presentation

Abstract # 66 – 2:20 PM - 20 minutes – Daffodil – Wednesday - "Polyionic Ionic Liquid Stationary Phases for Capillary GC" - *Leonard M. Sidisky, Greg A. Baney, James L. Desorcie, Daniel L. Shollenberger, Gustavo Serrano, Katherine K. Stenerson - Supelco- Division of Sigma Aldrich* - Ionic liquids are a class of nonmolecular ionic solvents with low melting points. These liquids are unique combination of cations and anions and can provide a variety of different selectivities when used as stationary phases in capillary gas chromatography. The majority of the polyionic ionic liquid phases that we have been evaluating all provide polar and highly polar selectivities similar to polyethylene glycol based our biscyanopropylpolysiloxane phases. These phases will provide unique selectivity for the evaluation of a number of petrochemical samples. The purpose of our studies is to determine the effects changing the cation and spacer groups on the selectivity of the phases. Selectivity was determined and compared using various isothermal and temperature programmed test mixes. Particular cation and anion combinations appear to provide very unique selectivity for example shifting toluene to elute after tetradecane and possibly coeluting with pentadecane, which demonstrates some of the highest polarity phase selectivity we have evaluated. Paper Presentation

Abstract # 67 – 2:20 PM - 20 minutes – Tulip - Tuesday - "Quantitative Trace Metals Analysis using Hydrofluoric Acid Alternatives" *Bill MacLuckie, Daniel Iversen, Michael Karney, Bob Lockerman - CEM Corporation* – Hydrofluoric acid (HF) is one of the most dangerous and corrosive acids found in today's chemistry laboratories. Despite the hazards, HF is necessary for the complete dissolution of many samples, most commonly those containing silicon, titanium, or zirconium. Our efforts are focused on providing optimized conditions for the dissolution of titanium and silicon dioxide as well as for zirconium by generating HF in situ. Ammonium bifluoride (NH4HF2) and fluoroboric acid (HBF4) have been chosen as fluoride sources to be validated against digestions with HF. Results from this study will be presented and discussed. Paper Presentation

Abstract # 68 – 1:40 PM - 60 minutes – Daffodil – Tuesday - "Real-time Quantification of Methanol, H2S Scavengers, Amines, Acetic Acid and other VOCs in Crude Oil and Water Right at the Point of Need---Featuring Owlstone's Portable VOC Analyzer and Its Ion Mobility Platform" - *Steve Freshman - Owlstone Inc.* - Real-time Quantification of Methanol, H2S Scavengers/Triazines, Other Amines, Acetic Acid and Other VOCs in Crude Oil and Water Right at the Point of Need---Featuring Owlstone's Portable VOC Analyzer and Its Ion Mobility Platform. Field asymmetric ion mobility spectrometry (FAIMS) is a detection technology that separates and identifies chemical ions based on their mobility under a varying electric field at atmospheric pressure. Utilizing its proprietary FAIMS-based platform, Owlstone Inc. has created a portable rapid detection instrument…Lonestar. The heart of the Owlstone FAIMS detection technology is a dime-sized, silicon chip spectrometer. Working with liquid, solid and gas matrices, the instrument provides quantitative results of volatile organic chemicals in real-time right at the point of need. The presentation will focus on recent application work surrounding the detection of amines, methanol, H2S scavenger/triazine chemicals, acetic acid, COS in LPGs and other VOCs. Seminar Presentation

Abstract # 69 - 1:00 PM - 30 minutes – Vine I & II - Tuesday - "The Accurate Analysis of Impurities and Additivies in Polymers by Sequential WDXRF Spectrometer" - *Arkady Buman, Kai Behrens, Dan Pecard - Bruker AXS* - Applications of XRF in polymer production are covering a broad range: For the production of PE and PP polymers catalysts are commonly used for reaction enhancement. The efficiency of the catalysts must be optimized to maximize the output of polymer with a given amount. In order to monitor the catalyst performance the analysis of catalyst elements in the final polymer product is important. The aim is to achieve the best accuracy and precision at lowest concentration levels for these elements. Additives which are stabilizing the polymers are expensive. The precise control of the final concentration allows the exact dosing of the valuable additive. These tasks can be done efficiently with wavelength dispersive X-ray fluorescence spectrometer. In contrast to ICP-OES the high power WDXRF spectrometers are perfect analytical tools due to its easy operation, quick sample preparation and simple integration into the plant quality and process control regime. A commercial WDXRF spectrometer is calibrated using certified reference standards in combination with validated process samples. The derived standard deviation of the calibration is excellent with 0.2 ppm. The accuracy of the method was evaluated with the analysis of two factory samples. A precision of 0.1 ppm is obtained for very low concentration ranges. In addition hazardous elements, such as Pb, Cr or Hg are regulated in polymer products. XRF is the most flexible method to cope with the challenges by delivering quick results. With the help of powerful matrix correction algorithms different sample matrices can be handled in order to make analytical methods in daily routine simple to run. Paper Presentation

Abstract # 70 -11:30 AM - 20 minutes – Bluebonnet – Wednesday - "A New Spectrophotometric Method for the Detection and "Fingerprinting" of Petroleum" - *John D. Hanby - Hanby PetroAnalysis* - The correspondence of chemical bond energy levels (104-105 Cal/mol) with UV/visible frequencies (1014-1015 cps) results in a robust spectral resonance that provides a new spectrophotometric technique for the qualitative and quantitative analysis of complex organic substances such as crude oils. Friedel-Crafts (FC) electrophilic alkylations exhibit particularly strong spectral signals in this region especially as the chromophores produced are briefly adsorbed to the strong Lewis acid catalyst, AlCl3. This strong spectral energy is related to the electronic population inversion achieved in the course of these exothermic chemical reactions, which is in line with the definition of a chemical laser as, "a laser operating on a population inversion produced-directly or indirectly- in the course of an exothermic chemical reaction". The significance of this new technique lies in the enhancement of the signal-to-noise ratio (SNR) resulting from the strong spectral signals achieved by specific chemical substances, particularly aromatics, that are present (3-30%) in crude oils and readily undergo the FC reactions. This is analogous to having a relatively few "marker compounds" present in a complex substance that provide definitive identification of the substance. Visual kit versions of this chemical reaction/colorimetric technique have been employed at inland and marine oil spills since the late '80's, e.g. the Ashland diesel tank collapse and the Exxon Valdez spill. Now a hand carried spectral method has been developed that utilizes the same chemistry. In this method small aliquots (~50mL) of a water sample are extracted with Carbon tetrachloride and the extract is transferred to 2.0 mL vials, which contain 0.5 gram of ALCl3. The FC reaction-produced chromophores are scanned from 380-780 nm and the distinctive spectrogram is compared to a spectral library of curves stored in a computer. The complete sampling/analytical process takes less than 10 minutes. Paper Presentation

Abstract # 71 – 2:30 PM - 30 minutes – Floral Hall B – Tuesday - "Analysis of Benzene and FAME in Commercial Fuel Samples Using FTIR Spectroscopy with Precalibrated Quantitative Methods" - *K. Cory Schomburg – PerkinElmer* - Diesel fuels for most automotive applications are commonly blended with FAME and now contain biofuel at ratios from 2 to 30% (B2-B30). FAME is an unwanted contaminant in most commercial vehicle (unleaded fuel), marine and aviation fuels. In unleaded fuel applications, Benzene is known to increase the octane number and is typically limited in concentration to 1% or less due to its toxicity. FAME and Benzene in fuels can be measured by FTIR spectroscopic analysis using EN 14078 and ASTM D6277. Testing of unleaded gasoline and diesel samples from various public locations was performed and the results are discussed. Paper Presentation

Abstract # 72 - 9:50 AM - 30 minutes – Daffodil – Tuesday - "Characterization of Oil Shale and Source Rock with Pyrolysis GC/MS"

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Terry Ramus (1), Itsuko Iwai (1), Dave Randle (2), Chu Watanabe (3), Ichi Watanabe (3) (1) Diablo Analytical, Antioch, CA, (2) Frontier Labs USA, (3) Frontier Labs, Koriyama, Japan - An automated analytical system, specifically designed for Pyrolysis-GC/MS will be applied to the characterization of hydrocarbon material and biomarkers in source rock samples. Pyrolysis-GC/MS allows samples to be analyzed according to their thermal characteristics. For example, some hydrocarbon material can be thermally extracted from the sample while other non-volatile hydrocarbons must first undergo pyrolysis. Evolved Gas Analysis (EGA) allows the shale or rock sample to be characterized by temperature with the evolution of carbon dioxide, methane as well as light, moderate and heavier hydrocarbons. The EGA results are a guide to subsequent characterization by Pyrolysis-GC/MS. Traditional GC detectors such as FID can be used to quantify hydrocarbon content by thermal region, and other detectors can be used to characterize gases. Paper Presentation

Abstract # 73 – 9:00 AM - 30 minutes – Floral Hall B – Tuesday - "Analysis of Non-polar Analytes with Direct Sampling Analysis (DSA) Source-Mass Spectrometry Using He/N2 as Reagent Gases" - *Sharanya Reddy, Thomas White, Craig M Whitehouse - PerkinElmer*
The DSA source uses a "field free" corona discharge electron Reagent Ion Generator that ionizes analytes in ambient atmospheric conditions. The DSA can use either He or N2 as the reagent gas to ionize analytes. Signal intensities of various non-polar compounds including straight chain hydrocarbons, asphaltenes, fullerenes, paraffin wax in the presence of N2/He as auxillary gases were measured to identify the role of the secondary ions in ionizing these analytes. These experiments helped us assess whether or not He with a higher ionization potential than N2 was more advantageous to use in the DSA source. Paper Presentation

Abstract # 74 – 10:00 AM - 30 minutes – Hibiscus – Tuesday - "Diaphragm Valves Deliver Longer Life, Better GC Results" - *Yves Gamache and Chris Van Tilburg - Norgren AFP* - Unique features of the latest diaphragm valves reduce total cost of ownership compared to rotary valves for GC applications such as; frontcut, heartcut, endcut, or column backflush; sample isolation, selection or column bypass. They are finding use in refinery and natural gas analyzers for auto-sampler or injection systems for high through-put and ultra-high purity applications. Features that facilitate this include break-before-make actuation, diaphragm coatings and flow paths that eliminate dead-volume and carryover issues. Tight shut-off ports offer superior sealing with elevated column back pressures. Independent port control accommodates complex flow paths and sample isolation/desorption techniques. Consider diaphragm valves as a substitute for rotary valves for longer life. Paper Presentation

Abstract # 75 – 11:30 AM - 20 minutes – Hibiscus – Tuesday - "Analysis of Phosphorous in Oils at Low Level by ICP-AES after Closed Vessel High Pressure Microwave Digestion" - *Sergei Leikin, Texas Scientific Products LLC; Ankur Sheth and Autumn Russek, Baker Hughes.*
Analysis of oils at low levels is a difficult analytical task. Determination of Phosphorous by ICP-AES is even more challenging since the most sensitive analytical lines for this important analyte are located in a low ultraviolet (UV) part of the emission spectrum. Achieving the completeness of oils decomposition even using modern Closed Vessel Microwave Digestion technology quite often is not feasible either. The presence of residual Carbon in the sample as a result of incomplete digestion can cause some spectral interferences in Low UV part of the spectrum. Different approaches to address this problem have been applied and the successful solution has been found. Paper Presentation

Abstract # 76 -2:40 PM - 30 minutes – Daffodil – Tuesday - "Asphaltene Characterization by Flash Pyrolysis Coupled to Gas Chromatography High Resolution Time-of-Flight Mass Spectrometry" - *Naomi Diaz, Clécio F. Klitzke, David E. Alonso, Joe Binkley, Jeffrey Patrick - LECO Corporation* - The full knowledge of composition of crude oil is the key in the rational use of reserves, optimization of production, refining process, reduction of byproducts, quality control of derivatives and many other crucial aspects of petrochemical field. In this work we analyzed asphaltene using pyrolysis coupled to gas chromatography high resolution time-of-flight mass spectrometry for petroleum complementary characterization. Different asphaltene samples show differences in alkyl chain distribution and number of aromatic rings, and heterocyclic aromatic composition. High resolution mass spectrometry shows unequivocal chemical formula assignment for the identification of asphaltene pyrolysis products and potential differential analysis of asphaltenes content. Paper Presentation

Abstract # 77 – 11:40 AM - 20 minutes – Bluebonnet - Tuesday - "Automated, Rapid and Reliable Determination of Dissolved Gases in Water by Static Headspace – Gas Chromatography" - *Massimo Santoro, Andrea Caruso - Thermo Fisher Scientific* - Hydraulic fracturing, the fracturing of a rock by a pressurized liquid is a well stimulation technique in which typically water is mixed with sand and chemicals, and the mixture is injected at high pressure into a wellbore to create small (< 1mm) fractures in order to maximize fluid removal and well productivity. While this once-very diffused technique makes accessible big amounts of formerly non-accessible hydrocarbons, the dissolved gases have become a controversial environmental and health matter with some countries completely banning the practice. Public outcry over preservation of water quality has led the U.S. EPA and other state agencies to investigate the impact of hydraulic fracturing on the quality of environmental waters. Some procedures for testing waters for dissolved gases through static headspace sampling exist already, like RSK 175 standard operating procedure, but since the target compounds are light hydrocarbons from methane through propane, are extremely volatile, a closed sampling system is required. A high throughput test method using robust, automated and relatively inexpensive instrumentation like static headspace and gas chromatography with flame ionization detection is used in this paper, and data will be shown for the quantitative determination of dissolved gases in ground, waste and drinking waters. Paper Presentation

Abstract # 78 – 11:20 AM - 20 minutes – Bluebonnet - Tuesday - "Automatic Determination of Greenhouse Gases by GC"
1 Massimo Santoro, 2 Cristiane de Oliveira Silva, 2 Henrique Francischato Melo, 2 Danilo Vinicius Pierone - 1 ThermoFisher Scientific, 2 NovaAnalitica, Brazil - A gas chromatography system dedicated to the determination of greenhouse gases was optimized to provide higher productivity and direct sampling from the vials used in the field to collect the air samples. Some adjustments in the autosampler to the specific needs of this application and the development of the ideal chromatographic conditions allowed a reduction of about 30% at the analysis time. The results reliability obtained with this chromatographic system was proven by good area repeatability, linearity, separation efficiency and low limits of detection and quantification. Paper Presentation

Abstract # 79 – 11:15 AM - 30 minutes – Vine I & II - Tuesday - "Avoiding Mechanical Failure of Laboratory and Refinery Machinery by FTIR Monitoring of In-Service Lubricants" - *K. Cory Schomburg – PerkinElmer* - Mechanical machinery of various sizes and application are used in a host of plant and refinery equipment. Lubricating oils of smaller equipment are typically replaced at predefined intervals while larger more costly systems are monitored by a host of laboratory methods to avoid failure. Replacement of the lubricants without testing gives the user no information concerning the status of the equipment. FTIR monitoring of lubricating oils is a cost efficient tool that can be used for not only large equipment but all equipment requiring lubrication. FTIR lubricant testing of various small vacuum pump oils is performed and the results are discussed. Paper Presentation

Abstract # 80 – 11:00 AM - 30 minutes – Floral Hall B – Tuesday - "Catalytic Applications Using a High Pressure Bench-Top Tandem Micro-Reactor GC/MS System" - *Terry Ramus (1), Dave Randle (2), Chu Watanabe (3), Ichi Watanabe (3), N. Teramae (4) (1) Diablo Analytical, Antioch, CA, (2) Frontier Labs USA, (3) Frontier Labs, Koriyama, Japan, (4) Tohoku University, Sendai, Japan* - Scientists and engineers now have a tool that allows the rapid evaluation of feedstocks and catalysts. With the addition of a new high pressure flow system, the user now has control of pressure, temperatures, and a choice of reactant gases in a system that has quick-change catalyst beds. Applications include pyrolysis of biomass with catalytic transformation to biofuels or high value chemicals, to catalyst screening, to process research and development. The authors will show several application examples to demonstrate the versatility of this new high pressure Tandem micro-Reactor instrument. Paper Presentation

Abstract # 81 – 2:20 PM - 20 minutes – Bluebonnet – Wednesday

- "Comprehensive Petroleum Characterization by Thermal Desorption and Flash Pyrolysis Coupled to Gas Chromatography High Resolution Time-of-Flight Mass Spectrometry" - *Clécio F. Klitzke, David E. Alonso, Naomi Diaz, Joe Binkley, Jeffrey Patrick - LECO Corporation* - It is important to understand the chemical nature of heavy crude oil and its fractions for complete characterization of crude oil. We evaluated the use of thermal desorption and pyrolysis coupled to gas chromatography high resolution time-of-flight mass spectrometry, running the crude oil samples in two steps of thermal desorption, and a third step for the pyrolysis of the residue. Results show compositional differences among crude oil samples, and mass spectrometry analysis with high resolution and high mass accuracy is crucial for the identification of crude oil and pyrolysis products by unequivocal chemical formula assignment. Paper Presentation

Abstract # 83 – 1:50 PM - 30 minutes – Daffodil – Wednesday - "Detailed Hydrocarbon Analysis of a PIONA Sample Using Vacuum Ultraviolet Absorption Spectroscopy" - *Phillip Walsh, Jonathan Smuts, Daniel Klopp, and Dale Harrison - VUV Analytics, Inc.* - Results from detailed hydrocarbon analysis using gas chromatography coupled with a novel vacuum ultraviolet (VUV) spectrometer detector are presented. The VUV detector measures absorbance spectra in the 120-240nm region, within which essentially all chemical compounds absorb. Uniqueness of absorbance spectra for different chemical species and general classes of species in a PIONA standard will be discussed. A key feature of the VUV detector is the ability to deconvolve signals from multiple species, meaning that identification and quantitation can be done even for coeluting compounds. Such capabilities have the potential to create a greatly simplified approach versus current reformulyzer techniques. Paper Presentation

Abstract # 84 – 3:40 PM - 20 minutes – Daffodil – Tuesday - "EI & CI-High Resolution Time-of-Flight Mass Spectrometry Workflow for Comprehensive Analysis of Petroleum Samples" - *Clecio Klitzke, David E. Alonso, Jeff Patrick, and Naomi Diaz - LECO Corporation*
Crude oil is a complex mixture of aliphatic, aromatic and heterocyclic compounds. Its analysis is difficult due to the large number, chemical diversity and concentration of components. Traditional GC-MS instruments offer the benefits of speed, chromatographic resolution, reproducibility and the ability to search well-established databases. High resolution time-of-flight mass spectrometry provided additional advantages such as mass accuracies < 1 ppm for robust formula determinations and resolving powers up to 50,000 to reduce background and/or isobaric interferences. In this study, light crude oil from around the world was analyzed using an EI & CI-HRT workflow for confident compound identification (e.g.,2-methylnaphthalene[MH]+,m/z= 143.08554,0.10ppm). Paper Presentation

Abstract # 85 - 9:45 AM - Exhibit Hall – Wednesday - "Eliminating ICP-MS Matrix Effects And Interferences In The Analysis Of Highly Volatile Solvents" - *Anthony M. Palermo and Daniel H. Jones – PerkinElmer* - Traditionally the analysis of volatile solvents for trace metal contamination has been difficult by ICP-MS. The extreme carbon content of the matrix produces many polyatomic interferences making some masses very difficult to analyze accurately. Remedies to this issue often raise the detection limits or make the analysis too cumbersome to be practical. By utilizing a sample introduction system that is nearly 100% transport efficient, coupled with a universal cell based ICPMS interferences removal system, these difficulties can be reduced or eliminated. Together these technologies also provide the additional benefits of long term stability, reduced maintenance, and simpler standard preparation. Poster Presentation

Abstract # 86 – 3:10 PM - 30 minutes – Daffodil – Tuesday - "Enhanced Crude Oil Fingerprinting by GCxGC-TOF MS with Novel Ion-Source Technology" - *P. Grosshans, K. Collins, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International Inc.* - The enhanced separation offered by comprehensive two-dimensional gas chromatography with time-of-flight mass spectrometry (GCxGC–TOF MS) has made the technique a popular choice for petrochemical analyses. Despite this enhanced separation, the identification of individual compounds in complex samples may be further complicated when similar mass spectral characteristics are evident across entire chemical classes, such as the branched alkanes. Select-eV ion-source technology aims to solve this problem through the ability to switch between hard and soft electron ionisation without loss in sensitivity. The novel ion source provides enhanced molecular ions whilst retaining structurally-significant fragment ions, thus simplifying the identification of isomeric compounds. Workshop Presentation

Abstract # 87 - 10:30 AM - Exhibit Hall – Wednesday - "Enhanced Crude Oil Fingerprinting by GCxGC-TOF MS with Soft Electron Ionization" - *P. Grosshans, K. Collins, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International, Inc.* - The enhanced separation offered by comprehensive two-dimensional gas chromatography with time-of-flight mass spectrometry (GCxGC–TOF MS) has made the technique a popular choice for petrochemical analyses. Despite this enhanced separation, the identification of individual compounds in complex samples may be further complicated when similar mass spectral characteristics are evident across entire chemical classes, such as the branched alkanes. Select-eV ion-source technology aims to solve this problem through the ability to switch between hard and soft electron ionisation without loss in sensitivity. Select-eV ionisation provides enhanced molecular ions whilst retaining structurally-significant fragment ions, thus simplifying the identification of isomeric compounds. Poster Presentation

Abstract # 88 – 1:30 PM - 20 minutes – Bluebonnet – Wednesday - "Determination of Light Hydrocarbons and Hydrocarbon Boiling Point Distribution and Cut Point Intervals in Live Crude Oils and Condensates via Gas Chromatography" - *Dan Wispinski - Alberta Innovates- Technology Futures Chris Goss Alberta Innovates- Technology Futures Deepyaman Seth Alberta Innovates- Technology Futures; R.J. (Bob) Falkiner - Imperial Oil Engineering Services Canada* - A gas chromatographic method is sponsored by the Canadian Crude Quality Technical Association to quantitate and speciate light hydrocarbons (methane to hexane and benzene) in live crude oils and condensates. The knowledge of light ends addresses issues of safety in transport and commerce. Samples with VPCR4 up to 200 kPa at 37.8°C contained in pressurized cylinders or floating piston cylinders are analyzed by GC/FID via a Heated Pressurized Injection System (HPLIS). The method is applicable to a wide range of samples including dilbits, condensates and tight oil from fracking operations such as Bakken crude. Method development and ASTM status will be discussed. Paper Presentation

Abstract # 89 – 1:30 PM - 20 minutes – Daffodil – Wednesday - "Enhancing Isomer Resolution and Identification for Light Hydrocarbons and Chlorinated Organcs in GC x GC" - *Bill Winniford, Anna Sandlin, Jeremy Reyes, James Griffith, Rob Edam, Chris Siegler, Yong Tae Kim, Zhouran Xu, George Huber - Dow Chemical* - Studies of catalytic processes have been substantially improved by the enhanced chemical class separation that can be obtained with GC x GC. Resolution of isomers of a wide range of components have been demonstrated by GC x GC as well as 1D GC. But it is still difficult to use GC x GC retention times as predictors of isomer structure, for example ethyl branching vs dimethyl substitution in aliphatic hydrocarbons. There is a wealth of retention index information on such compounds on nonpolar phases and to a less extent on polar wax phases. There is the added complication that C1-C5 hydrocarbons are difficult to focus by conventional cryogenic modulation. Using flow modulation and less conventional columns for GC x GC it is possible to provide unique separations that are useful in identifying components when standards are unavailable. This is significant because the mass spectra of isomers often cannot provide unambiguous identification. An essential step is designing ways to use columns with very dissimilar capacity factors. Paper Presentation

Abstract # 90 – 2:20 PM - 20 minutes – Orchid – Wednesday - Examination of the Effect of Alternative Carrier Gases on Three ASTM Methods"
Leeman Bennington, John D. Walters, Jay Ferraro, Mamdouh Farag, Lee Marotta - PerkinElmer Corp. - Several ASTM methods are important in refinery laboratories because the analyses are mandated by regulatory authorities like the EPA or California Air Resources Board. Because of

cost and scarcity, the choice of carrier gas is becoming a more important variable in laboratory operations. In this paper we examine the effect of different gases on three important methods as deployed in one instrument designed expressly to perform all three methods. Methods examined are: ASTM D4815, D3606, D5580. Paper Presentation

Abstract # 91 – 10:20 AM - 20 minutes – Tulip – Wednesday - "The Detection of Underground Pipeline Leaks Using Air Concentration, Gas Chromatography, and Unique Halogenated Tracer Components" - *Allison Mason, Garrett Reese, David Cuthbert - Wasson-ECE Instrumentation* - Underground pipeline leaks can be very difficult to identify and find. The materials that are released during a leak event pose threats to both the environment and personnel safety. A method of detection has been developed by introducing chemical tracers into pipelines that can be used to identify leaks. This technology has been successfully used for detecting leaks in underground oil filled cables used in high power electrical transmission. It is now being tested in underground gas transmission pipelines. The presentation will provide an overview of the analytical techniques used, detection limits, and system integration into a mobile testing van. Paper Presentation

Abstract # 92 – 1:30 PM - 30 minutes – Orchid – Wednesday - "EZReporter for Automated Results Reporting in the Energy Business"
Terry L. Ramus, Scott J. Hein - Diablo Analytical, Inc. - EZReporter is an established Automated Reporting product for generating results from Gas Chromatography via detailed calculations. One application of EZReporter is to generate Reports for energy company use. For example, sample BTU values can be derived from GC results as specified in GPA or other methods. This talk will present an overview of the software. Current users can ask questions and will be polled for interest in future web presentations. New users will see the range of application reporting areas. Paper Presentation

Abstract # 93 – 3:00 PM - 30 minutes - Floral Hall B – Tuesday - "Gasoline light End by ASTM Method D6730" - *Walter Spieksma - Envantage Inc.* - Gasoline light end by ASTM method D6730 Envantage Method Translator is a tool that saves TPGC method developers a lot of time. EMT offers the developer calculated temperature programmed chromatograms that can be compared to measured chromatograms. Calculated chromatograms on smaller GC systems or different carrier gases can also be used to migrate from He to H2 for faster high resolution chromatography or to migration from He to N2 and smaller columns for safe on-line applications. EMT can handle different phase ratios. Chromatograms are calculated on the assumption that Kovats index is linear dependent on temperature. The 227 component data cards of Lubeck and Sutton (1983, 1984) have been completed with oxygenates and light end hydrocarbons this summer. The new index data on Rtx-1 and Rtx-5 will be shown. The impact of temperature programming rules of ASTM method D6730 by Neil Johanson on critical separations will be demonstrated. Paper Presentation

Abstract # 94 – 1:00 PM - 30 minutes – Daffodil – Wednesday - "GC×GC Simulator: Try Before You Apply !" - *Walter Spieksma - Envantage Inc.* - GC×GC Simulator is a tool that saves GC×GC method developers a lot of time. The blob-o-gram of PIONAx peaks on Phenyl-Methyl-Silicone and Rtx Wax stationary phases is displayed after input of experimental conditions. The GC×GC dilemma between wraparound and the number of 2D-chromatograms per 1D peak can be settled interactively. GC×GC Simulator calculates more than 200 light end gasoline peaks on Phenylmethylsilicone with 0-75% phenyl. Light end peaks and two oxygenates were measured this summer in our lab in Cleveland Ohio on Rtx-1, Rtx-5 and Rtx-Wax. Some Rtx-Wax peaks and critical separations are available. New components can be added as isothermal Kovats index on Rtx-1 and Rtx-5 or Rtx-Wax. GC×GC Simulator was tested and approved by SRTCA Jan Blomberg. The dynamics of the blob-o-gram by column polarity and temperature programming in GC×GC will be demonstrated. Paper Presentation

Abstract # 95 - 2:40 PM - 30 minutes – Orchid - Tuesday - "High Throughput Petroleum Stream Analysis in Refinery Process Laboratories: Benchtop NMR Offers Timely Results with Automation & Chemometrics" *Courtney Phillips, LEAP Technologies; John Edwards, Process NMR Associates* - Refinery process laboratories can increase their productivity through the combination of automated sample preparation and 1H NMR analysis with multi-parameter chemometric prediction of ASTM primary test results. In this study, 43 MHz high-resolution 1H NMR data is obtained on a cryogen-free Spinsolve spectrometer system with RTC PAL automation. The NMR spectra and calculated hydrogen-type distributions are utilized to predict ASTM test method results on refinery products and intermediates via direct measurement or partial least squares regression modelling. To demonstrate, we show the automated sample preparation and NMR analysis of vacuum gas oil feed-streams to the fluid catalytic cracker (FCC) and residual catalaytic cracker (RCC) that often represent the economic heart of the refinery. The NMR can rapidly predict a number of chemical and physical properties, including Density, Simulated Distillation, micro Conradsen Residue (MCRT), Carbon Aromaticity, Carbon Paraffinicity, Carbon Naphthenicity, Refractive Index, and proton aromaticity, based on regression of the 1H NMR spectral variability with primary ASTM or internal test methods. Paper Presentation

Abstract # 96 - 10:45 AM - Exhibit Hall – Wednesday - "Instant Connect Gas Sampling Valve Module Introducing a New Flexibility in Gas Sampling for GC and GCMS" - *Massimo Santoro, Stefano Pelagatti, Paolo Magni, Fausto Pigozzo - Thermo Fisher Scientific* - Injection through a sampling valve is one of the most reliable and wide-spread technique to inject a gas or a vapor sample into a gas chromatographic system. Nowadays development of this technology relies on the attempt of different Valve suppliers to improve material reaching higher temperature and/or longer life time of mobile parts, reduce internal volumes for improving chromatographic performance and reduce overall valve size. This paper describes a new modular concept that instrument manufacturer has undertaken to integrate latest valve technology, into a user-installable, plug-in module, fully incorporating heating control of the valve, miniaturized pneumatic circuits for carrier gas supply and split as well as valve backflush to the vent. This modular design allows a new level of instrument flexibility, where inlets and/or detectors selection is based on the application in use, and can be changed in a matter of few minutes by the operator when a new analytical need or application requires different injector and/or detectors. On top of improved technical performance in terms of injection repeatability and stability, this work shows the simplicity and flexibility in configuration setting provided by this Instant Connect modular design. Without further hardware complexity the gas sampling valve module can be set to backflush to vent undesired part of sample, therefore offering an easy and integrated set-up for more complex analysis. Data showing performance of this solution are illustrated and discussed. Poster Presentation

Abstract # 97 - 10:30 AM - Exhibit Hall – Wednesday - "Novel Data Processing Software for Fast Screening of Complex Petrochemicals" *K. Collins, P. Grosshans, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International, Inc.* - The high throughput analysis afforded by modern hyphenated analytical techniques, such as gas chromatography with time-of-flight mass spectrometry (GC/TOF MS), calls for comprehensive data processing to make full use of the acquired data. However, this can often be a time-consuming process and may require the knowledge of experienced laboratory staff. The novel software tools described in this work simplify the comparison of complex chromatograms, allowing minor differences to be readily and automatically distinguished. The unique ability to provide deconvolution of GC–TOF MS data in real-time allows immediate perception and qualification of target compounds. Poster Presentation

Abstract # 98 – 1:00 PM - 30 minutes – Orchid – Wednesday - "Novel Real-time Data-mining for Fast Screening of Petrochemicals" *K. Collins, P. Grosshans, L. McGregor, N. Watson, S. Smith and N. Bukowski - Markes International, Inc.* - The high throughput analysis

afforded by modern hyphenated analytical techniques, such as gas chromatography with time-of-flight mass spectrometry (GC/TOF MS), calls for comprehensive data processing to make full use of the acquired data. However, this can often be a time-consuming process and may require the knowledge of experienced laboratory staff. The novel software tools described in this work simplify the comparison of complex chromatograms, allowing minor differences to be readily and automatically distinguished. The unique ability to provide deconvolution of GC–TOF MS data in real-time allows immediate perception and qualification of target compounds. Paper Presentation

Abstract # 99 – 11:00 AM - 30 minutes – Vine I – Wednesday - "Precise Heat Control: What Every Scientist Needs to Know About Pyrolytic Techniques to Solve Real Problems" - *Rodrigo V. Devivar - NASA-Jacobs Technology* - The performance of a material is greatly influenced by its thermal and chemical properties. Analytical pyrolysis, when coupled to a GC-MS system, is a powerful technique that can unlock the thermal and chemical properties of almost any substance and provide vital information. At NASA, we depend on precise thermal analysis instrumentation for understanding aerospace travel. Our analytical techniques allow us to test materials in the laboratory prior to an actual field test; whether the field test is miles up in the sky or miles underground, the properties of any involved material must be fully studied and understood in the laboratory. Paper Presentation

Abstract # 100 – 3:00 PM - 20 minutes – Bluebonnet - Tuesday - "X-Ray Analysis in Petrochemical and Polymer Industries: Challenges and Solutions" - *Al Martin - Thermo Scientific* - This discussion highlights using X-Ray Fluorescence (XRF) method for analytical solutions addressing the needs of the Petrochemical and Polymer industries. XRF is a well established technique used in both industries for fuels, lubricants, residual oils, catalysts, polymers and related materials. With increasingly tighter regulations on specific elements such as S and Pb, the demand for more sensitive yet cost effective X-ray instrumentation has increased in the recent years. Combining technological advances with dedicated analytical techniques, the true multi-element, multi-matrix analytical capability of XRF can be utilized to cover a variety of matrices and elements. In this presentation Energy Dispersive (EDXRF) and Wavelength Dispersive (WDXRF) are both shown to be successful methods satisfying many standardized applications, complying with ASTM regulated methods, and as an investigative tool through the use of standardless techniques. With less sample preparation required and hazardous waste generated, XRF has proven itself to be an attractive alternative to digestion methods such as ICP. Paper Presentation

Abstract # 101 – 11:30 AM - 30 minutes – Floral Hall B - Tuesday "Rapid Catalyst Characterization Using a High Pressure Tandem Micro-Reactor with GC/MS" - *Dave Randle (1), Terry Ramus (2), Chu Watanabe (3), Ichi Watanabe (3), N. Teramae (4) (1) Frontier Labs USA, (2) Diablo Analytical, Antioch, CA (3) Frontier Labs, Koriyama, Japan, (4) Tohoku University, Sendai, Japan* - A new high pressure analytical system, specifically designed for the rapid characterization of catalysts, will be described. The system consists of two, independent micro-reactors in series. Solids, liquids or gases are introduced into the first reactor. Solids are pyrolyzed; liquids are vaporized. The vapors from the first reactor are swept through the second reactor which contains the catalyst bed. Once through the catalyst, the vapors flow directly to a GC/MS where the compounds are separated and identified. Data illustrating how changes in the temperature profile of the catalyst bed and changes in the reactor pressure influence the distribution of the products formed will be shown. Paper Presentation

Abstract # 102 – 2:20 PM - 20 minutes – Orchid - Tuesday - "Real-time Process Monitoring with Mass Spectrometry for Engineering Applications" - *Terry L. Ramus, Scott J. Hein - Diablo Analytical, Inc.* - Modern analytical instrumentation is frequently used for evaluating engineering processes during the process development stage of a project. This stage of development requires equipment that is robust and easy to use, but the equipment must also be flexible. A range of equipment and techniques are used at this stage of development but mass spectrometry is an option with several important and unique features. However, the adaptation of mass spectrometry to process monitoring includes several key challenges. This presentation will describe the adaptation to a RTGA-MS system based on a single-quad MS configuration. The base MS is an Agilent single quad that can be quickly used for both GC-MS as well as Direct MS monitoring of an engineering process. The direct monitoring mode allows fast process monitoring in the sub-second time frame for a range of applications. Paper Presentation

Abstract # 103 – 10:30 - 30 minutes – Hibiscus – Tuesday - "Recycle Capillary Gas Chromatography by Using a Nanovolume Valve and Micron Fittings" - *Stanley D. Stearns, Martin Brisbin, Max Loy, Huamin Cai - Valco Instruments Co. Inc.*- Recycle gas chromatography using valves has been described before. However, at that time the valve and fittings introduced peak broadening every switch due to fitting dead volume. As a result, this method has not been shown to be advantageous and has not been widely used. Recently we developed a new recycle capillary gas chromatography system to improve this method. The system uses a nanovolume valve to switch two columns and 360 micron fittings for all connections. The nanovolume valve and 360 micron fittings have the minimums dead volume which minimized broadening when a peak passes through them. When using this valve and fittings, the system achieves a huge separation power. For example, it can switch 134 times between two 30mx0.25mmx0.25µm VB-1 columns to successfully separate air, methane, acetylene, ethylene, and ethane, which is equivalent to a 7,850m length of the column and has about 116 million total plate number. It is also possible to focus on certain parts of a sample range and to separate its isomers and isotopics. Another feature of the system is that a split T connector is placed in the cycle loop which splits about 1/200 sample out of the loop in each cycle and sends it to detector. The detector signal is used for monitoring the separation and for automatically switching the valve. In this way the system will not miss target peaks even after few hundred cycles. Paper Presentation

Abstract # 104 – 12:50 PM - 40 minutes – Floral Hall B – Tuesday - "Roadside Spot Testing for Fuel Markers Using Mobile GC/MS" *Philip Tackett, Ph.D. - FLIR Systems, Inc.* - Fuel is used from agriculture and construction to commercial transportation and domestic uses. Road fuel is taxed at a higher rate than other fuel classes. Fuel laundering is a common fraudulent activity, where fuel markers are stripped out to evade higher taxes. Fuel markers are added to randomly test for laundering. GC/MS is the laboratory gold standard for analysis. It's highly selective and differentiates between similar chemical structures in a single, complex sample mixture like fuel. This aids in quick, accurate identification. This paper presents a mobile GC/MS system suitable for roadside spot testing for fuel markers, including non-halogenated markers. Paper Presentation

Abstract # 105 – 10:00 AM - 20 minutes – Tulip – Wednesday - "Vacuum UV GC Detection for Characterization of Isomers and Organic Functional Groups" - *Bill Winniford, Anna Sandlin, Jeremy Reyes, Chao Zheng, James Griffith, Rob Edam, Philip Walsh, Dale Harrison - Dow Chemical* - The recently developed vacuum UV (VUV) detector for gas chromatography is a significant advance over previous instruments that used Far UV as a detection principle. The capability to take full spectral scans from 125 to 240 nm on the millisecond time scale and small detector volume preserve peak fidelity for rapidly eluting capillary chromatographic peaks. Detection limits are better than 1 ppm for a wide range of compound classes studied: alcohols, aldehydes, esters, acids, glycol ethers, amines, thiols, sulfides, chlorinated aliphatics. This offers a significant advantage over detection limits achieved by GC-IR for confirming structures where mass spectra are ambiguous on isomer identification. Choosing specific spectral ranges for data evaluation can significantly enhance sensitivity as well as optimizing the operating parameters. To date, relatively few VUV spectra are available in the literature but the ability to accurately predict spectra by molecular modeling make it possible confirm structures prior to having collected experimental spectral with a known standard. Paper Presentation

Abstract # 106 – 10:40 AM - 20 minutes – Tulip – Wednesday - "Sample Temperature Compensation in On-line Near-Infrared Measurements"

Greg Ruff, Susan Foulk, Terry Todd - Guided Wave, Inc. - On-line spectrometer systems are often faced with the issue of varying sample temperature over time. Temperature changes can result in two different types of measurement variation depending on the chemical characteristics of the sample. This particular discussion will focus on clear liquid samples measured through transmission. The measurement variation for clear liquids is typically due to either a change in density with temperature, or due to a change in hydrogen bonding characteristics of the sample under study. There are many strategies for dealing with these variations, some simple, some more complex. As is often the case, the simplest solution is often the best. This presentation will outline strategies for dealing with temperature variation, and discuss the advantages and disadvantages of each. Paper Presentation

Abstract # 107 – 8:30 AM - 30 minutes – Daffodil – Tuesday - "Testing Requirements Required in the Process of "Fracking" with a Focus on the Analysis of Methane, Ethylene, and Ethane in Drinking Water by Headspace-Gas Chromatography (HS-GC) with Flame Ionization Detection (FID)" *Lee Marotta, Dennis Yates, and Leeman Bennington – PerkinElmer* - The rapid development of natural gas from unconventional sources in North America has created an energy "gold rush" not seen in contemporary times. The advent of horizontal drilling technologies and hydraulic fracturing has made this production economical and presents an energy source of sufficient magnitude that could last 100 years. The technology presents a number of analytical challenges. In the process of drilling the wells and preparing them for production, opportunities arise for contamination of the clean drinking water aquifers. This presentation will discuss how headspace-gas chromatography is an optimum solution to this challenge for testing possible contamination of methane and other gases in drinking water. Method parameters, data and results will be discussed. Paper Presentation

Abstract # 108 – 10:40 AM - 30 minutes – Daffodil – Tuesday - "XRD and XRF Analyses of Horizontal Drill Cuttings: Tools for Optimizing Stimulation Programs for Unconventional Oil/Gas Wells" - *Dr. Nathan Henderson - Bruker AXS Dr.Raphael Wust - Trican Geological Solutions Dr. Brian Jones - Bruker AXS* - Oil-Gas Production from Unconventional wells is becoming an important economic driver in the hydrocarbon industry in North America. We investigate drill cuttings from a horizontal well in the Duvernay Formation in Alberta, Canada, in order to assess some geological parameters (mineralogy and geochemistry). The XRD phase data analysis shows that several zones of higher carbonates or high clays occur during the horizontal leg. The XRF analysis highlights zones with different Fe/S contents and shows where carbonates/clays are elevated/reduced. We demonstrate that the findings represent important parameters to optimize stimulation designs for higher oil-gas production from these wells. Paper Presentation

Abstract # 109 – 1:20 PM - 20 minutes – Daffodil – Tuesday - "Why Wavelength Dispersive X-Ray Fluorescence (WDXRF) Offers a Faster, Easier, More Reliable and Cost Effective Sub ppm Solution than ICP for Crude, Residual, VGO as well as Wear Metals in Oil" - *Daniel Pecard - Bruker AXS Inc.* This presentation will go over the advantages of using XRF over other types of instrumentation for the analysis of multi-element in wear metals, crude oil, residual oil, VGO, etc... Comparison between ICP and XRF will be discussed to show the advantages of using XRF and data will be provided to show accurate results for multi-element at sub-ppm level. Paper Presentation

Abstract # 110 – 4:00 PM - 30 minutes – Floral Hall B – Tuesday - "What's New at ASTM? Moving Method D3606 from Packed to Capillary Technology" - *Lee Marotta and Leeman Bennington, PerkinElmer Instruments* - The EPA regulates the amount of benzene in gasoline specifying ASTM method D3606-10 which uses packed column technology. The resolution of benzene from ethanol using this method is a challenge. The ubiquitous use of ethanol as a blend component of gasoline makes it necessary to improve the method. In addition, butanol has also been approved as a blend for gasoline and the scope of D3606-10 does not include this oxygenate. PerkinElmer has developed the capillary method for the ASTM enhancing the resolution and accuracy of benzene for oxygenated blends. This revised method is currently undergoing a major ASTM inter laboratory study (ILS) lead by PerkinElmer. This presentation provides updates from the ILS steering committee leader including method parameters, validation studies and future status of the method. Paper Presentation

Abstract # 111 – 12:00 Noon - 20 minutes – Vine I – Wednesday - "Walk Away Sample Prep Automation in Polymer Companies before Analysis in R&D and QC Laboratories" - *Werner Martin, Peter Smith, Steven Stiller and Zach Dai - LEAP Technologies* - Manual sample prep is still the major source for errors in analytical chemistry lab in many polymer companies. Automation technology can offer major improvements. Presented here are several workflow solutions applying robotic systems with modern, easy-to-use software, to illustrate how the solutions address the needs of higher capacity, increased safety and more consistent results, as well as answer the challenges of reducing solvent and consumable consumption. The health and safety benefits are particularly evident in applications such as TDM and pilot plant polymerization formulation labs, and the automated prep enables around-the-clock operation and higher efficiency. Paper Presentation

Abstract # 112 – 1:30 PM - 30 minutes – Vine I & II - Tuesday - "WDXRF with Seamless Integration of User calibrations, Predefined QUANT calibrations, and Semi-Quant (standard less) Calibrations in One Single Application" - *Larry Arias - Bruker AXS Inc.* - All WDXRF Software Platforms have provisions for creating user defined calibrations based on a set of certified reference materials, or secondary standards, as well as some form of Semi-Quantitative (standard less) program for analyzing unknown samples without needing to define a calibration. Most WDXRF vendors have optional pre-defined Quantitative packages (QUANTS), which are pre-setup calibrations dedicated to a specific type of sample. These include QUANT Programs for measuring elements in Petroleum samples, major oxides in Geologic samples, trace elements in Geologic samples, elements in Metals, additives and elements in Polymers, etc. This talk will focus on the Bruker AXS SPECTRAplus Software which allows a seamless integration of user defined calibrations, Semi-Quantitative (standard less) analysis, and pre-defined calibrations (QUANTS) in one single Application. This allows measuring an unknown sample using a single Application with some of the element concentrations being reported from a Semi-Quantitative calibration, and other element concentrations being reported from a Bruker pre-defined QUANT solution. Paper Presentation

Abstract # 113 – 9:00 AM - 2 hours – Vine I – Wednesday - "The Pyrolysis Workshop" - *Dave Randle, Technical Director; Terry Ramus, Ph.D., Application Scientist; Itsuko Iwai, Senior Analyst - Frontier Lab USA* - No prior experience needed. Potential, new and existing users of Frontier Labs' Multi-functional Pyrolyzer products are encouraged to attend. Pyrolysis performed correctly is a valuable and easy to use sample introduction technique for GC and GC/MS. It allows the user to characterize any solid or viscous organic materials that otherwise could not be analyzed by GC. Learn when to use Evolved Gas Analysis, Thermal Desorption, Heart-Cutting, or Pyrolysis; all with the same system. Topics: -Materials characterization "method map": a formula for success. -Applications: deformulation, polymers and additives, coatings, biomass, oil shale, quantitative methods. -Data Review Tools: hands-on use of F-Search Software and MS Libraries. -Maintenance and Discussion Sessions. Workshop Presentation

Abstract # 114 – 3:00 PM - 30 minutes – Floral Hall A - Tuesday - "A New "Green" Method for the Determination of Oil & Grease in Water"
Mark Talbot - Shimadzu Scientific Instruments, Inc. - Measurement of Oil & Grease in water is mandated in thousands of NPDES permits. The USEPA approved method, EPA 1664, requires flammable solvents, is time consuming, and very labor intensive. A new method, ASTM D7575, selectively extracts oil & grease by solid phase extraction and measures by infra-red detection. The new method requires only 10 milliliters of sample, no solvents, and a few minutes of analyst time. A description of the method and comparison with EPA 1664 on "real world samples" will be presented. Seminar Presentation

Abstract # 115 – 9:00 AM - 30 minutes – Floral Hall A - Tuesday - "A New Detector for Gas Chromatography based on Vacuum Ultraviolet Absorption Spectroscopy" - *Kevin A. Schug, Ian Sawicki, Doug D. Carlton Jr., Harold M. McNair, Phillip Walsh, Dale Harrison - University of Texas at Arlington* - A vacuum ultraviolet (VUV) detector for gas chromatography, which provides fully universal quantitative and qualitative detection of volatile and semi-volatile compounds has been developed. All species absorb light in the VUV spectral range (115 – 180 nm) and their spectral signatures across this range are unique. The detector is sensitive to the low to mid picogram range for compounds including water, alcohol, linear and branched hydrocarbons, polyaromatic hydrocarbons, fatty acids, and pesticides. The ability to clearly deconvolute signals of co-eluting compounds that are indistinguishable by a typical mass spectrometer is highlighted. Seminar Presentation

Abstract # 116 – 2:00 PM - 30 minutes – Floral Hall A - Tuesday - "A New Method for the Determination of Total Nitrogen" - *William Lipps - Shimadzu Scientific Instruments, Inc.* - On August 27, 2009 the State-EPA Nutrient Innovations Task Group issued an urgent call to action to EPA Administrator Lisa Jackson. The task group documented excessive levels of nutrients in our nation's waterways. Current, and past, efforts to control these pollutants have been inadequate on the national and statewide scale. Efforts to date have been predominantly "regulation at the pipe" and have not addressed the non-point sources that are the root cause of elevated concentrations of nutrients in ground and surface waters. Nitrogen and phosphorus are the principal elements referred to when discussing nutrient pollution; however the USEPA approved method for Total Nitrogen (the sum of TKN and nitrate plus nitrite) is not very accurate in oxidized effluents and ambient water where the nitrate concentration exceeds the organic nitrogen concentration. Effort is underway at Standard Methods and at ASTM to create reliable methods for total nitrogen in these samples. This poster presents a total nitrogen method based on high temperature catalytic oxidation followed by chemiluminescence detection that accurately determines total nitrogen in less than five minutes. Performance and interference data is given. Seminar Presentation

Abstract # 117 – 8:50 AM Introduction – Ivy I & II - Tuesday - "Agilent Chromatography Workshop" - *Wayne Collins - Agilent Technologies*
The Agilent Technologies Gulf Coast Conference chromatography workshop will focus on new solutions to improve productivity and expand analytical capabilities of laboratories supporting petroleum, refining and chemical industries. The morning session from 9:00 – 12:00 will offer presentations on: Optimizing Ultrafast Simulated Distillation on a Low Thermal Mass GC System; Converting a Complex GC Analysis into a Simple Chromatographic Report Using the New OpenLab Data Analysis and Intelligent Reporter; EZChrom Elite to OpenLAB CDS Migration: Easier Than You Think; ChemStation to OpenLAB CDS Migration: How to Prepare and What You Get; Analysis of Oxygenates in Gasoline via Gas Chromatograph Deans Switch Methodology. The afternoon session from 1:00 – 2:30 will offer presentations on: Changes and New Methods Proposed from ASTM—An Update on D02 Activities; Improved gas tight connections for reliable GC analysis; Inert GC flow path improvements optimize recovery of chemically active compounds. Workshop

Abstract # 118 – 8:50 AM Introduction – Vine I & II - Tuesday - "Agilent Spectroscopy Workshop" - *Wayne Collins - Agilent Technologies*
The Agilent Technologies Gulf Coast Conference spectroscopy workshop will focus on new solutions to improve productivity and expand analytical capabilities of laboratories supporting petroleum, refining and chemical industries. The morning session from 9:00 – 11:00 will offer presentations on: High throughput lubricating oils analysis using the novel 5100 ICP-OES; Elemental Analysis of Crude Oils using a Microwave Plasma Atomic Emission Spectrometer; The analysis of High Dissolved Solids samples for trace metals using a novel ICP-OES; The Determination of Target Elements in Oil and Aqueous Matrices Utilizing the Agilent 4200 Microwave Plasma Atomic Emission Spectroscopy (MP-AES). Workshop Presentation

Abstract # 119 – 1:00 PM - 30 minutes – Floral Hall A - Tuesday - "Analysis of Essential Chemicals in the Production of Ammonia using a Single Instrument with the Barrier Discharge Ionization Detector (BID) from Shimadzu" - *Jeff Werner - Shimadzu Scientific Instruments, Inc.*
Ammonia is the most concentrated nitrogen fertilizer. It is also used to upgrade into other nitrogen based fertilizers. It is typically produced by converting natural gas into hydrogen for catalytic reaction with N2 to form anhydrous ammonia. This process requires several steps and the monitoring of several components at each step along the way. Ideally these analytes could be analyzed by a single instrument. This presentation will show a two column system using the BID from Shimadzu that accomplishes this goal. Seminar Presentation

Abstract # 120 – 11:30 AM - 30 minutes – Ivy I & II - Tuesday - "Analysis of Oxygenates in Gasoline via Gas Chromatograph Deans Switch Methodology" - *Shannon Coleman - Agilent Technologies* - Gasoline is a complex matrix and the analysis of oxygenates in such a matrix can be difficult. In this presentation GC Deans Switch methodologies are explored for the analysis of oxygenates in the gasoline matrix. This presentation is part of the Agilent Technologies Chromatography Workshop. Paper Presentation

Abstract # 121 – 9:30 AM - 60 minutes – Floral Hall A - Tuesday - "Analytical Methods Developed to Characterize Groundwater Possibly Impacted by Unconventional Drilling; Applied for a Time-Lapse Study of an Area of Increasing Hydraulic Fracturing" - *Doug D. Carlton Jr., Zacariah L. Hildenbrand, Brian E. Fontenot, Jesse M. Meik, Jayme L. Walton, Jonathan Thacker, Kevin A. Schug - University of Texas at Arlington*
Very few analytical methods have been developed to survey groundwater for alterations specific to unconventional drilling. Our team has developed application-specific methods, including general water quality measurements, GCMS, headspace GC, TOC/TN, ICP-OES, and ICP-MS over the past three years of research in the Barnett, Eagle Ford, and Cline Shales of Texas. These methods have been tailored for ingredients in hydraulic fracturing fluids and produced waters, while able to detect and identify non-targeted compounds. Reported will be the latest application of these methodologies towards a time-lapse investigation of groundwater in the Cline Shale, initiated before hydraulic fracturing commenced. Seminar Presentation

Abstract # 122 – 1:30 PM - 30 minutes – Floral Hall A - Tuesday - "Application of GC-MS and LC-MS for Analysis of Produced Water from Unconventional Drilling Operations" - *Jonathan Thacker, Doug D. Carlton Jr., Zacariah L. Hildenbrand, Brian E. Fontenot, Kevin A. Schug - University of Texas at Arlington* - Unconventional oil and gas wells in the Unites States yield millions of gallons of produced water (PW), a combination of resurfaced fracking fluid and naturally occurring formation water. In the interest of environmental protection and water conservation it is becoming less acceptable to dispose of PW in pits or injection wells. One of the challenges in recycling PW stems from the extreme chemical complexity of PW. In an effort to better characterize PW, common and advanced analytical methods, including GC-MS and LC-MS have been used to speciate PW. This information is vital for the design of effective recycling strategies. Seminar Presentation

Abstract # 123 – 9:00 AM - 3 hours – Ivy I & II – Wednesday - "Basic LC Maintenance and Troubleshooting Workshop" - *Sue D'Antonio and John Palmer - Agilent Technologies* - Troubleshooting an HPLC system can be a daunting task since many problems can be caused by more than one component in the system and are not easy to isolate and remedy. We will demonstrate troubleshooting LC systems and column problems by way of examples, differentiating problems and an interactive troubleshooting session. We will discuss solutions to correct poor LC performance that include, poor peak shape, varying retention, carry over and high backpressure. The workshop will be in three parts: HPLC Columns, Instrument Operation/Maintenance and Good Practices. At-

tendees will leave with a better understanding of LC systems, separations and problem solving. This presentation is part of the Agilent Technologies Chromatography Maintenance and Troubleshooting Workshop.

Abstract # 124 – 1:00 PM - 30 minutes – Ivy I & II - Tuesday - "Changes and New Methods Proposed from ASTM—An Update on D02 Activities" - *James McCurry - Agilent Technologies* - ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants promulgates the standard specifications and test methods used by the hydrocarbon processing industry; Agilent is an active participant in this committee. This presentation gives an update on new methods and proposed changes under discussion for those who will be impacted but are not able to attend the meetings. This presentation is part of the Agilent Technologies Chromatography Workshop.

Abstract # 125 – 10:30 AM – 30 minutes – Ivy I & II - Tuesday - "ChemStation to OpenLAB CDS Migration: How to Prepare and What You Get" - *Rich Mutkoski - Agilent Technologies* - Prepare and get the most out of your migration to OpenLAB CDS ChemStation Edition by attending this informative session. Learn what OpenLAB CDS ChemStation Edition has to offer, system enhancements and workflow possibilities. Learn about migration best practices and leave with a pre-migration action items. This presentation is part of the Agilent Technologies Chromatography Workshop.

Abstract # 126 – 8:50 AM – 10 minutes – Ivy I & II – Wednesday - "Chromatography Maintenance and Troubleshooting Workshop" *Wayne Collins - Agilent Technologies* - The Agilent Technologies Gulf Coast Conference chromatography maintenance and troubleshooting workshop will focus on techniques to keep your chromatographs in top working condition and solutions for common problems encountered in the lab. The morning session from 9:00 – 12:00 will provide training on basic liquid chromatography maintenance and troubleshooting. The afternoon session from 1:00 – 3:00 will provide training on basic gas chromatography maintenance and troubleshooting. Training Course

Abstract # 127 – 9:00 AM - 60 minutes – Ivy I & II - Tuesday - "Converting a Complex GC Analysis into a Simple Chromatographic Report Using the New OpenLab Data Analysis and Intelligent Reporter" - *James McCurry - Agilent Technologies* - Agilent's OpenLab Chromatography Data System (CDS) is designed to convert complex chromatographic data into the simple results necessary for making product quality or process decisions. This workshop will use the OpenLab Data Analysis (DA) tools to create methods employing the advanced peak identification and calibrations typically used in refining and petrochemical labs. Once the data is processed, the OpenLAb Intelligent Reporter (IR) will convert the chromatographic results into a meaningful report using custom calculations and formatting. This workshop will step through this process using live software and data collected from the GC analysis of real fuel samples. This presentation is part of the Agilent Technologies Chromatography Workshop

Abstract # 128 – 11:00 AM - 30 minutes – Floral Hall A - Tuesday - "Determination of Natural Gas Components in Drinking Water by Gas Chromatography and Vacuum Ultraviolet Detection" *Ling Bai, Hui Fan, Zacariah L. Hildenbrand, Jonathan Smuts, Phillip Walsh, Dale Harrison, Kevin A. Schug - University of Texas at Arlington* - Natural gas is a complex mixture consisting of low molecular weight hydrocarbons, inert gases, and other impurities including sulfur compounds. Increased drilling activity has raised concern over the potential for drinking water contamination. A new gas chromatography detection technique based on vacuum ultraviolet (VUV) spectroscopy collects full scan (120 – 240 nm) VUV and UV absorption of eluting analytes. GC-VUV can be used to provide universal detection in combination with analyte-specific absorption spectra. Presented will be the ability of GC-VUV to deconvolute coeluting low molecular weight gas compounds and fingerprint natural gas, both in general and related to water contamination. Seminar Presentation

Abstract # 129 – 10:30 AM - 30 minutes – Floral Hall A - Tuesday - "Elemental Analysis for the Petrochemical Industry Utilizing Shimadzu's New Line of Energy-Dispersive X-Ray Fluorescence Spectrometers (EDXRF)" - *Justin Masone, Dan Davis - Shimadzu Scientific Instruments, Inc.* - From petroleum to plastic, the global value of the petrochemical industry is nearly US$500 billion. That's 8% of world trade, and it shows no signs of slowing down. In recent years, elemental analysis of both raw materials and finished products has been increasingly performed by ED-XRF spectroscopy. This is due, in part, to the capability of directly analyzing undiluted liquid and oil samples, as well as bulk materials. Shimadzu's new EDX-7000 and EDX-8000 provide high-sensitivity, high-throughput elemental analysis, from 6C-92U, of virtually all samples types with the push of a button. Seminar Presentation

Abstract # 130 – 9:30 AM - 30 minutes – Vine I & II - Tuesday - "Elemental Analysis of Crude Oils using a Microwave Plasma Atomic Emission Spectrometer" - *Jenny Nelson, Greg Gilleland, Laura Nannini, Paul Hajdu and Francisco Lopez-Linares* - The analysis of metals in crude oils is a vital, cost-effective preventive maintenance task for refineries. Analysts are particularly interested in the elements Ni, V, Fe, Ca, Na, and K. While flame atomic absorption spectrometry (FAAS) has been used extensively to monitor metals in crude oils, the high sample workload has forced many laboratories to use alternative multi-element analysis techniques that are capable of high sample throughput. Microwave Plasma Atomic Emission Spectrometer (MP-AES) reduces running costs, improves lab safety and alleviates the difficulty and costs in sourcing gases (i.e. acetylene, and Argon) especially in remote locations. This presentation is part of the Agilent Technologies Spectroscopy Workshop.

Abstract # 131 – 2:30 PM – 30 minutes – Floral Hall A - Tuesday - "Vacuum Ultraviolet Detection for the Identification and Quantification of Multiclass Pesticides using Gas Chromatography" - *Hui Fan, Jonathan Smuts, Phillip Walsh, Dale Harrison, Kevin A. Schug - University of Texas at Arlington* - Multiclass pesticide analysis by gas chromatography mass spectrometry is a tedious process due the activity, thermal instability, and the prevalence of isomeric analyte species. A new vacuum ultraviolet detector is capable of measuring gas phase absorbance spectra within the wavelength range of 120-185 nm (VUV region) and up to 240 nm. Within this region, all species absorb and possess unique spectral responses. Spectra can be deconvoluted if coelution occurs and absorption measurements are better for highly labile compounds. The ability to analyze multiclass pesticides (including captafol, captan, and folpet) under fast GC conditions is demonstrated. Seminar Presentation

Abstract # 132 – 3:10 PM - 30 minutes – Tulip – Tuesday - "FT-NMR for Reaction Monitoring" - *Dr. Katherine Paulsen - Thermo Electron* The picoSpin line of FT NMR's use a patented, unique flow cell in place of the traditional NMR tube. This allows solutions to be flowed through the FT NMR. The picoSpin systems need only 110v power to run so no cryogens, dueterated solvents or dry air are required. Their space saving design means they can be put into a fume hood or a glove box, places that traditional NMR's cant go. We will examine a few unique applications for these FT NMR's. Paper Presentation

Abstract # 133 - 1:00 PM - 2 hours – Ivy I & II – Wednesday - "Troubleshooting Tips & Tricks for your GC Analyzer & CFT Application" - *Mario Aparicio - Agilent Technologies* - This seminar will review basic logical troubleshooting principles for GC as well as discuss the operation and troubleshooting of GC gas analyzers such as Natural Gas and Refinery Gas Analyzers. An overview of Capillary Flow Technology (CFT) applications and benefits in performing gas analysis will also be included. This presentation is part of the Agilent Technologies Chromatography Maintenance and Troubleshooting Workshop.

Abstract # 134 – 10:00 AM - 30 minutes – Ivy I & II - Tuesday - "EZChrom Elite to OpenLAB CDS Migration: Easier Than You Think" - *Steve Miller - Agilent Technologies* - Come to this session to find out about moving to OpenLAB CDS EZChrom Edition and how to speed your transition. In this practical discussion, learn why your lab should transition to OpenLAB CDS EZChrom Edition and the most important ways to prepare. This talk will include a discussion of migration best practices, moving to a 'project-based' data model and action items for migration preparation. This presentation is part of the Agilent Technologies Chromatography Workshop.

Abstract # 135 – 2:40 PM - 30 minutes – Orchid – Wednesday - "Managing Emission Test Data Quality and Test Firm Competency Using ASTM Standard D7036, Standard Practice for Competence of Air Emission Testing Bodies" - *Rick Krenzke, David Elam - TRC Environmental Corporation* - Beginning March 27, 2012, each Part 75 stack test or relative accuracy test audit (RATA) must be performed by an "Air Emission Testing Body" (AETB), as defined by 40 CFR 72.2 (i.e., the "Minimum Competency Rule"). Importantly, an AETB that meets Minimum Competency Rule (MCR) requirements will, by definition, operate in accordance with ASTM D7036-04, "Standard Practice for Competence of Air Emission Testing Bodies." The MCR allows an AETB to limit the scope of ASTM D7036 conformance to Part 75 test programs; however, the ASTM standard is intended to apply to all work that an AETB performs, including Part 60 and performance engineering test programs. In fact, AETB's that have embraced ASTM D7036 and applied it to their full range of services report improvement in test team readiness, measurement traceability, and data defensibility, all key aspects that define data quality. ASTM D7036 is a consensus-based quality management standard modeled on ISO 17025 "General Requirements for the Competence of Testing and Calibration Laboratories" and is intended for use by any AETB. ASTM D7036 represents a process-based approach to emission testing that relies on an AETB-defined management system to integrate personnel, equipment, procedures, and test plans to satisfy test program objectives with data of defined quality. This presentation will discuss the history of the ASTM 7036 standard, explain why EPA chose to require it for Part 75 test programs, outline the foundation of ASTM D7036 conformance, provide concrete examples of how the standard is improving data quality, and examine how the standard is shaping the future of emission testing programs. Paper Presentation

Abstract # 136 – 1:00 PM – 3 hours – Hibiscus - Wednesday - "Advanced Titration: Optimizing Methods on T50/T70/T90 Mettler Toledo Titrators" - *Tore Fossum - Mettler Toledo, LLC* - For users of Mettler Toledo Titration Excellence instruments, this course explains how a titration method is organized, and what the typical functions do. The titration function parameters are explained with the view to optimize the parameters to get precise and accurate results in the shortest time. The examples of the free-form algebraic calculation capability show the user how to get results in the desired form. Typical petrochemical titrations such as acid number, base number, bromine index and mercaptans will be presented. Training Course

Abstract # 137 – 9:00 AM – 3 hours – Hibiscus - Wednesday - "Basics of Titration: A Primer on Potentiometric Titration" - *Tore Fossum - Mettler Toledo, LLC* - Introduction to titration, with explanation of the theory of titration and of pH measurement, pH based aqueous and non aqueous titrations, redox titrations and precipitation titrations. Electrodes are explained with emphasis on maintenance. Automatic titrators are introduced, with maintenance tips and hints. Training Course

Abstract # 138 – 1:30 PM – Tuesday - 3 hours – Hibiscus - "The Science and Practice of Karl Fischer Water Titration" - *Tore Fossum - Mettler Toledo, LLC* - With understanding comes power to analyze! The theory and practice of Karl Fischer Moisture analysis is presented with tips, tricks and techniques developed over 30 years of titration. The technique of coulometric KF and volumetric KF are explained, as well as which reagents are good for what types of samples. Training Course

Abstract # 139 - 10:30 AM - 30 minutes – Vine I & II - Tuesday - "The Determination of Target Elements in Oil and Aqueous Matrices Utilizing the Agilent 4200 Microwave Plasma Atomic Emission Spectroscopy (MP-AES)" - *Christine Rivera - Agilent Technologies* This study summarizes the method parameters of the Agilent 4200 MP-AES (microwave plasma – atomic emission spectrometer) utilized for elemental determinations in oil and water test solutions. The nine target analytes determined in the method were aluminum (Al), calcium (Ca), chromium (Cr), iron (Fe), magnesium (Mg), manganese (Mn), nickel (Ni), potassium (K), and sodium (Na). The a method detection limit (MDL) was calculated for each matrix and the accuracy of the oil results were assessed by spiking the oil with the target elements and calculating the % recovery. The sample introduction system description and the procedure to convert the sample introduction from oil to aqueous matrix will be described. This presentation is part of the Agilent Technologies Spectroscopy Workshop.

Abstract # 140 – 10:30 AM - 60 minutes – Orchid - Tuesday - "GHS Status Update: Get Compliant by 2016" - *Kendra Newton - Brady Corporation – In support of Thermo Fisher Scientific* - The Brady GHS comprehensive seminar reviews the current state of the Hazard Communication Standard (HazCom) and OSHA's adoption of the Globally Harmonized System (GHS). Including which deadlines companies should have met by now, where most companies are at in meeting the deadline and industry best practices for meeting current requirements. Additionally, during the seminar we'll discusses what a company must do in order to be compliant by the 2016 OSHA deadline. Seminar Presentation

Abstract # 141 – 9:00 AM - 30 minutes - Vine I & II - Tuesday - "High Throughput Lubricating Oils Analysis Using the Novel 5100 ICP-OES" - *Patrick Simmons and Christine Rivera - Agilent Technologies* - The determination of wear metals in lubricating oils is a critical application typically performed by ICP-OES technique. The concentration of various metals gives an indication to the extent of the wear occurring in an engine. The study performed presents results determined utilizing an ICP-OES instrument which overcomes the limitations of traditional ICP-OES where low concentrations and high concentrations are expected in a matrix. The 5100 ICPOES provides rapid measurements of the most challenging sample matrices, from crude to lubricating oils using a torch with a vertical orientation with axial viewed detection limits. The vertical torch configuration requires less cleaning, less downtime, and is expected to have a longer lifetime. This presentation is part of the Agilent Technologies Spectroscopy Workshop.

Abstract # 142 – 9:30 AM - 30 minutes – Orchid – Wednesday – "Measuring Trace Sulfur in the Presence of High Amounts of Nitrogen via Combustion" - *Tyson G. Rowland, Ralf Dunsbach, Calum McCusker-Elementar* - In this study liquid hydrocarbons were run on a combustion analyzer to measure total sulfur content using UV-fluorescence as the detection method. The challenge using UV-fluorescence detection is that nitrogen oxide (NO), also formed in the combustion process, will interfere with the UV signal. In fact, it has been well documented that a nitrogen concentration of 100 ppm will equate to a reading of approximately 0.2 - 0.5 ppm sulfur. Because of this positive interference on sulfur measurements it is necessary to remove the NO contamination for acquiring accurate sulfur readings. Elementar's Trace SN cube uses unique adsorption/desorption technology to trap formed SO2 allowing time for the NO to pass through the detector before releasing the SO2 to be measured without interference. Details into the hardware behind this technology as well as results will be given in this presentation. Seminar Presentation

Abstract # 143 – 11:00 AM - 30 minutes – Ivy I & II – Tuesday - "Optimizing Ultrafast Simulated Distillation on a Low Thermal Mass GC System" - *Roger Firor - Agilent Technologies* - High temperature fast GC analysis presents unique challenges. This is particularly true for the new ASTM method D7798 where a wide boiling point calibration is required from C5 to C44. In addition, C44 must elute during the temperature ramp with good peak shape. Important hardware choices include inlet type, liner design, and most importantly column dimensions and phase ratio. Method parameters must then be optimized to minimize inlet discrimination and maximize speed of analysis including fast cycle time without sacrificing performance. Details on optimization of all these parameters will be presented. This presentation is part of the Agilent Technologies Chromatography Workshop.

Abstract # 144 – 2:40 PM - 30 minutes – Tulip – Tuesday - "Raman Imaging of Polymer Laminants Using an Electron Multiplying CCD (EMCCD) Combined with a Rastering Stage" - *Cam MacIsaac - Thermo Electron* - Raman spectroscopy delivers a submicron excitation beam to the microscope stage. These are perfect spatial dimensions to discern multi-layer polymer laminants. The trend in packaging materials is to have more layers that are thinner to conserve cost and add strength. Raman spectrometers give confirmation spectra but have been time consuming in the past. Moving across a laminant with 100nm step and capturing spectra, can add up to hours of data collect. However, with the

integration of a linear magnetic drive sample stage and electron multiplied CCD detector, significant enhancements to the acquisition of data and spatial precision can be made to accommodate these types of samples more efficiently. This configuration can add over an order of magnitude to our detectivity, shortening data collect by an order of magnitude. This paper will review results of the analysis of these types of samples with this improved Raman configuration. Paper Presentation

Abstract # 146 – 11:00 AM - 30 minutes – Hibiscus – Tuesday - "Sample Introduction System for Direct Analysis of Real World Petrochemical Samples by ICP-AES" - *Dr. Sergei Leikin, Texas Scientific Products LLC and Dion Tsourides, Spectro Analytical Instruments* - Choosing the correct sample introduction system is a key in successfully applying ICP-AES for direct analysis of petrochemicals. The sample introduction system with specific focus on this application has been developed. It includes an effective combination of the Optimist TM Nebulizer and cyclonic spray chamber. The simple non-concentric design of the Optimist TM incorporates an unrestricted sample channel of 0.5 mm internal diameter, which provides an ability to handle even the most difficult samples reliably without clogging. The system has been applied to the analysis of different type of oils, coolants and other types of real world petroleum samples. The results show analytical advantages of the developed system as compared to alternative and more complicated technologies. Paper Presentation

Abstract # 147 – 10:00 AM - 30 minutes – Vine I & II - Tuesday - "The Analysis of High Dissolved Solids Samples for Trace Metals using a Novel ICP-OES" - *Patrick Simmons and Christine Rivera - Agilent Technologies* - The determination of trace metals in brines and high percent total dissolved solids (%TDS) water samples is an emerging application for the ICP-OES technique as characteristics and contamination levels of some elements can lead to process and environmental concerns. The method expectations include the determination of low and high concentrations of elements across the periodic table in 25% brine and high matrix production waters. The results presented were determined using the Agilent 5100 SVDV ICP-OES instrument which overcomes the traditional limitations of a horizontal plasma orientation when analyzing high %TSD waters. The 5100 ICP-OES uses a torch in a vertical orientation with axial viewed detection limits. The vertical torch configuration requires less cleaning, less downtime, and is expected to have a longer lifetime. This presentation is part of the Agilent Technologies Spectroscopy Workshop.

Abstract # 148 – 1:50 PM - 30 minutes – Orchid - Tuesday - "Accuracy and Productivity Improvement using Data Acquisition Software and a Stream Selection Valve for Process Analyzers" - *Grace Feng - Applied Lab Automation Corporation* - Compared to a gas chromatograph (GC), process analyzers possess many advantages such as faster instrument response time, easier to operate, and instant display of the analytical results on the analyzer's front panel. However, two major disadvantages of the process analyzer are sample matrix sensitive and short of a powerful data acquisition system (DAQS). Applied Lab Automation Corporation (ALAC) has developed a great DAQS to address the matrix effect of the analyzers due to samples from multiple matrices. A universal calibration can be generated even if a process analyzer has experienced some sort of matrix effect. When the ALAC's DAQS is equipped with a Valco multiple position valve, this software package turns into a powerful lab or process analyzer automation package. Regardless of process analyzer types such as CO NDIR, moisture, oxygen and hydrocarbon analyzers, the automation package can handle the samples from multiple matrices 24-hour a day with very little human interaction. While accurate results can be obtained from the DAQS, the productivity has also increased using a stream selection valve. Paper

Abstract # 149 – 2:00 PM - 60 minutes – Vine I – Wednesday - "Are You Handling Flammable Liquids/Hazardous Materials Safely In Your Laboratory?" - *Glen Carter - Justrite Manufacturing Company L.L.C.* - Accidents in laboratories from improper handling of flammable liquids and of other hazardous/reactive materials have grabbed the attention of the fire code community. NFPA 400 Hazardous Material Code, NFPA 30 Flammable and Combustible Liquids Code, NFPA 1 Fire Code, and the IFC International Fire Code address the proper handling/storage of these materials to minimize risk to life and property. These codes mitigate risk by regulating maximum allowable quantities, separating incompatible materials, guarding the materials against spills and fire etc… This presentation will demonstrate bad vs. best practices, and offer easy tips to bring your laboratory into compliance. Seminar Presentation

Abstract # 150 – 1:30 PM - 30 minutes – Ivy I & II - Tuesday - "Improved Gas Tight Connections for Reliable GC Analysis" - *Daron Decker - Agilent Technologies* - The use of guard columns, pre-columns, restrictors or transfer lines is often desired in GC analyses. Leaks in GC because of the connectors used can cause damage to column stationary phase, high background noise, retention time shifts, questionable results, and wasted time in retightening fittings or fixing or replacing connectors. Having a robust, reliable leak-free connection will save time, reduce overall costs, and allow the analyst to sleep better at night. This presentation will discuss several new connectors that give a new level of confidence in the reliability of making a leak-free connection in GC. This presentation is part of the Agilent Technologies Chromatography Workshop.

Abstract # 151 – 9:40 AM - 20 minutes – Bluebonnet – Wednesday - "Improved Method for Crude Oil Acidity Analysis" - *Lori Carey - Metrohm USA, Inc.* - Total Acid Number (TAN) is used as a quality parameter in crude oil. The significance of TAN in crude oil is directly related to the oil's value and pipeline transporting specifications. Until now, ASTM method D664 has been used as the method of choice even though there are a number of analytical challenges with applying the method to the analysis of crude. During our talk, we will explore a new method that addresses the drawbacks of ASTM D664 and offers a new precise method to measure crude oil acidity. Paper Presentation

Abstract # 152 – 2:00 PM - 20 minutes – Orchid – Wednesday - "Improving Quality Assurance Analysis using Gas Chromatography while Improving Safety, Cost with an On-site Hydrogen Gas Generator" - *Erica Janas, John Speranza - Proton OnSite* - As helium becomes a rarer and more expensive commodity in the laboratory, more practitioners are moving to hydrogen gas for their Gas Chromatography needs. But, along with inherent safety concerns, lab managers and practitioners are experiencing poor quality gas from cylinders, which hinders analysis. By switching over to one or more on-site hydrogen gas generators, which produce hydrogen using just water, labs are able to improve analysis results faster, cut costs and improve user safety. Using real data and cost efficiencies taken from a large chemical laboratory, the benefits of switching to an on-site hydrogen gas generators are illustrated and defined. Paper Presentation

Abstract # 153 – 8:30 AM - 30 minutes – Orchid - Tuesday - "Integrating QAQC Laboratory Procedures and Equipment to SAP/SAP-QM" *Bill Wiersma – PerkinElmer* - QA/QC laboratories in organizations that use SAP® are facing the need to implement tighter integration between the data that they are producing and the enterprise system. In some cases the organization is looking to further leverage their investment in SAP by using SAP QM as a replacement for LIMS or it may be part of a program to consolidate technologies across the organization in order to reduce IT costs. This presentation will explore examples of laboratories who have integrated with SAP providing a positive impact on operational excellence in the laboratory as well as the enterprise. Paper Presentation

Abstract # 154 – 1:30 PM - 30 minutes – Tulip – Wednesday - "Petrochemical Titration Automation and Workflow Advancements" *Matthew Eby - Mettler Toledo, LLC* - Discover the unique and innovative workflow advancements of the new InMotion™ Autosamplers and how they can improve efficiency and security in your laboratory. Learn which hardware and software are specifically designed to optimize titrations of petrochemical samples. Paper Presentation

Abstract # 155 – 9:00 AM - 30 minutes – Orchid - Tuesday - "The Impact of "Big Data" on the Laboratory" - *Bill Wiersma - PerkinElmer* We live in a "data rich - information poor" world where access to data is not a problem but access to actionable information is. Laboratories produce significant amount of data that is valuable to the broader organization. Frequently this data is locked in LIMS, instrument systems,

SAP and other business systems making it difficult to use in a timely manner. This presentation will discuss how Spotfire is used to integrate data from multiple systems by exploring several real-world examples. Paper Presentation

Abstract# 156 - 10:45 AM – Exhibit Hall – Wednesday - "Fast And On-Site Natural Gas Odorants Analysis Using Micro Gas Chromatography" - *Remko van Loon,Coen Duvekot - Agilent Technologies* - Natural gas is a widely used source of energy; it's a colorless, odorless, flammable gas and therefor odorized for safety reasons. The actual location where the gas is odorized is country depended. This can be done during production, at the country border or at different stages in the distribution network. Multiple, relative costly components can be used to odorize the natural gas. Preventing both 'under' and 'over' odorization there is a demand for a fast and accurate method to quantify odorant levels. The natural gas suppliers association for an European-based country uses a Micro Gas Chromatograph for on-site analysis of both tetrahydrothiophene (THT) and tert-butyl mercaptan (TBM). This association is responsible for periodic odorant characterization and quantification for over 350 distribution points across the country's entire natural gas network. Instead of taking a sample and bring it to the lab, which can take up to a few days before the result is known, the natural gas is directly analyzed using a Micro GC mounted in an off-road vehicle. The Micro GC's shoe-box size dimensions and low carrier gas consumption enables easy implementation in process applications and mobile laboratories. Direct, on-site analyses secures the integrity of the sample. Moreover, it leads to fast availability of the odorant's concentration levels. In case of the Micro GC analysis, results are known within 90 to 120 seconds run time. Out-of-spec values can directly be communicated and corrective actions can be taken accordingly. Poster Presentation

Abstract# 157 - 10:15 AM - Exhibit Hall – Wednesday - "On-site Rapid Analyses of Well Gases for Mud Logging Applications using Micro Gas Chromatography" - *Remko van Loon Coen Duvekot* - Oil and gas exploration require the analysis of dissolved natural gas in mud samples from the well within short run times. This posters highlights the use of an Micro Gas Chromatograph for rapid, accurate mud logging analysis. Gas chromatography is proven to be an accurate and sensitive technique for the characterization of individual hydrocarbon gases to combine in lithology reports for the mud logging field. Critical information is obtained for making decisions on additional drilling or production of the well. A system equipped with two analytical channels is used for on-line analytical testing of drilling fluid sample. Each column channel is a complete GC containing an electronic carrier gas control, micro-machined injector, narrow-bore analytical column and micro thermal conductivity detector (µTCD). Dissolved gases, collected from the drilling fluid samples using a semipermeable membrane, are analyzed on both analytical channels in just over 30 seconds. Miniaturization has resulted in a small, shoe-box size, instrument dimensions that makes it easy to integrate into on-site control cabins or explosion proof enclosures. Moreover, industry standard 19-inch rack configuration further simplifies integration into mud logging operations. Poster Presentation

Abstract # 158 – 11:10 AM - 20 minutes – Daffodil – Tuesday - "Tunable Diode Laser measurements of trace components in Natural Gas" - *Daniel Merriman & Mark Turpin - Analytical Technology and Control* - This presentation will introduce the new ATAC TDL gas analyser system. The system is available in two principle configurations at present, with analysers for moisture up to 1000ppm and hydrogen sulphide up to 4000ppm. Analysers can be supplied with optional internal zero and validation feeds to allow process control with a high degree of confidence. The system uses the unique ATAC CAN bus control system which allows users to set up the instrument with a customer specific graphical user interface allowing auxiliary measurements to be displayed on the touch screen and used to calculate parameters from the measured data as required. Paper Presentation

Abstract # 159 – 4:10 PM - 20 minutes – Orchid - Tuesday - "What Vapor Pressure?" - *Daniel Merriman & Mark Turpin - Analytical Technology and Control* - For many years Reid Vapour Pressure (RVP) has been the measurement of choice in the oil industry. The measurement is made by equilibrating the liquid under test with 4 times its volume of air and then measuring the gauge pressure generated. The test was developed as a simple measure of fuel volatility and is often the specified measurement for quality control of final product. RVP however, has limitations. Because the sample is equilibrated with a volume, samples containing low levels of very volatile components can exhibit a low RVP whilst the true vapour pressure (TVP) is much higher. This is particularly apparent in samples that contain dissolved fixed gases. The gases are liberated into the expansion volume but because their amount is limited, the resultant pressure is low. This failing of the Reid method is particularly important when the requirement of vapour pressure measurement is to predict pressure in a floating roof tank or when the prediction of pumping cavitation is required. This presentation will address what methods are available for the measurement of vapour pressure and which methods are most appropriate for different process control and safety issues. Paper Presentation - 20 minutes Abstract # 159

Abstract # 160 – 2:00 PM - 60 minutes – Bluebonnet - Tuesday - "Process Mass Spectrometry as a Tool for Process Control, Monitoring and Development" - *Todd Colin Ph.D - Thermo Fisher Scientific* - Mass spectrometers have been used to provide online measurements for industrial applications for 30 years or more. They continue to provide valuable data for process control and environmental and safety monitoring. Process mass spectrometers provide a single lineage of instruments, using the same magnetic sector engine to provide process control, environmental monitoring and process development. The environment monitoring version of the mass spectrometer has been used to monitor fugitive emissions from ppb to ppm levels. The newest addition which is a bench top version, features all the analytical capability of the process version in a smaller more slim cabinet for bench top laboratory use. This means that a measurement can literally follow a process from lab to line using the same analytical engine, method and software for smooth scale up transitions. These applications include biotechnology uses as well as petrochemical. This presentation will discuss applications and review important hardware and software innovations. Paper Presentation

Abstract # 161 – 1:40 PM - 20 minutes – Floral Hall B – Wednesday - "An Easy to Use Fast Liquid Chromatographic System using a Novel Sample Manager to Improve Work Flow for the Analysis of Samples Close to a Manufacturing Process" - *Charles H. Phoebe, Jr., Ernie J. Hillier, and Aaron D. Phoebe - Waters Associates* - Ultra Performance Liquid Chromatography (UPLC) has revolutionized the general world of liquid chromatography providing access to increased speed of analysis, as well as recognized increase in sensitivity and resolution. A novel UPLC instrument sample manager has been designed with security measures to track chain-of-custody compliance ensuring controlled access to the instrument, the samples being analyzed and the results generated. Bar code initiated analysis permits all levels of expertise to run samples and obtain quantitative results. The instrumentation provides for multiple levels of dilution ensuring a workflow that decreases or even eliminates the errors in creation of multi-point calibration curves and sample preparation. Analysis of alcohols in product samples will be used to illustrate the use of this instrument. Paper Presentation

Abstract # 162 – 1:20 PM - 20 minutes – Floral Hall B – Wednesday - "An Online Fast GC for Gasoline Blending: Experience to Date at One Refinery" - *Dr.Carl Rechsteiner, CRechsteiner Consulting, LLC, Petaluma, CA* - Gasoline is no longer "the dumping grounds for lower value hydrocarbons." The demands of the modern automobile including excellent fuel economy and zippy performance all while being regulated for near "zero" emissions presents the refiner with many challenges. The RVP must be exactly right regardless of the season, elevation or octane rating required. Thus, timely, repeatable and reproducible measurements of boiling range distribution is required. This paper will discuss one installation in operation for more than a year where ASTM D3710 and correlations to D86 are automatically delivered to the DCS using MODBUS via Ethernet. Paper Presentation

Abstract # 164 – 11:10 AM - 20 minutes – Floral Hall B – Wednesday - "Data Processing in a Fast GC World" - *Brian Rohrback, Infometrix, Inc.*- A new bottleneck looms as we press our need for speed: data

processing. It is not that a database cannot keep up; now that fast GCs have grown up and are not strictly tied to low-molecular-weight gas applications, we need to look at how we process the data feed of 100 to 500 chromatograms per day. We now automatically correct retention times so that the peak positions are the same year-to-year, even across instruments. This enables us to use the same pattern recognition techniques that we rely on in NIR analyzers to assess product consistency over time and across continents. Paper Presentation

Abstract # 166 – 10:10 AM - 20 minutes – Floral Hall B – Wednesday - "Expanding GC Use in Petroleum and Petrochemical Applications" *Carl Rechsteiner, CRechsteiner Consulting, LLC, Petaluma, CA* - Gas Chromatography (GC) is the premier tool for direct measurement of hydrocarbons by component (where the system has sufficient resolution to uniquely separate each compound, i.e. permanent gases and light hydrocarbons) or for fingerprinting or yield curves by Simulated Distillation. A natural extension of micro & Fast GC is to include detectors beyond Flame Ionization (FID) and Thermal Conductivity (TCD) detectors with specificity for targeted analytes. This paper will discuss a Flame Photometric (FPD) detector for fast, micro GC for the determination of sulfur species. Design considerations and the systems performance will be compared to conventional research grade sulfur detectors. Paper Presentation

Abstract # 167 – 9:00 AM - 30 minutes – Floral Hall B – Wednesday - "Historical Review: Fast & micro Gas Chromatography" *Dr. Ed Overton, Professor Emeritus, Department of Environmental Sciences Louisiana State University School of the Coast & Environment* From the "chromatograph on a chip" to the "microFAST GC" to the "Calidus" to the "Frog" micro and fast gas chromatography has held the promise of making better measurements that meet the requirements of the analyst. Each step along the way has accomplished a lot for the intended purpose. This paper will describe the steps forward to the point where we may need to "lose" the differentiating "fast and micro" prefix and accept these terms are outdated. Maybe we should just call it gas chromatography. Paper Presentation

Abstract # 168 – 10:50 AM - 20 minutes – Floral Hall B – Wednesday - "Increasing Throughput AND Easier to Use: Refinery Support Laboratory Experience with micro and Fast Gas Chromatography" - *Dean Alcon, Laboratory Supervisor, Husky Lima Refinery* - Gas chromatography is one of the workhorse techniques in any refinery laboratory. Increasing demand for more sample analyses having more and more detail stretches both the human resource and the instrumentation resource. Higher throughput requirements are achieved with ultrafast gas chromatography. However, getting instrumental throughput with the same or declining human resource requires making the human's job easier. Automation is a requirement. This paper will discuss our experience with micro and Fast GC including our participation in the ASTM D7798 Interlaboratory Study intended to define precision and bias and our own comparison of results with conventional instrumentation. Paper Presentation

Abstract # 169 – 10:00 AM - 30 minutes – Floral Hall B – Tuesday - "Oil Source Fingerprinting in Heavily Weathered Residues and Coastal Marsh Samples" - *Edward B. Overton, M. Scott Miles, Buffy M Meyer, Greg Olson* - Oil source fingerprinting uses capillary column GC/MS analyses of a source oil and environmental oil samples to try and match the chemical composition of key indicator compounds in both samples, thus providing strong evidence that the environmental samples came from the suspected source. These environmental samples are typically not heavily weathered. However, after a major oil spill, such as the Deepwater Horizon Oil Spill (DHOS), oil can travel in the environment for many miles, and reside in coastal marshes and sandy beaches for months to years after the spill. This environmental resident time, and the compositional change associated with weathering process, makes oil source fingerprinting of spill residues more challenging and technically difficult. Data will be presented to demonstrate how these relative compositions were changed by weathering over a three year time frame as well as in different coastal environments. Paper Presentation

Abstract # 170 – 1:00 PM - 20 minutes – Floral Hall B – Wednesday - "Online Process Control using Modular Fluid Delivery and Fast & Micro Process Gas Chromatography: From the Sample Point to the DCS Connection" - *John Crandall, President - Falcon Analytical; Ned Roques, Chief Chromatography Officer - Falcon Analytical* - Continuous processing of petrochemicals occurs at high volumes per unit time. Lots of offspec product can be made in seconds. Composition analysis for composition control is critical to reducing waste and energy consumption not to mention the vitally important requirement of maintaining conformance to product specifications. This paper will describe the requirements and implementation of "New Small Smart Sample Systems" (NESSI) coupled with fast and micro GC in the Class 1, Division II environment including tuning the fast loop, analyzer loop, measurement and result reporting to the DCS. Online performance and maintenance experience including RT stability will be discussed. Paper Presentation

Abstract # 171 – 10:30 AM - 20 minutes – Floral Hall B – Wednesday - "Recent Advancements in Batch Process Throughput with Fast, Automated Food Grade Fatty Acid Endpoint Analysis" - *Jonathan A. Blackwell, Production Process Manager Life Sciences Ingredients - Microbial Control Americas,Lonza, Inc.* - Variability of batch processing sometimes lead to blurring the definitions: quality assurance, quality control and process control as well as laboratory, at line and online analysis. Monitoring for batch reactor endpoint is essential to getting the product right by neither "under nor over cooking." A range of fatty acids from C3 to C50, are analyzed using fast, micro GC coupled to an autosampler for composition analysis "near line." Samples collected require minimal sample preparation. The analysis is done very close to the batch process reactor for sustained or improved product quality, increasing throughput and the opportunity for reducing costs. Paper Presentation

Abstract # 173 – 11:30 AM - 40 minutes - Floral Hall B – Wednesday - "Recent Advances in Chromatography Data Systems Software: A More Complete Solution including Labs, At-Line, Online and Transportable" - *George Schreiner, Vice President Technology – ChromPerfect* As fast and micro gas chromatography move into the mainstream, there is the need for a change in computing capabilities. For example, focused instruments that can be applied across many environments require the most fundamental command and control functions, chromatographic integration, peak identification, calibration and reporting. But what about the larger perspective: sequences, external program integration, I/O for external equipment control and even modern communication to process control computers and telemetrics whether wired or wireless? These two talks will address both lab and process aspects of the chromatography data system including HMI and other requirements specific for the end user. Paper Presentation

Abstract # 174 – 9:30 AM - 20 minutes – Floral Hall B – Wednesday - "Rethinking the Anatomy of Gas Chromatography" - *Steve Bostic, Marketing Consultant; Ned Roques, Chief Chromatography Engineer; John Crandall, President Falcon Analytical Systems & Technology* Gas Chromatography (GC) is perceived as one of the more costly and complex devices to acquire and operate. One would like GCs requiring less space, running faster, requiring less energy, providing more sophisticated self-diagnostics and modular architecture minimizing down time. Key to this optimization is elimination of the air bath oven through direct on-column heating and cooling. Surprisingly, direct heating of columns was applied as early as 1985 leaving many to question why this approach has not been widely adopted by GC users. This paper will explore the obstacles that may explain the delay in applying this highly valuable technology. Paper Presentation

Abstract # 175 – 9:50 AM - 20 minutes – Floral Hall B – Wednesday - "The Case for micro & Fast Gas Chromatography: A Market Overview" *John Crandall, President Falcon Analytical* - Chromatography has great significance in our economy. Market researchers measure the size of markets in financial terms. Gas chromatography instrumentation is a multibillion dollar annual part of the global economy. For most of us, dollars in this order of magnitude blow our minds. What we can better assimilate is the number of GC units purchased each year. Even more interesting is to explore the breadth and depth of applications possible. We will show one roadmap for gas and crude to the fuels and many other hydrocarbon based products we use every day and show where micro and Fast GC apply. Paper Presentation

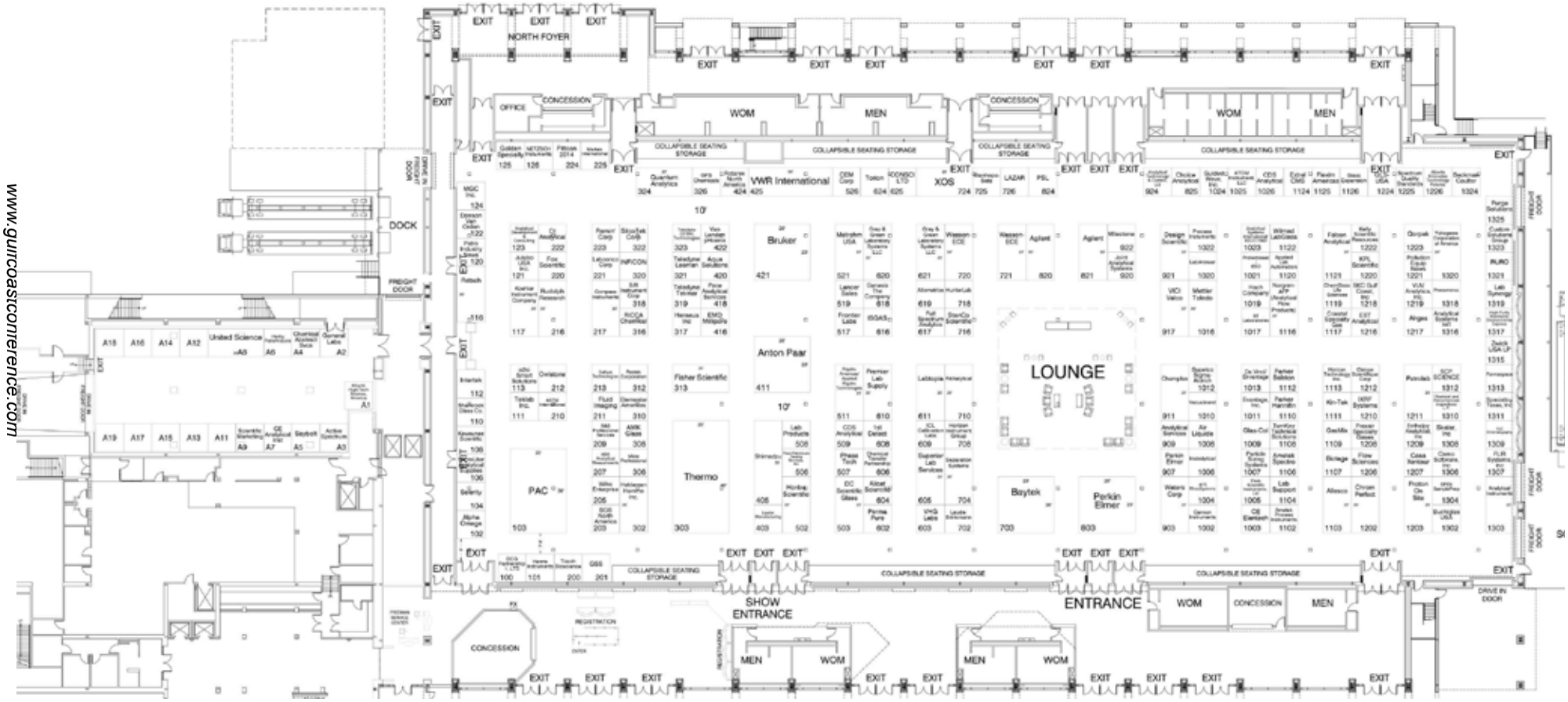
Abstract # 176 – 2:00 PM - 20 minutes – Floral Hall B – Wednesday - "Where Is It Going: Micro and Fast Chromatography, a Panel Discussion" - *Carl Rechsteiner, CRechsteiner Consulting* - Authors for the 3rd Annual micro and Fast Gas Chromatography Symposium will serve on the panel and invite attendees to share their analysis, opinions and perspectives on the presentations given. The panel discussion will be followed with refreshments and an opportunity to network with your colleagues. Paper Presentation

Abstract # 177 – 10:30 AM - 30 minutes – Floral Hall B – Tuesday - "Use of GCMS-SIM and GCMSMS in Studying the Composition of Petroleum Hydrocarbons in Environmental Samples Following Oil Spills" - *Edward B. Overton, Robert Wong, Scott Miles, Buffy Meyer, and Greg Olson* - Chemical analysis support following environmental disasters such as oil spills are critical in being able to understand and document the environmental impacts, and their extent and duration. Analytical concentration data is typically generated using high resolution GC/MS in selected ion monitoring mode for the saturate normal hydrocarbons (C10 to C35) and the isopreniods, pristane and phytane, and several families of polycyclic aromatic hydrocarbons, including parent PAHs and their C1 to C4 alkyl homologs. GC/MS-SIM data is also used for the oil source fingerprinting which relied heavily on the relative composition of the recalcitrant hopanes, steranes, and triaromatic steroids biomarker compounds (mass chromatograms 191, 217, 218, and 231). However, as the oil's composition is changed and reduced by environmental weathering, these analyses become more prone to analytical errors due to the low concentration of petrogenic hydrocarbons and the presence of naturally occurring background hydrocarbons. GCMSMS offers the potential to enhance the accuracy and reliability of these traditional SIM analytical present results that show comparative data between the NACE test and ASTM D7548, the accelerated test (AICT). Paper Presentation

Abstract # 178 – 8:50 AM – 10 minutes – Floral Hall B – Wednesday - "3rd Annual micro & Fast Gas Chromatography Symposium - The Revolution in Gas Chromatography! So What Took So Long?" - *John Crandall - Falcon Analytical* - No air bath ovens? Chromatographs on a chip? Directly heated columns? RESISTIVELY heated columns? Is there a revolution in gas chromatography happening before our very eyes? What's going on? The state of the art for gas chromatography has remained largely the same for more than 50 years. The advent of the fused silica open tubular column and the so called fast and micro GC technology are notable exceptions. But for the most part, high cost, huge, heavy, high thermal mass, slow, energy hog instruments burdened with lots of dead volume and having an injector, air bath oven and high volume detectors have dominated the market place. Why? This virtually unchanged anatomy seems to reflect resistance to advancement, improvement or really any change at all. Is it any wonder that gas chromatography has even been declared dead at a number of recent technical meetings? Invariably these kinds of statements are being made by practitioners of spectroscopy or other non-chromatographic analytical instrumentation who would love to "take over the world" of analytical chemistry. For the analytical chemist, the idea of using a spectrometer for a chromatographic job is a little like a carpenter trying to drive a nail with a saw. Fourteen years ago at the "2000 International Forum Process Analytical Chemistry Advanced Separations Symposium" one attendee asked if there even would be a GC in the year 2025 outside museums. Well no wonder? While small evolutionary improvements in gas chromatography have been made incrementally improving performance and reliability, it still looks… well… the same. Just compare the technology to the revolution represented by telephone technology. What, no cord? What, no bag? What, it flips and fits in my hand? What, there is a whole computer inside? In roughly the same timeframe as the advances in telephone technology, just how much have gas chromatography instruments changed? Hmmmm, still 200 pounds, 10 sq ft footprint, still 3 KW power, still belching heat in to the atmosphere, still slow and well … there is not much change! This is the third annual session at Gulf Coast Conference directed at exploring fast and micro gas chromatography, its development, capabilities, successes, failures and current state of the art. The papers being presented will shed light on the questions asked here and more. Basic instrumentation, sensing and software, applications, automation and advanced data processing are all part of the revolution. Seminar

Abstract # 179 – 11:10 AM – 30 minutes – Orchid – Wednesday - "Development of an innovative Test Technique to study the Iron Corrosion properties in a wide range of Petroleum Products" - Ms. Cindy Klager, Dr. Raj Shah and Mr. lmran Hussami - Koehler Instrument Company - Traces of moisture found in Petroleum Products will cause corrosion on the interior surfaces potentially damaging pipelines/lines, storage facilities and other contacted equipment, besides causing deposits in engines. The method currently used for determining the corrosive properties of gasoline and distillate fuels in preparation for transport through a pipeline was developed by the National Association of Corrosion Engineers {NACE). The NACE TM0172 Test Method takes over four hours to perform and requires 300ml of sample. While this has served the industry well for many years, there has been a strong interest from all the key stakeholders for a quicker method with faster turnaround, smaller sample size and better repeatability and reliability. Working closely with key refineries over the last few years, and with numerous experimental setups, a quicker, easier and more reliable method has finally been developed. This will save the industry significant time not only, for example, at pipeline transfer stations, but also for the chemical treatment of applicable products, refinery product shipments and other associated operations where a quick QC turnaround is both essential and profitable to determine if the product passes the corrosivity test. A new ASTM Test Method, ASTM D7548 for Determination of Accelerated Iron Corrosion in Petroleum Products has now been developed. This new ASTM Method uses only 50ml of sample and takes less than a fourth of the time (taken by the NACE Method) to complete the test. This paper will discuss, in detail, the development of this Test Technique, and the authors will also discuss the reliability of the accelerated test. Finally, the authors will also present results that show comparative data between the NACE test and ASTM D7548, the accelerated test (AICT). Paper Presentation

Abstract # 180 – 11:40 AM – 30 minutes - Orchid – Wednesday - "Development of an Automated Modular Permeation System for Creating Complex Calibration Gas Mixtures" - Ms. Danet M. Vrazel, Technical Sales & Service Mgr. - KIN-TEK Analytical Inc. - Creating complex gas calibration mixtures that are stable and accurate at ppm and ppb levels is challenging, especially when secondary dilution or humidity is required. Many permeation systems allow the use of multiple permeation tubes for creating a complex gas mixture, but few expand possibilities by adding modules specific to calibration requirements. Creating complex gas mixtures also requires complex tasks such as multiple calculations, various mechanical changes, and hands-on interaction that lead to calibration errors. This paper discusses the challenges of creating a complex gas mixture and provides a modular solution with automation that minimizes user interface and allows for remote operation. - Paper Presentation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Exhibitors 2014

1st Detect Corporation - 1st Detect Corporation offers the next generation of process analyzers by combining the analytical power, rapid analysis time, and sensitivity of a miniaturized ion trap mass spectrometer with ruggedized packaging, user-friendly software, and ease of operation. The versatile instrument can be customized to a wide variety of PAC/PAT applications and integrated directly into the process on the plant floor. Streams and ambient environments can be monitored in real time and time-trend analysis or alarm conditions reported over industry standard Ethernet RJ-45. **Booth** # 608

ABB Analytical Measurements - Founded in 1973, ABB capabilities encompass one of the largest portfolios of laboratory, at-line and process analyzers performing real-time analysis of the chemical composition and/or physical properties of a process sample stream. ABB's solutions combine analyzers, advanced process control, process and application knowledge to improve process performance, productivity and safety. ABB can be your single source provider for Hydrocarbon Processing analysis needs with HF Alkylir NIR Analyzer, Residue Analyzer, CDU Rundown, Naphta Feed and Gasoline Blending Analysis. **Booth** # 207

Active Spectrum - Active Spectrum manufactures a complete line of miniature electron spin resonance (ESR/EPR) spectrometers in Foster City, California. Applications include, but are not limited to: -Measure and monitor process additives in all hydrocarbon matrices -Elemental analysis -Spin trapping -Measure heavy fuel oils, marine lubricants, asphaltenes, and vanadium -Detect corrosion products. **Booth** # A3

Agilent Technologies - Agilent Technologies, the world's premier measurement company, manufactures and distributes the broadest range of innovative solutions to the petrochemical, refining, exploration, biofuels, alternative energy, and environmental industries. We offer instruments, consumables and services for separation sciences (GC, LC, CE and columns), mass spectrometry (GC/MS, LC/MS, ICP-MS, tandem and accurate mass MS), lab informatics (workstation and networked CDS, software productivity solutions), atomic spectroscopy (AA, ICP-OES, MP-AES), molecular spectroscopy (diode array UV-VIS, Cary UV/VIS/NIR, FTIR, FTIR microscopes), and advanced research products (NMR, X-ray crystallography) which are designed to help your lab achieve maximum productivity and profitability. Please stop by our booth to discuss your application needs with our sales and technical experts, attend one of our technical seminars, and see our exciting entry in the New Product Showcase. For more information, visit www.agilent.com - **Booth** # 820,821,822,823

Air Liquide - World leader in gases for industry, health and the environment. Air Liquide supplies products needed by a wide variety of industries including: environmental monitoring, laboratory, hydrocarbon processing, process control and manufacturing. Our Scott™ brand mixtures are widely regarded as being the most accurate calibration gases in the industry. ALPHAGAZ™ brand pure gases are a global benchmark for consistency and purity. Scott™ brand equipment delivers gases safely while protecting gas purity and integrity. **Booth** # 1008

Air Products - Our CryoEase(R) microbulk solutions provide the advantages of bulk supply to smaller-volume users of nitrogen, oxygen, argon and carbon dioxide. By filling on-site with our microbulk solutions, you can eliminate swapping full for empty cylinders and the inconveniences that come with it. **Booth** # A11

Airgas - Airgas,USA (NYSE:ARG), through its subsidiaries, is the largest U.S. distributor of industrial, medical, and specialty gases and related hardgoods, such as welding supplies. Airgas is also a leading U.S. distributor of safety products, the largest U.S. producer of nitrous oxide and dry ice, the largest liquid carbon dioxide producer in the Southeast, and a leading distributor of process chemicals, refrigerants and ammonia products. To locate your local branch, call 866-924-7427. To access Airgas on-line, go to www.Airgas.com **Booth** # 1217

Alberta Innovates Technology Futures - Fuels & Lubricants is a Tech Futures full service laboratory. Research capabilities cover a full range of petroleum product characterizations; from LPGs to refined products, to crude oil assays, to bitumens. The laboratory maintains ISO 17025 accreditation (Accredited Laboratory No. 41) through the Standards Council of Canada. Tech Futures' work with fuels and lubricants is nationally recognized and has grown to offer a diverse range of services to the oil and gas and renewable fuels industries. **Booth** # 1226

Alicat Scientific - From handheld portable flow calibrators that validate your flow rates in seconds, to fast-responding mass flow and pressure controllers that keep your processes stable, Alicat Scientific's mass flow and pressure instruments are designed to save you time. Laboratory-grade accuracy and repeatability, with NIST-traceable certifications and lifetime warranties, are standard features for all of our products. CSA Class 1 Div 2 (ATEX Zone 2) area certifications and NeSSI form factors are also available for most instruments. **Booth** # 604

Allesco - Concentration and flow measurement, dew point/moisture measurement, autoclave high pressure reactors and stirrers. **Booth** # 1103, 1105

Allometrics Inc. Allometrics is an independent service provider offering a wide range of calibration services covering many types of critical instrument assets and controlled environments. **Booth** # 619

Alpha Omega Technologies, Inc. - Alpha Omega Technologies (AOTI) is the premier provider of new, custom applicated and turnkey chromatography systems and related accessories. Our staff of application engineers and chromatographers utilizes instruments from industry leading manufacturers and custom configure each system according to your lab's specific needs. Installation, training, support and method development are all available from Alpha Omega. AOTI offers a wide range of custom applicated systems for GC, GC-MS, LC, and LC-MS platforms. **Booth** # 102

American Laboratory/Labcompare.com - American Laboratory strives to create a more informed buyer through electronic and print media. AL creates and distributes product news and information that reaches over 100K readers each month aligned to the market. We challenge and invigorate our readers with a deeper understanding and appreciation of events new ideas and new products aligned to science. Labcompare assures that the unique mission to provide information to the science community is not only preserved but grows. **Booth** # Publication Bin

AMETEK Process Instruments - AMETEK Process Instruments is a global manufacturer of on-line process analyzers. These products include the ASOMA Phoenix II Energy Dispersive X-ray Fluorescence (EDXRF) bench top analyzers for elemental analysis including the determination of sulfur in petroleum in accordance with ASTM 4294, and the ASOMA 682T-HP X-ray Transmission on-line Sulfur analyzer for crude oil, crude blending, bunker fuels, and other hydrocarbon products. The AMETEK Process Instruments products also include the Thermox WDG-V combustion efficiency, 5100 HD tunable diode laser, Dycor process mass spectroscopy and quartz crystal microbalance (QCM) moisture analyzers. **Booth** # 1102

AMETEK Spectro - Broad array of atomic spectroscopic instrumentation used to analyze the elemental composition of solids and liquids using optical emission, energy dispersive X-ray fluorescence (ED XRF), ICP, or ICP mass spectrometry measurement techniques for a variety of end markets, including metal production and processing, environmental testing, hydrocarbon processing, aerospace, food processing and pharmaceutical. **Booth** # 1106

AMK Glass - AMK Glass has manufactured petrochemical and laboratory glassware for over 40 years. Some of the items that we manufacture are D86 Flasks, D86 Probes, D95 Glassware, FIA Glassware, D1160 Flasks, and Quartz

Glassware & Automatic Burets. We also offer a repair & custom glassware service. We are dedicated to producing the highest quality products at the most affordable price. **Booth** # 308

Analytical Development & Consulting - Analytical Development & Consulting, Inc. (AD&C) offers turn-key solutions for gas chromatography, from heavily valved systems such as refinery gas analyzers, with or without sample automation, to simulated distillation and detailed hydrocarbon analysis. With over 35 years of chromatography experience, AD&C believes in understanding the customer's needs, whether the need is for new gas chromatographs or older units requiring support or modifications. AD&C is an expert in custom and standard gas chromatograph applications, equipment design, installation, service and training. AD&C offers spare parts and consumables for Agilent hardware. Customer Satisfaction and Support are our main concerns. AD&C serves multiple industries and vertical markets around the world, from petrochemical and oil & gas, to agriculture and pharmaceutical. **Booth** # 123

Analytical Services, Inc. - Analytical Services, Inc. is the leading industry expert in the manufacturing of single and multi- element organo-metallic standards for analysis of wear metals and additives. Also available is a wide range of sulfur, chlorine, nitrogen and metals standards that are currently catalog items or can be custom formulated. ASI offers a complete line of PE and PVC standards for RoHS/ WEEE compliance as well as glass monitoring samples for XRF. Titration standards such as Mercaptan/H2S, TAN, TBN, Bromine Number and Index are also catalog items, as is a complete line of biodiesel standards that satisfy ASTM D6751 and DIN EN14214. **Booth** # 909

Analytical Systems Int. Keco R&D - Analytical Systems International is the manufacturer of field proven laboratory and process analyzers for over 40 years. Analytical offering includes gas analyzers for total sulfur, CO2, H2S and liquid analyzers for Hydrocarbon (VOC) in Water, Oil in Water, TOC, and H2S in any free flowing liquid. Worldwide users include most major oil and gas companies including Chevron, Exxon, Shell Global, PEMEX, Saudi Aramco and many others. **Booth** # 1023

Analytical Technology & Control ltd (ATAC) - From our world famous brands of Hone and Hallikainen, we provide very high precision Physical Property Analysers to the oil & gas industry. Cloud point, Flash point, Vapour Pressure, Viscosity, Distillation, Boiling Point, Colour & Opacity are all measured to ASTM standards in real time. Our online analysers enable our customers to meet product specifications while reducing waste and driving up profits. This year we will add our Tunable Diode Laser (TDL) analyser range to our portfolio of process analytics, the new TDL analyser will be exhibited at this conference for the first time. **Booth** # 924

Anton Paar USA - Anton Paar produces high-quality measuring and analysis instruments for the petroleum industry including density and concentration meters, viscometers, rheometers, flashpoint testers, distillation units, penetrometers. polarimeters, refractometers, microwave synthesis, microwave decomposition, and instruments for X-ray structure analysis. For over ninety years, we have been at the forefront in developing solutions for diverse industries. Our strong emphasis on R&D and global partnerships with external research institutes fuel our innovation. We turn ideas into instruments at the cutting edge of technology. **Booth** # 411, 413, 510, 512

Applied Lab Automation Corporation - Applied Lab Automation Corporation (ALAC) is an automation solution provider for Lab instruments and process analyzers. ALAC provides system integration of Lab instruments with ALAC's software and hardware. ALAC's automation software provides auto gas or liquid sampling and smart data logger functions. Patent pending technology allows customer to create a universal calibration for samples in various matrices with limited standards. We also provide customized programming to meet your specific automation requirements. **Booth** # 1120

Aqua Solutions, Inc. - For more than 35 years, Aqua Solutions, Inc has manufactured solutions, and distributed chemicals to customers across the U.S. We offer ready to use analytical reagents, solutions, standards and chemicals as well as customized solutions and standards. Our offering includes products that conform to standards set by APHA, EPA, ASTM, ACS, and others. Many products are NIST traceable. As an ISO 9001:2008 certified company, Aqua Solutions will ensure each product is manufactured to meet customer requirements. **Booth** # 420

ASTM International - ASTM International offers the petroleum industry a broad range of products and services, including proficiency testing programs, technical training classes, 13,000 ASTM standards, 6 online ASTM Journals, certification, thousands of technical publications, and the ASTM Standards and Engineering Digital Library which provides instant access to almost all ASTM products. **Booth** # 210

ATOM Instrument, LLC - Recently acquired by Advanced Holdings, a Singapore SPX listed company, ATOM Instrument's principle applications are elemental analysis of total sulfur and nitrogen in petroleum products, fuels and distillates. Manufacturer of laboratory bench-top and online analyzers providing exceptional performance characteristics that include high stability, sensitivity, linearity and unsurpassed nitrogen rejection. Products analyzing total sulfur incorporate ATOM patented Excimer UV Fluorescence (EUVF) detection technologies and related methods development. **Booth** # 1025

ATS RheoSystems, a division of CANNON - ATS RheoSystems is a CANNON Instrument Company. We are your partner for rheology solutions. Our staff of expert rheologists offers instrumentation (both rheometers and viscometers), method and application development, consulting, and materials testing as well as instrument technical support, service and repairs. Stop by booth #1004 to learn more about our economical alternatives for your rheological characterization needs. **Booth** # 1004

Ayalytical Instruments - Ayalytical Instruments, Inc. supplies quality instrumentation to the petroleum, biofuels, lubricants and materials testing industries throughout the United States, Mexico, South America and Canada. Backed by an extensive product portfolio and more than 75 years' combined industry experience, Ayalytical's entire product line, expert customer support and response times are markers for the industry. **Booth** # 1303, 1305

B/R Instrument Corp - We manufacture lab scale distillation equipment for various applications including ASTM D1160, D2982 and D5236. We specialize in mini distillation systems for small petroleum samples (10ml to 1 liter. We also manufacture fractional distillation systems for high purity solvent recycling of GPC solvents such as TCB and HFIP. **Booth** # 318

Baytek International BLISS PROVIDER - Full featured VortalBLISS LIMS for the Refining, Petrochemical, Chemical, Bulk Pharmaceutical industries. Innovative architecture shortens implementation time and reduces cost. iPRO - a fully integrated instrument interface/automation module for all types of instruments: GC's, Mass Spec on line analyzers, titrators, ADA's etc. TurboTube - a sample vial distribution system for the entire laboratory. BayID - an advanced RFID sample tracking solution provides exact time and location for remote samples and uses information in Advanced Process Control Strategies. **Booth** #703,705,802,804

Beckman Coulter Life Sciences - Beckman Coulter will be displaying the LS13320Laser diffraction particle sizer with the Tornado dry powder module, the dry system measures from 0.375um to 2000um. Also on display, the new HIAC 8011+ Particle Counter for hydraulic fluids and other oils used for heavy equipment. The LS13320SW with Tornado will be running live, so if you have a dry powder please

bring it by BOOTH #1324 for a demonstration. Visit: www.particle.com **Booth** # 1324

Biotage - Biotage is a leading provider of Instruments and Consumables for use in Analytical Testing, including Sample Prep and Evaporation systems. Novel chemistries provide superior cleanup of tracers in petroleum and aqueous matrices. The ISOLUTE EPH fractionates extracts from soil. Sample prep systems include the PRESSURE+ 48, RapidTrace+®, and the new Biotage ExtraheraTM for Simplified Automated processing of SLE/SPE plates and columns. The TurboVap® Evaporators have a long-standing reputation for quality and reliability. **Booth** # 1107

Bruker Corporation - A leading supplier of innovative elemental and process analysis tools, Bruker's turn-key solutions are both ideally-suited for petrochemical analysis and come ready for immediate use. From research and development to process and quality control, Bruker can meet your most demanding needs and help you satisfy any requirements for worldwide accepted methods, such as ASTM standards. Our comprehensive choice of technological solutions from X-ray spectroscopy, GC-MS, MS, FT-IR, FT-NIR, Raman and NMR can provide key insights on the chemical analysis of petroleum; from upstream to downstream. Visit us in booth #421 to discover why our instruments are the most cost-effective quality control tools for fuels, lube oils, polymers & more. Find out more at www.bruker.com/petrochemicals. **Booth** # 421,423,520,522

Buchiglas USA - Buchiglas offers reactor systems for R&D, manufacturing, Pharma and fine chemicals. Pressure reactors from -1 to 400 bar, in sizes from 10ml to 300liters for research, hydrogenations, polymerizations, Catalyst and corrosion testing. We also offer pilot plants made from borosilicate glass & glass lined steel, in the range of 5-2,500 liters for use in R&D, and manufacturing of API's with our unique flexible glass connection, for vacuum tight, leak free, economic and safe processing. For additional details www.buchiglas-usa.com **Booth** # 1302

CAMO Software, Inc. - Booth # 1306

Cannon Instrument Company - Kinematic Viscosity and ATS-Rheology Instrumentation - from entry level to the fully automatic. NIST traceable viscosity & flashpoint standards. True ASTM D445 precision - CAV provides high throughput automatic KinVis testing of oils, specialty chemicals and additives. SimpleVIS and miniAV series offers a low cost alternative in KinVis automation. miniPV dilute solution instruments automate RV polymer testing for improved precision. Other products include Tanaka Flash, Cloud Pour-Point and Distillation Testers; KEM Densitometers, Refractometers and Titrators. **Booth** # 1002

Carbolite - Carbolite is the world leading manufacturer of high temperature furnaces and ovens for laboratory, research, and process applications. With more than 75 years' experience in thermal engineering we have developed a product range with a global reputation for performance, quality and reliability. Laboratory and industrial equipment is only part of our product portfolio, as we also have the expertise and experience to provide highly customized solutions as well. **Booth** # 116,118

CDS Analytical, LLC - With over 35 years of expertise, CDS Analytical is a leading global provider of innovative thermal sample preparation instrumentation for the analytical laboratory. CDS offers a complete suite of diverse front-end GC equipment including pyrolyzers, purge and trap, headspace, and thermal desorption systems. These robust, field-tested products provide the entire range of temperature, heating rate, and multiple step manipulations required by today's most demanding analytical laboratories. **Booth** # 1026

CE Elantech, Inc. - CE Elantech is the exclusive US Distributor for Thermo Scientific (formerly Carlo Erba) Combustion Elemental Analyzers and Next Instruments Near-Infrared Spectrometers. Featured instruments: **Thermo Flash 2000 Combustion Elemental Analyzer** is also available in a wide range of configurations: N/Protein through CHNS/O for both solid and liquid samples. **Thermo Microstructure** including Pycnomatic ATC Densitometer **Next Instruments** Near Infrared Transmission, NutriScan and SeedCount Image Analyzers. **Booth** # 1003

CEM Corporation - CEM is a leading provider of microwave laboratory systems for sample preparation. Process up to 40 samples simultaneously at the touch of a button with the MARS 6 Microwave Sample Preparation System. One Touch Methods require no programming, just select a method and MARS does the rest. The system also features built-in video tutorials. MARS meets the requirements of ASTM oil extraction methods and USEPA methods. CEM offers worldwide best-in-class applications and technical support. **Booth** # 526

Chemglass Life Sciences - In addition to our wide selection of standard and custom glassware, equipment and components for chemistry, we have begun adding products for chromatography and cell culture. We have the capability to produce not only the most complex glass apparatus, but also intricate electronic equipment and customized machined components. Please visit our website for more information: www.cglifesciences.com **Booth** # 1119

Chemical & Petrochemical Inspections, L.P. - Chemical and Petrochemical Inspections L.P. offers around the clock inspections and analytical laboratory support. Our certified gaugers are U.S. Customs approved. Our analytical support includes ASTM methodology as well as custom built, client specific applications. Our full time staff is available to assist in process troubleshooting and analytical method development. **Booth** # 1310

Chemical Abstracts Service - Chemical Abstracts Service (CAS), a division of the American Chemical Society, is the world's authority for chemical information. CAS is the only organization in the world whose objective is to find, collect and organize all publicly disclosed substance information. A team of scientists worldwide curates and controls the quality of our databases, which are recognized as the most comprehensive and authoritative by chemical and pharmaceutical companies, universities, government organizations and patent offices around the world. By combining these databases with advanced search and analysis technologies (SciFinder® and STN®), CAS delivers the most current, complete, secure and interlinked digital information environment for scientific discovery. **Booth** # A4

Chemical Transfer Partnership Corp. - Chemical Transfer Partnership Corp. (CTP) is a distributor of chemical processing equipment in the US and Canada. In addition to our extensive line of Huber Temperature Control Units we now carry Buchi Evaporators, Delta Nutsche Filters, and Iludest/i-Fischer Distillation Systems. We offer temperature control solutions for applications in Laboratory, R&D, Pilot Plants, Production and more. With a large variety of Heaters and Chillers we can accommodate any possible temperature requirements. The units consist of Immersion circulators, bath circulators, laboratory thermostats, heating circulator baths, refrigerated circulator baths, cryostats, hydraulically sealed circulators and chillers as well as customized solutions. **Booth** # 606

Chemplex Industries - "Making Spectroscopy Work for You™" with new Chemplex® XRF sample preparation equipment, accessories and supplies. Introducing 6.0 µm Zythene™, a NEW thin-film XRF Sample Cup window material characterized with high tensile strength, exceptional resistance to petrochemicals and the unique trait to contract resulting in consistent taut sample planes; supplied in convenient easy-to-use static-free SpectroMembrane® Carrier Frames. A NEW type of 7.5 µm Kapton® thin-film is available. This thin-film substance is "not controlled by Export Regulations (ITAR)" and limited to SpectroMembrane® Carrier Frames. A NEW generation of automatic 40 ton SpectroPress® pellet presses featuring the "AIDA" models, utilizing "Automatic Integrated Die Assembly" technology developed by Chemplex® Industries. All models include: a touch-screen with programmability of force and

dwell time; compact for any counter top operation. A NEW GyralGrinder® puck and ring grinder provides the user with the ability to alter the automatic impact of intensity. This feature enables the analyst to select the optimum condition for specific sample substances by controlling the frequency of impacts and time elapsed between impact occurrences. All operations and programming are performed through a touch-screen. SpectroFilm® Self-Sticking Safety Secondary Window Film, 3.6µ Mylar®, 3.0µ Prolene® and 3.0µ Etnom®; XRD Mineralogy Sets; SpectroStandards® XRF Reference Material Kits; Biodiesel SpectroStandards® Sets; XRF Sample Cup Work Stations designed to accept any assortment of 25-45mm sample cups; Thin-Film Sample Support Window Chemical Resistance Test Paper; 1.5µ Ultra-Polyester® thin-film; 3.0µ Prolene® and 1.5, 2.0 and 2.5µ aromatic hydrocarbon resistant Etnom® thin-film sample cup windows push the limit for sulfur and other light element transparency. Prolene®, Etnom®, Mylar®, Polypropylene and Polyimide (Kapton®) Thin-film sample support windows available in SpectroMembrane® Carrier Frames that offer no static cling, no contamination through handling, no waste, no experience necessary; continuous rolls and precut circles. Over 44 XRF Sample Cups inclusive of TrimLess® sample cups, SpectroSulfur® Analyzer cups, SpectroCup® internal overflow reservoir cups and Spectro-Micro® sample cups. SpectroCertified® petrochemical standards, single and multiple elements in SpectroStandards® brand individual units and sets; 12 Ton Manual and 40 Ton Automatic Standard or integrated die of choice SpectroPress® (AIDA) models; tempered stainless steel evacuable 13, 32, 35, 40 and 45mm sample diameter Pellet-Die™ briquetting die sets for standard pellet presses and SpectroPellet® Film die protectors; SpectroMill® and GyralGrinder® grinding and blending machines; hardened steel and tungsten carbide comminution vessels; compressible tapered aluminum 13, 32, 35, 40 and 45 mm diameter briquetting PelletCups® powdered sample cups and specially formulated compressible 32, 35 and 40 mm diameter plastic tapered PlastiCup™ powdered briquetting cups; powdered and tabletted X-Ray Mix® and SpectroBlend® Grinding/Binding additives; pre-fused Fusion-Flux™ formulations; XRF accessory products. Visit the NEW Chemplex® website. "Order On-Line Anytime" at www.chemplex.com. **Booth** # 911,913

Choice Analytical, Inc. - Choice Analytical is a manufacturer's representative focusing on laboratory and process control instrumentation. We are strategically located along the Gulf Coast. This ideal location allows us to stay on top of the latest developments and trends in the Petroleum and Petrochemical industries and enables us to quickly respond to customers' needs and requests. We are the exclusive Sales Representatives for Phase technology, XOS and Stanhope Seta. Choice Analytical Inc., is debuting the newest member of the family, the State of the Art instrument for measuring Saybolt and ASTM color in the compact Color Choice 2 **Booth** # 825

Chromperfect (Justice Lab Software) - ChromPerfect chromatography software for HPLC and GC analysis. Many instrument control options available. Direct interfacing to chromatography instruments. Full featured single instrument chromatography software packages. Enterprise wide multiple-instrument chromatography data system solutions. We offer systems that will connect to your existing laboratory and computer equipment with a flexible licensing system that allows you to share important data throughout the laboratory and the whole organization. Analog output of chromatographic results. On-line process control systems, sampling and instrumentation. SEC/GPC, NatGas, Simulated Distillation, DHA **Booth** # 1202,1204

Claisse, Corporation Scientifique
Pioneer and world leader in the field of sample preparation by fusion for XRF, AA and ICP analysis. Claisse® manufactures gas and electric fusion instruments, ultra-pure, fused borate fluxes and high-quality platinum accessories. Its main industrial customers are cement plants, mining companies and lime, bauxite, aluminum, ferroalloys, steel, pure metals, catalysts, polymers, ceramics, glass, petroleum and oil companies. In addition to these sectors, Claisse® also serves universities and laboratories that are involved with geology and mineral prospecting. - **Booth** # 1212

Coastal Specialty Gas - Serving the Petrochemical Industry since 1963, Coastal is your single source for Industrial and Analytical gases and equipment. Coastal Specialty Gas focuses on production of Ultra High Purity carrier gases and precision Calibration Standards, including complex hydrocarbon mixtures, EPA Protocols, HRVOC, and CEM standards. Coastal's products are produced locally for prompt on time delivery. Coastal is a member of the North American Purity Plus Quality Assured Laboratories Group, and is an ISO17025 production facility. **Booth** # 1117

Compass Instruments - Compass Instruments is your Source for Fuels, Lubricants and Materials Testing equipment including Waukesha CFR products, eralytics GmbH, Falex Corporation, Haltermann Reference Fuels, Normalab, PCS Instruments, Parker particle counters and Pilodist GmbH. A short sampling of our distributed equipment includes Oxidation Stability of Aviation Turbine Fuels (D3241), Octane (D2699, D2700), Cetane (D613, D7170), Vapor Pressure (D5188, D5191, D6377, D6378, D6897, CCCQTA), Fuel Lubricity (D5001, D6078, D6079, D7688), Distillation (D86, D850, D1078, D1160, D2892, D5236), Flash Point (D56, D92, D93, D6074, D7094), Oxidation (D525, SAE), Penetration (D5, D217, D937, D1321, D1403), Cold Flow (D97, 2500, D6371), PRF Reference Fuels and Blending Stations for Octane and a wide variety of instruments for Tribology Testing from Falex, PCS Instruments and Tetra as well as more extensive petroleum testing equipment capabilities. This state-of-the-art technical equipment is supported by one of the most experienced Sales and Service groups in North America. **Booth** # 217,219

CONSCI, LTD. - Founded in 1988, Consolidated Sciences (CONSCI, LTD) is located just outside Houston in Pasadena, Texas. In our 10,000 square feet of controlled access laboratory with state-of-the-art analytical equipment, we specialize in both routine and non-routine gas samples for semiconductor, environmental, and petroleum / petrochemical industries.
Booth # 625

COSA Xentaur - COSA Xentaur provides high technology instrumentation for a wide range of applications in petrochemical, energy, environmental, pharmaceutical, semiconductor and plastics industries. **Booth** # 1207

CryoGas International - CryoGas International is the leading business journal covering the North American Industrial, Medical, and specialty gases industry, published in print and digital formats, Twelve (12) times per year. We cover breaking industry news on our website, www.cryogas.com. Industry news, columns, and feature article summaries from our monthly journal are also posted each month online, where a digital sample of our magazine is available. Please contact Kevin M. Carr at kevin.carr@gasworld.com or call 1-203-997-6674 for a meeting during the Gulf Coast Conference 2014. **Booth** # Publication Bin

Custom Solutions Group Custom Solutions Group designs, builds, and commissions new and used gas chromatographs, customized to meet the needs and the specific analytical challenges of scientists, chemists, engineers, and technicians in a variety of industries, including: petroleum and petrochemicals, specialty gas, chemicals, research, biofuels, and the semi-conductor gas industries. Custom Solutions Group develops working methods for a variety of industry standards, including ASTM, GPA, ISO, IP, and ARI methods. We provide customized on-site and off-site training in basic gas chromatography, GC troubleshooting and maintenance, GC valving and system design, and advanced gas chromatography. We also provide on-site analytical troubleshooting and repair. Because we re-build and re-commission used GCs, the useful service life of older assets can be greatly extended for pennies-on-the-dollar. Also, because we are highly proficient in a variety of chromatography hardware and software, we are able to adapt to any lab environment. **Booth** # 1323

Da Vinci Laboratory Solutions B.V. - Da Vinci Laboratory Solutions (DVLS) is a supplier of high-performance analytical solutions enhanced by our wide ranging expertise in chromatography and mass spectroscopy. Examples of our solutions are the DVLS Liquefied Gas Injector; a high pressure liquid sampling chromatography technique for the analysis of oily residues and contaminants in C3 and C4 streams (ASTM D7756-13), and the DVLS3 Simply, Smart Sensor dedicated to a safe hydrogen leak detection and more. Next to hydrogen leak detection Da Vinci offers also sensors for the detection of Hydrogen, Temperature, Barometric Pressure and Level (liquid) weight. The unique design of the DVLS3 Simply, Smart Sensor allows to combine up to four sensors in one controller unit. **Booth** # 1013

DANI INSTRUMENTS - DANI is a European worldwide provider of gas chromatographic solutions, with strong experience in developing and manufacturing GC and Autosamplers for Volatiles and Semivolatiles compounds. The product line includes: HRGC for Fast GC, an innovative High Speed TOF-MS for GC, Autosamplers as Valve&Loop Static Headspace, Dynamic Headspace, Purge&Trap and Thermal Desorber. The product portfolio is completed by GC Turn-key analyzers, acquisition software, GC consumables. DANI is engaged in the development of custom configurations. **Booth** # 424

Dawson Van Orden - Dawson Van Orden, Architects/ Engineers, was founded 1974, Houston, Texas. Our laboratory design team has planned, programmed, designed and supervised construction of over a dozen successful laboratory facilities for the petrochemical industry. We offer technical expertise and experience to create laboratory facilities that are safe, functional, cost effective and meet the specific needs of the laboratory user group. Additional design services include building evaluation, safety audit, architectural programming, LEED design certification, estimating and building inspections. **Booth** # 122

DC Scientific - DC Scientific is an ISO 9001 registered manufacturer of precision glassware products and ASTM glassware, testing equipment, and accessories for the petroleum laboratory. DC manufactures products ranging from viscometer tubes to FIA Systems to temperature probes for leading brands of equipment. DC is also partnered in the United States with AD Systems, B/R Instrument, Paragon Scientific, Tintometer, Horiba and Tamson to provide world class products for petroleum testing. DC Scientific also provides service for most major brands of petroleum testing equipment and is a Tintometer, Tamson, and Horiba Certified Service Center. **Booth** # 503,505

DCG PARTNERSHIP 1, LTD - DCG Partnership is a premier supplier of primary calibration standards and certified reference materials. DCG chemists have developed specialized gravimetric and analytical techniques to manufacture standards for chemists employed in research, education and production facilities worldwide. To use these standards correctly DCG provides its clients with technical assistance in method development according to ASTM and ISO standards. **Booth** # 100

Design Scientific - Design Scientific offers solutions that enhance laboratory workflow, spanning solution and solute preparation, solvent mixing for chemical analysis, and chemical purification. **Booth** # 921,923

Elementar Americas, Inc. - Visit us at Booth 310 to learn about the trace SN cube: our unique catalytic combustion process enables injection of 80µl over just a few seconds with no coking in sulfur analysis of fuels, resulting in true ppb determinations. The integrated vario Liquid Autosampler provides precise injections, and features random access and multiple injection capability. An option is available to eliminate interference from nitrogen content. The trace SN cube can also analyze chloride. The analyzer has two completely independent channels of analysis. The following modes are possible: S, N, S&N, Cl&N, Cl&S. Stop by and learn about this and other colorful members of the cube family of CHNOS analyzers. Our CHNOS analyzers are designed for your application - from mg CHNS analysis on the vario MICRO cube to multiple gram robotic sample handling on the vario MAX cube. We offer the smallest footprint, the best reliability, and the best warranty in the industry. Ask our users about our friendly customer and technical service. **Booth** # 310

EMD Millipore - EMD Millipore is a division of Merck KGaA and is a leading supplier to the global life science industry for laboratory chemicals, lab water equipment and consumables. The Lab Solutions business unit supplies products for research, analytical and clinical laboratories in a wide variety of industries. For inorganic chemistry, EMD Millipore offers reagents of high purity such as salts, acids, caustics, volumetric solutions, buffers, reference materials for instrumental analysis and products for inorganic trace analysis. For organic chemistry, EMD Millipore supplies a full range of basic products for synthesis; including building blocks, reagents and solvents most commonly used in organic synthesis from laboratory scale to bulk production. As a leading supplier of chromatography products, EMD Millipore is also advancing the development of analytical separation technologies. **Booth** # 416

Enthalpy Analytical, Inc. - Enthalpy analyzes pollutants and other analytes in air. Our laboratory is equipped to handle a wide variety of samples from part per trillion to percent by volume. Enthalpy is a project oriented laboratory. We see ourselves as your partner in your project, not just recipe followers. Our key people have extensive experience outside the laboratory. This direct industry experience allows us to see each project from your point of view. **Booth** # 1209

Envantage, Inc - Envantage, Inc. provides hardware and software solutions for petroleum and petrochemical analytical chemistry laboratories. We build applicated systems and analyzers and offer unique instrument solutions to difficult analytical problems. An example is our "Super GC" - a High Pressure Reservoir Liquid/Gas Analyzer. We also distribute the Da Vinci LGI analyzer, used for LPG and butadiene analysis. Software solutions include SimDis and DHA applications as well as other laboratory data management and reporting tools. **Booth** # 1011,1013

EST Analytical - EST Analytical is privately held and rapidly growing company that has become a leading Manufacturer and Distributor of analytical instrumentation including parts and consumables for laboratories around the world. They have been providing purposefully innovative solutions with best-in–class Service and Support for over 24 years in a diverse range of markets including Environmental, Petro-Chemical, Food/Flavor, and Pharmaceuticals. **Booth** # 1216

Extrel CMS - Fifty years ago, two professors revolutionized the landscape of mass spectrometry and gas analysis by developing innovative power supplies. Their discoveries became the foundation of Extrel—the world's leading manufacturer of state-of-the-art research and process mass spectrometers, residual gas analyzers, and quadrupole mass spectrometry components. Since 1964, Extrel's instruments have been recognized for their exceptional performance, reliability and flexibility, and are complemented by the most comprehensive application, technical and on-site support in the industry. **Booth** # 1124

Falcon Analytical - Falcon Analytical Booth # 1121 & 1123 – Come see the proven Calidus Ultrafast Gas Chromatograph incorporating the most innovative technology in GC's over the past 30 years. The Calidus Ultrafast GC incorporates a patented resistively heated stainless steel capillary column and patented modular design. Analysis times are 10-50 times faster than conventional lab or process GC's at one tenth the size and using one tenth the power. It can measure fixed gases and hydrocarbons up to C50 with a full suite of Detectors for Process, Laboratory, and Transportable applications. The analyses are used for product specifications testing, product safety, environmental testing and measurements, process control, catalyst protection, educational tools, spot checks of fuels and many more. **Booth** # 1121,1123

Fisher Scientific - Fisher Scientific is a leading provider of equipment, instrumentation, chemicals, consumables and services to the worldwide scientific community. From chemicals to consumables, chromatography to titrators, equipment to test kits we provide the products you need to support research, testing and production. Our extensive portfolio is unrivaled in the industry allowing Fisher Scientific to serve as your single source for infinite solutions. **Booth** # 313,412

FLEXIM AMERICAS Corporation - As a technical leader in the field of clamp-on ultrasonic flow measurement, FLEXIM offers you the ideal flow meter - even for the most demanding challenges. Whether it is for liquids or gases, extreme temperatures, high pressures or highly variable flow rates in thick walled pipes, our FLUXUS range of permanent or portable liquid and gas flow meters are the measurement system of choice. **Booth** # 1125

FLIR Systems, Inc. - Chemistry happens outside the lab – so should analysis. FLIR Griffin™ mass specs deliver lab quality results in field-ready packages that anyone can use. The user interface offers quick, accurate answers that lead to action. Rugged form factors and sampling accessories allow the products to be deployed in an array of environments, from road-side spot testing for fuel markers to environmental monitoring. Simple result data arms operators with confidence – no matter where the mission takes them. **Booth** # 1307

Flow Sciences, Inc. - FSI) Flow Sciences, Inc. designs and manufactures containment solutions for research and development laboratories, pilot plants, laboratory automation suites, manufacturing and production sites. Our commitment to safety and performance in the engineering, design, testing, and installation of containment enclosures has proven performance throughout pharmaceutical, biotech, chemical, forensic, academic, government and other industrial facilities. - **Booth** # 1206

Fluid Imaging Technologies - Fluid Imaging manufactures the FlowCAM® family of imaging particle analysis systems for the petroleum industry. Benchtop FlowCAM instantly displays particle size and shape distributions and concentrations for laboratory analysis. The portable, lightweight PetroCAM® provides rapid, automated analysis of oil droplets and solid particles in produced water. The FlowCAM-ES is a custom engineered, at-line system for use in analyzing particles in drilling fluids. The self-contained, Portable FlowCAM imaging particle analyzer runs on DC for field use. **Booth** # 211

Formaspace - Formaspace specializes in designing, manufacturing, and distribution of workbenches, mobile workstations, and furniture for laboratory and technical environments. Our elegant, practical, and flexible solutions increase our clients' productivity and efficiency. We design laboratory furniture for energy, education, government, and industry. Formaspace makes sure you get furniture that is particularly suited to your needs, when you need it, and within budget – if you can dream it, we can build it. Formaspace, laboratory furniture for what's next. **Booth** # 1313

Fox Scientific, Inc. - Fox Scientific, Inc. was established in 1988. We offer a full line of laboratory supplies, equipment and chemicals from a wide range of manufacturers. Our online catalog makes ordering online a breeze. **Booth** # 220

Frontier Lab - Frontier Labs' engineers and markets a multi-functional pyrolyzer designed for the materials characterization laboratory. This fourth-generation, multi-functional GC inlet system can chemically characterize most gases, liquids and solids. The new EGA/PY-3030D Multi-Shot Pyrolyzer offers a choice of multiple analytical techniques: evolved gas analysis (EGA), thermal desorption (TD), reactive pyrolysis (RxPy), single-shot pyrolysis (Py), multi-shot thermal desorption/pyrolysis, heart cutting (HC-EGA), UV pyrolysis and high pressure reactive analysis. Accessories include a 48 sample Auto-Shot Sampler, Micro UV Irradiator, On-line Micro Reaction Sampler, Micro TD Sampler, MicroJet Cryo-Trap, Vent-free GC/MS Adapter, Ultra ALLOY stainless steel capillary columns, and F-Search Software with GC/MS libraries. The system can be installed on most GC/MS systems. A new product is the Tandem micro-Reactor (Rx-3050TR) designed for rapid screening and evaluation of catalysts used in chemical processing. Chemical and process engineers will find the Tandem micro-Reactor a welcome and useful analytical tool for the rapid screening of catalysts using GC/MS. **Booth** # 517

Full Spectrum Analytics Inc. - Full Spectrum Analytics, Inc. is a premier maintenance and service company specializing in Gas Chromatography (GC) products manufactured by HP, Agilent, Varian, Wasson, Bruker, Shimadzu and others. Established in 1992 we have 14 offices throughout the US. Our petroleum products specialists are based in Houston to support the Gulf Coast Region. We offer maintenance agreements, Preventative maintenance plans, competitive billable rates, loaner equipment, replacement parts, pump and autosampler repair programs. Our specialty is GC, HPLC and GC/MS support. **Booth** # 617

Gases & Instrumentation International - Gases & Instrumentation International Magazine (G&I) is a definitive source of current information on the technology and application of industrial, specialty, and medical gases. G&I is designed for anyone involved with detection, analysis or delivery of gases from the university research laboratory to the production line. Vertical markets covered include semiconductors, medical and pharmaceutical, chemical processing, electronics manufacturing, welding, food and beverage, homeland security, and others. Subscribers in over 89 countries. Free subscriptions available at www.gasesmag.com. **Booth** # Publication Bin

GasMix - Create your own gas standard GasMix™ allows mixing or diluting two to twelve gases in order to create a secondary standard, specific to the user's need and/or application, or to feed pilots or instruments. Being able to create one's own standard, the user gains flexibility. Flexibility towards the gas supplier: the orders are easier and less frequent because concentrated gases are more easily available and consumption is smaller. Flexibilty towards analytical applications: different gas standards can be made from one day to another, from the same cylinders. **Booth** # 1109

GE Analytical Instruments - Visit our Booth to see the robust Sievers InnovOx Laboratory and On-Line Total Organic Carbon (TOC) Analyzer from GE Analytical Instruments that runs tough industrial process, environmental, and wastewater samples—including brine and cellulose—with unprecedented uptime. Using an innovative Supercritical Water Oxidation technique, the InnovOx offers superior analytical performance and up to 6-months' calibration stability. Hazardous location enclosure and multi-stream capability available. Schedule an on-site demo by contacting 800 255 6964, or www.geinstruments.com/InnovOx. **Booth** # A7

General Laboratory Supply - General laboratory supply is a full line laboratory consumables dealer. **Booth** # 213

GenesisTC, Inc. - Analytical Instrument Repairs & Service GenesisTC® was founded in 1996 to bridge the gap between big manufacturers and distributors when it comes to high quality customer service and highly competitive pricing, not only in service but also, in instrument parts. GenesisTC® services elemental analyzers in sulfur and nitrogen detection. GenesisTC® is more than your elemental analyzer service provider, we are your analytical instrument specialist. **Booth** # 618

GFS Chemicals, Inc. - GFS Chemicals, Inc. is a primary manufacturer of thousands of analytical reagents, primary standards, and NIST traceable standard solutions - Since 1928. Products include: Watermark® Karl Fischer Reagents; Veritas® High Purity Acids, Solvents, and Primary

Standards; AMCO Clear® certified reference materials for turbidity analysis; and IN-SPEC® - your economical NIST traceable answer to UV-Vis verification/validation. With over 7500 items and unparalleled customer service your lab›s reagents are close at hand. NEW for 2013 - GFS Chemicals› announces its A2LA Accreditation to ISO/ IEC17025:2005. Scope of test methods so far include: pH, conductivity, UV-Vis and turbidity. **Booth** # 326

Glas-Col, LLC - The FlexiVap Evaporation Workstation, ideal for reducing nitrogen consumption, is from our extended line of concentrator/evaporators and offers quick, efficient removal of solvents. Also see the shakers approved for various EPA methods. Glas-Col offers one of the largest selections of heating mantles and custom heating jackets in the world plus a complete line of temperature controls and monitors. Now offering a wide range of safety accessories, Glovebags, safety shields, flow monitors and lead stability products. **Booth** # 1009

Glass Expansion - Glass Expansion manufactures a wide range of sample introduction products for ICP-OES and ICP-MS instruments, including nebulizers, spray chambers, torches, RF coils, and ICP-MS cones. Regardless of your sample matrix, we can supply the optimum components for your analysis. Innovations include: IsoMist Programmable Temperature Spray Chamber, Capricorn Argon Humidifier, TruFlo Sample Flow Monitor, D-Torch Demountable Torch, Niagara Rapid Rinse, Niagara Plus Flow Injection system and Assist Syringe-driven Sample Introduction System. **Booth** # 1126

GLS-USA - GLS-USA is a manufacturer of laboratory glass, plastics and equipment. Based in NJ GLS brings together five manufacturing locations throughout the Middle East into the USA to serve the lab markets for North and South America. Featuring all lab glass ware and temperature controllers, rotary evaporators and other equipment as well as glass pilot plants up to 100Liters **Booth** # 1224

Golden Specialty, Inc. - Golden Specialty was founded in 1997 to provide expert environmental testing and consulting services for clients in the greater Houston/ Galveston area. We now have offices in the Pacific Northwest, Southwest, Midwest, and Northeast. We offer services throughout the US and internationally. Testing firms and industrial facilities look to Golden Specialty's lab for great service and rock solid data. Our accreditations include TCEQ, LELAP, and NELAP. Our Deer Park, Texas location is convenient for clients nationwide. **Booth** # 125

Government Scientific Source - Government Scientific Source is the leading dedicated supplier of laboratory equipment and supplies to federal, state, and municipal government laboratories. GSS offers the widest selection of brand name products and the most procurement channel options in the industry. We maintain multiple GSA federal supply schedules, as well as custom procurement mechanisms to facilitate procurement administration and compliance. **Booth** # 201

Gray & Green Laboratory Systems, LLC - For over 36 years the team of Gray & Green Laboratory Systems along with a variety of strategic alliance partners have been involved nationwide solving the specific problems of designing, building, and supplying custom or standard fixed laboratory equipment. This Includes casework, fume hoods, specialized fume exhaust systems for all laboratory needs in all type of laboratory environments. We look for the most practical and innovative ways to build your lab whether you are remodeling and must keep your lab operating while making those critical updates or you are budgeting for a new facility or you just need a new sink cabinet. Stop by and find out what the proven experience of Gray & Green can do for you. **Booth** # 620,621,622,623

Guided Wave, Inc. - Guided Wave engineers and manufactures complete NIR and UV/Vis spectroscopic analyzer systems for continuous online, real-time lab data for process analysis, process knowledge, and quality control. For over 30 years, our robust sample interfaces (probes, flow cells) connected to process-proven spectrometers and photometers via patented high-performance fiber optic cables, along with custom calibration modeling services and application support, result in complete online analytical solutions. Designed for optimal performance, better stability, and accuracy, you get insight and real time information on your process; ensuring consistent product compliance, every time. Guided Wave - Control You Can Measure. **Booth** # 1024

Hach Company - For over 60 years, Hach Company (www.hach.com) has been developing innovative solutions used to test the quality of water, other aqueous solutions and air. Manufactured and distributed worldwide, Hach systems are designed to simplify analysis by offering sophisticated on-line instrumentation, accurate portable laboratory equipment, high-quality prepared reagents, complete easy-to-follow methods, and life-time technical support. Hach is a wholly owned subsidiary of Danaher Corporation (www.danaher.com), a Fortune 500 leader. **Booth** # 1019

Haldeman Homme Inc. Since 1924, Haldeman- Homme, Inc. has been a leading resource of facility solution products and services; utilized in education, healthcare, industrial & government markets. We are a full service supplier of industry leading, quality products, as well as full design, construction, project management, installation and maintenance services company. Our mission is to be part of the team to help make your vision a reality. Clients commend us for doing it by listening and building a relationship of commitment and performance. A 100%, Employee company, built around our vision of, Exceeding Customers Expectations. **Booth** # 302,304

Hanby PetroAnalysis - Hanby PetroAnalysis has developed a new method for fingerprinting of hydrocarbons including crude oils; Hanby Chemical Reaction Spectrophotometry. The New Hydrocarbon ID is a field device that utilizes a chemical reaction and a spectrophotometer to get a spectral curve or fingerprint of the hydrocarbon for both qualitative and quantitative analysis. This is a totally new platform and field ready technology to finger print hydrocarbons for both the oil & gas industry and the environmental industry. This new development represents a paradigm shift in the E&P industry and put a lab in the field for the environmental industry. **Booth** # A6

Hanna Instruments - Hanna Instruments is a 30 year old manufacturer, offers a variety of EPA approved testing equipment for environmental testing, field sampling, and on-site laboratory operations and management. Hanna's offers multiparameter meters, testers and photometers needed for environmental analysis. **Booth** # 101

Heraeus Platinum Labware - Heraeus is a leading manufacturer and refiner of Platinum Labware and custom precious metal products worldwide. Established in 1856, we specialize in crucibles, dishes, and laboratory equipment for use in the Petrochemical and other industries. Working directly with the manufacturer allows you to recover the highest value from your used Platinum Labware and apply this value directly to your order. As a recognized leader in Platinum Labware, Heraeus offers world-class customer service and technical support. **Booth** # 317

High Purity Standards/Environmental Express
High-Purity Standards is an ISO Guide 34 and ISO 17025 accredited manufacturer of organic and inorganic Certified Reference Materials (CRMs) for IC, ICP, ICP-MS, XRF, GC, HPLC and GC/MS. All CRMs traceable to NIST where available. We also manufacture custom standards. Environmental Express manufactures and distributes environmental laboratory equipment and consumable supplies for commercial, governmental, industrial and academic laboratories. We work with labs of all sizes to reduce bottlenecks, streamline operations, and increase accuracy. **Booth** # 1317

Hitachi High-Tech Science, America - Hitachi High-Tech Science cultivates unique technologies and produces numerous innovative analytical and measurement instruments, particularly for thermal analysis and XRF. These products have a reputation as being robust in design and manufacture, and they are used in a wide range of industries. Recently, Hitachi introduced sample observation technology on several of its thermal analysis instruments. **Booth** # A1

Horiba Instruments - HORIBA Scientific offers a variety of elemental analyzers for use by the petroleum industry. These include several types ED-XRF instruments used to measure low levels of sulfur, chlorine and metals in crude oils, refined fuels and blends, biofuels, water, and chemicals. HORIBA will also display the new product: the MESA-7220, the multi-element, low level sulfur in oil analyzer. The Camsizer-L for characterizing proppant beads will also be on display. Along with HORIBA's ICP Spectrometers and Optical Emission products, HORIBA Scientific continues to be a leader in providing the petroleum community with analytical solutions. **Booth** # 502,504

Horizon Instrument Group, LLC - Horizon Instrument Group is an Agilent© OEM bundling its Diplomat and integration technologies with the Agilent 7693A auto sampler products to provide a seamless ALS solution for the legacy 5890 and the 6890A GC. Agilent strategic service provider CSA and HIG have teamed to offer an intelligent migration path to current Agilent GC products and services for legacy GC owners. **Booth** # 708

Horizon Technology Inc. - Horizon Technology is a world leader in automated sample preparation systems for the analysis of semivolatile organic compounds and Oil and Grease testing. We offer both disk and cartridge-based extraction automation for environmental, clinical, food and beverage and other markets. Extract drying and evaporation complete the offering. Come see our well-established and proven system for Oil & Grease analysis and talk about making your laboratory more efficient! **Booth** # 1113

HunterLab - HunterLab is the recognized industry leader in the field of color measurement. Founded by the pioneering developer of the science and technology behind color measurement, including the L,a,b color space, HunterLab has over 60 years of history in developing the most consistently accurate, most cost effective color measurement solutions specifically designed and optimized for your industry. See why HunterLab is the world's true measure of color. **Booth** # 718

ICL Calibration Laboratories, Inc. - An ISO/IEC 17025 Accredited Calibration Laboratory offering A2LA accredited, NIST Traceable Calibration Services for Thermometers, Hydrometers, Weights, Humidity devices and Volumetric Glassware. ICL is also a leading supplier of ASTM & non ASTM thermometers, Hart Scientific brand Platinum Resistance thermometers and Industrial RTDs, Digital Thermometers, ASTM Hydrometers, ASTM Weight sets, ASTM & Petroleum glassware, Humidity equipment, Viscometers and Viscosity Standards. For our customers involved with petroleum gauging and inspection, ICL offers ThermoProbe Digital Gauging thermometers, Lufkin Oil Gauging tapes & bobs, NIST traceable tape verification services, MMC Intl. Tri-Mode (UTI) Gauging tapes, samplers and vapor control valves, Petroleum Samplers, Factory Authorized repairs and recalibration services for both ThermoProbe and MMC Intl. as well as many more gauging accessories. For a complete listing of ICL's products and services, please visit www.icllabs.com. **Booth** # 609

INFICON - INFICON provides world-class instruments for gas analysis, measurement and control. INFICON offers a compact, transportable, easy to use Micro GC Fusion® to provide lab quality results in the field. Now there's no need to wait for lab results. The award-winning Micro GC Fusion enables fast and accurate gas composition analysis for on-site, transportable and laboratory applications including natural gas, refinery gas and mud logging. Building on proven Micro GC technology, coupled with temperature programming, Micro GC Fusion covers extended (up to C12) gas phase analysis with excellent sensitivity and repeatability. The sensitive, smart, easy-going Micro GC Fusion is the perfect blend of ease-of-use coupled with powerful analytical capabilities to meet the most challenging gas analysis needs. For more information, visit our website at www.inficon.com,e-mail us at reachus@inficon.com. **Booth** # 320

Instralytical - Instralytical is a very successful team of partners who represent carefully selected analytical instrument manufacturers. Current representation includes the ICP, ICPMS, and Arc/Spark OES product lines from Spectro Analytical Instruments and the Discrete Analyzers from Unity Scientific. Instralytical is a sister company of Texas Scientific Products, a leading manufacturer and supplier of ICP/ICPMS/ XRF consumables, Viscometer vials, and Inorganic Ventures standards since 2004. **Booth** # 1006

Intertek - Intertek provides professional 24/7 chemical and petroleum laboratory testing capabilities, cargo inspection, and many other technical services. Intertek expertise supports the regional and global petroleum and chemical industries. Laboratory testing and expertise includes ASTM and ISO methods, along with advanced troubleshooting and problem solving expertise. Visit www.intertek.com/petroleum to learn more. **Booth** # 112

ISGAS, Inc. - ISGAS is a supplier of custom calibration standards for many industries - Refining, Chemical, Research & Development and many others. We offer a full range of hydrocarbon standards including - Gases, LPG/LNG, Liquids, ASTM/UOP, Sulfur, CEM, HRVOC, etc. We can ampulize you process streams, and even offer custom distillation work. We can also build gas chromatograph's for your specific needs. We specialize in HRVOC Standards. **Booth** # 616

IXRF Systems - IXRF Systems Inc .offers the most robust and analytically capable mobile EDXRF tool available to the oil and gas industry. The CompassTM Mobile X-ray Lab enables true lab quality analysis in the field. Compass TM may be used to directly analyze hydrocarbon fluids, detect oil-bearing strata, improve mud-logging or support geosteering. Compass TM is also ideal for finding target zones and boundaries as well as determining fracturability and productivity. Collect trace chemical composition of surface/subsurface soils, cores, and cuttings from a plug, battery, or even a 12V jack on a vehicle. Units include deck lighting, sample storage, USB hub and a 60kV, 12W x-ray tube. Additionally, Compass TM boasts a full Windows table PC and may be equipped with a 12 position sample wheel and 7-element secondary target system for automation and superior trace elemental analysis. **Booth** # 1210

Joint Analytical Systems - Joint Analytical Systems offers a broad spectrum of GC- and LC solutions based upon the Agilent Technologies chemical analysis portfolio, and are a Value Added Reseller. Our organization is support driven, and provides customized instrument configurations to meet your application needs. In addition we have a number of proprietary offerings which include, the Universal Injection System (UNIS), Cryo Trap, Gas Injection control unit (GICU), EZ-Prep sample fraction collector, Natural Gas Analyzer, Refinery Gas Analyzer, and the only commercially available Atomic Emission Detector. **Booth** # 920

Julabo USA, Inc. - JULABO is the worldwide leader in liquid temperature control for Science, Research and Industry. JULABO's products combine state of the art electronics with innovative design to offer a comprehensive range of products for all temperature applications. Our products provide temperatures ranging from -95°C to +400°C with up to 30 kW of cooling and 36 kW of heating capacity. Julabo has a solution for your liquid temperature control application. - **Booth** # 121

Kelly Scientific Resources - Kelly Scientific Resources, a division of Kelly Services, Inc. is the largest scientific staffing supplier in the world. Since 1995 Kelly Scientific Resources has delivered quality Scientific and Clinical

Research professionals across the globe. With over 17 years in the Houston market, Kelly Scientific Resources delivers some of the top candidates in the industry with flexible hiring solutions for our customers: temporary placement, temp to hire placement, and direct hire. Our recruiters are scientists themselves, who understand how to connect our customers to the very best talent that they need. **Booth** # 1222

Kewaunee Scientific Corporation/Hallmark Casework Kewaunee Scientific Corporation continues to fulfill the laboratory furniture needs for a customer base that encompasses health care providers, clinical labs, pharmaceutical and biotechnical companies, industrial and chemical laboratories, secondary schools and universities, and government facilities. Kewaunee manufactures steel, wood and plastic laminate casework, fume hoods, filtered fume hoods, biological safety cabinets, vertical laminar flow cabinets, flexible systems, carts, worksurfaces, and other laboratory related products. Made in USA for over 108 years. **Booth** # 108

KIN-TEK Analytical, Inc. - KIN-TEK Analytical, Inc. manufactures, sells, and supports gas standard generators and permeation tubes for creating certified calibration gas standards in ppm, ppb, and pptr ranges. Over 500 gas standards are available. KIN-TEK is exhibiting the FlexStream™ product line and automated permeation system capable of remote operation. The FlexStream™Base can be used alone or with other modules for the perfect calibration scenario. For more information visit (www.kin-tek.com) **Booth** # 1111

Koehler Instrument Company - US Manufacturer of petroleum testing equipment conforming to the latest ASTM, ISO, IP and related international specifications. Major product lines include viscosity, penetration, flash point, tribology, distillation instrumentation. Other products manufactured include oil test centrifuges, automatic distillation analyzer, automatic flocculation titrimeter, oxidation stability baths, cloud, pour, cold filter plugging, and freezing point equipment as well as automatic titration units. Our experienced staff can provide testing services and technical support both in-house and off site. **Booth** # 117,119

KPL Scientific, Inc. - Platinum ware for the X-Ray fluorescence and temperature measurements products. We export to mineral testing laboratories, petrochemical and cement industries. KPL offers the refining services to reclaim value from the used products. Our Sales Representatives can assist you in three languages. Full range of Li Tetraborate and Li Metaborate granular and micro-bead fluxes with integrated additives. Visit www.kplscientific.com for more information. **Booth** # 1220

Lab Manager - Lab Manager Magazine analyzes the strong link between business strategy, technological innovation and implementation. It is focused on the lab professional in a leadership role who is responsible for setting the lab's direction and identifying, recommending and purchasing technology. It also offers a wide breadth of knowledge to the researchers in the field using lab equipment and seeking to learn about the latest in new technologies for their labs. **Booth** # Publication Bin

Lab Products, Inc. - Established in 1985 and located in Houston, TX, Lab Products, Inc. is a distributor of quality lab supplies. We focus on chromatography supplies, environmental sample containers, and general lab ware. **Booth** # 508

Lab Support - Lab Support, a division of On Assignment, is a leader in placing science and engineering professionals in contract, contract-to-hire, and direct hire positions. Having pioneered a specialized staffing approach, most of our consultants have a degree in science or engineering and a passion for the industry they serve. With nearly three decades of experience, we place professionals in industries such as biotechnology, medical device, pharmaceutical, food and beverage, chemical, and consumer care. **Booth** # 1104

Lab Synergy, LLC - Lab Synergy, LLC brings you World Leadership in Sample Preparation, Analysis, and Measurement. Lab Synergy is an exclusive, full-service, applications based North American distributor for leading manufacturers of laboratory instruments. Lab Synergy takes a synergistic approach to satisfying customer needs. Core markets include: Specialty Chemical, Petrochemical, Testing Labs, Ag Science, Food/Feed, and Pharmaceutical. **Booth** # 1319

LabAnswer - LabAnswer - a leading laboratory informatics consultancy in the manufacturing process industries - has the people, processes and experience to scale, deliver and support global, enterprise projects. LabAnswer provides system architecture, selection, implementation, migration, upgrades, deployment, and complete outsourced support services. Supported systems include most vendor's LIMS, ELN, CDS, Scientific Content Management Systems, and instruments. We are your laboratory informatics system modernization, standardization and upgrade partner. **Booth** # 1020

Labconco Corporation - Serving the scientific community since 1925, Labconco Corporation manufactures laboratory equipment, specializing in ventilation products such as chemical fume hoods and blowers, ductless carbon-filtered enclosures, glove boxes, biological safety cabinets and clean benches. Other product lines include glassware washers, freeze dryers, evaporators, vacuum concentrators, carts, water purification systems and Kjeldahl apparatus, manufactured in Kansas City, Missouri and Fort Scott, Kansas, U.S.A., Labconco products are marketed through a worldwide distributor network. **Booth** # 221

Labtopia, Inc. Labtopia Inc. is a quality assurance/quality control solutions company based in Houston, TX. We help companies execute quality management systems based on ISO Standards (9001, 17025), NELAC, Regulatory Requirements (GMP, EPA) and industry best practices (ASTM). In addition, Labtopia also provides thorough quality services such as gap assessments, auditing, technical/procedure writing, validation, training, process improvements, LIMS project management. In our comprehensive support, Labtopia offers training classes on technical, quality and soft skills for professionals, from entry-level to managers. Moreover, to serve as a one-stop shop, Labtopia also offers staffing solutions, in which we are able to place candidates on a contract, temporary, temporary to hire and direct hire basis, as well as payroll services. **Booth** # 611,613

Lancer Sales USA Inc. Lancer manufactures TI Industrial Washers engineered for the demands of the Petroleum Industry. With superior construction materials including 316 L Stainless Steel and PTFE, TI washers are ruggedly designed and built to withstand the aggressive nature of petroleum based soils of the petrochemical industry. Key features include 4 chamber sizes for maximum throughput, multi-level washing and drying, and single or double door units. **Booth** # 519

Lauda-Brinkmann - LAUDA-Brinkmann, located in Delran, NJ, is the largest of LAUDA's seven global subsidiaries. LAUDA, founded in 1956, and headquartered in Lauda-Königshofen, Germany, is the leading manufacturer of premium temperature control equipment and analytical measuring devices including static water baths, low and high temperature thermostats, lab-scale and industrial circulation chillers, industrial heating and cooling systems and process viscosity instruments. Our products provide precise temperature control from -100 oC to 400 oC with up to 400kW of cooling capacity. Contact LAUDA-Brinkmann via email at info@lauda-brinkmann.com or call (856) 764 7300. **Booth** # 702

Lawler Manfacturing Corp - A technology first manufacturer of laboratory instruments for the petroleum, lubricant, and diesel industry. Testing instruments for cold flow, pour, cloud, freeze, CFPP, and LTFT. Kinematic and Brookfield viscosity. Foaming tendency of lubricants and coolants. Oxidation stability, rust prevention, and copper corrosion. Biodiesel, FAME, cold soak filtration. Grease torque and separation. ASTM, ISO, IP, FTM, EN, DIN and

many more. **Booth** # 403

Lazar Scientific, Inc. Petroleum test instruments for Setaflash flash point, Pensky Martens flash foint, tag closed cup flash point, smoke point and sustained burning, vapor pressure, distillation, viscosity, Cold flow and freezing point, Hardening and softening, Penetration, Oxidation, Corrosion and rust, particulates, residues and composition, tribology and bearing lubrication, foaming, air release and emulsification, separation and evaporation, centrifuge equipment, cetane, color, conductivity and insulation, tank sampling and gauging, temperature and fluid density, general laboratory equipment, calibration and verification and reference materials and standards. Our instruments and equipment conform with all ASTM Methods where applicable. Many of these are referenced in material specifications such as D975 for Diesel, D6751 for Biodiesel, D1655 for Aviation turbine Fuel, D4814 for Gasoline, D910 for Aviation Gasoline, as well as the equivalent IP specifications and ISO8217 for Fuel Oil. Introducing H2S in liquids analyzer and AvCount particle counter from Seta Analytics, a Silicon in Hydrocarbons Analyzer and a Multiple Element Analyzer from XOS, several new automated and automatic viscometers for low temperature kinematic viscosity and used oil viscosity from PSL/Rheotek and updated precision data for the IQT™ Derived Cetane Tester from AET. **Booth** # 726

LCGC - For more than 32 years, LCGC has been the gold standard relied upon by chromatographers for unbiased, nuts-and-bolts technical information with a practical focus. LCGC's columns and peer-reviewed articles continue to bring readers practical technical advice from respected experts in liquid and gas chromatography, including hyphenated techniques; capillary electrophoresis; supercritical fluid chromatography; and more. **Booth** # Publication Bin

LEAP Technologies - Showing automated sample preparation for any NMR, including Magritek's benchtop NMR, which is featured. Analysis of oil products based on mineral or vegetable oil or biofuel can be directly performed. Walkaway total dissolution and hydrolysis methods of polymers for additive analysis by GC demonstrated. See how LEAP's automatic sample handling for GC and GC-MS systems for oil based samples can lead to better precision and safety in refinery support and processes support labs. **Booth** # 1316

LECO Corporation - For over 75 years, industries around the world have trusted LECO Corporation to deliver technologically advanced products and solutions. Today, that commitment continues with high-speed Time-of-Flight Mass Spectrometry (TOFMS) for gas chromatography, as well as comprehensive two-dimensional gas chromatography (GCxGC), all featuring easy-to-use ChromaTOF® operating software. Product lines also include high-quality analytical instrumentation, metallography and optical equipment, and consumables. LECO currently has over 30 subsidiaries worldwide, with additional distributors authorized to sell or service LECO products to the rest of the world. For more information, visit www.leco.com, or follow us on Twitter (@LECOCorp) and LinkedIn. **Booth** # A2

Markes International - Markes International, an industry leader in technology for trace organic analysis, manufactures a range of instrumentation and software that enhances the analytical capability of GC–MS. As well as having a long-established reputation for thermal desorption solutions for GC, Markes also manufactures BenchTOF time-of-flight mass spectrometers, powerful tools for single-run analysis of targets and unknowns across many GC and GCxGC applications. New for 2014 is Select-eV, ground-breaking variable-energy ionization technology developed specifically for BenchTOF.
Booth # 225

Metrohm USA, Inc. - Metrohm is a leading manufacturer of laboratory and process instruments for chemical analysis. Metrohm is unique in offering solutions for all varieties of ion analysis (potentiometric and Karl Fischer titration, voltammetry, ion chromatography, pH, ion, conductivity, and stability measurement). The Metrohm portfolio also includes software, dosing systems and solutions for laboratory automation. Visit us at booth 521 or http://www.metrohmusa.com for more information. **Booth** # 521,523

METTLER TOLEDO - METTLER TOLEDO is a leading global manufacturer of precision instruments. The Company is the world's largest manufacturer and marketer of weighing instruments for use in laboratory, industrial and food retailing applications. The Company also holds top-three market positions in several related analytical instruments markets and is a leading provider of automated chemistry systems. In addition to the durability you can expect from The Company, their intuitive One Click® operation, flexible software and powerful automation make their analytical instruments perfectly suitable for any petrochemical laboratory. Additional information about METTLER TOLEDO can be found at www.mt.com/lab **Booth** # 1016,1018

MGC, Inc/Mott Manufacturing - MGC, Inc. is your single source for design, supply and construction of technical interiors including Chemical, Refining, Manufacturing, QC and R&D laboratories. MGC performs renovations, upgrades and maintenance to existing facilities. Our millwork division manufactures custom products that enhance your laboratory and commercial projects. Mott Manufacturing provides solutions for all of your laboratory needs. Our reputation has been built on quality, flexible manufacturing capabilities, and industry leading service. Our Flexible, Mobile and Fixed Laboratory Furniture Systems are available in Steel, Stainless Steel and Wood. Standard, "high performance" and custom fume hoods are available for a wide variety of laboratory applications. **Booth** # 124

MicroLiter Analytical Supplies (A Wheaton Company)
MicroLiter Analytical Supplies (A WHEATON® Company), Inc. utilizes 20 years of expertise to develop important products for the autosampler market. The MicroLiter product line also assists preparation of samples by allowing the prep labs to utilize higher volume methods of sample prep. Samples had always been prepped in multi-well microplates and transferred to autosampler vials for final analysis. Now the final elution could be transferred to the Analytical Lab without costly transfers. **Booth** # 106

Miele Professional - Miele Professional is a leading manufacturer of laboratory glassware washers, including a complete range of under-counter units for in-lab use and large capacity systems for central wash areas. Miele Professional systems utilize high temperature, high circulation rate, gentle spray pressure and final rinsing with hot DI water for analytically clean results that can be used for demanding applications such as cleaning of petroleum compounds. In addition, Miele Professional offers a full line of detergents, baskets and inserts, technical expertise and nationwide, fully trained sales and service teams. **Booth** # 306

Milestone Inc. - Milestone Inc., a global leader in the field of microwave sample prep and mercury analysis, offers a complete suite of productivity tools for today's chemist to obtain the highest throughput for metals digestions, accelerated organic extractions, and mercury analysis. See the UltraWAVE featuring our patented Single Reaction Chamber technology (SRC), revolutionizing microwave digestion through the use of mixed batches and disposable vials. We will also be presenting our industry leading direct mercury analyzer, the DMA-80, which requires no sample preparation and delivers results in as little as 6 minutes. **Booth** # 922

NETZSCH Instruments North America, LLC - Thermal analysis & thermal properties instruments, calorimeters, and contract testing; New DSC 214 Polyma, built for polymer analysis w. specially-designed furnace & sensor combination for fast heating & cooling, new Concavus crucibles w. unique sample-cutting tool. New instruments for Battery Calorimetry - IBC 284 Isothermal Battery Calorimeter (R&D 100 Award Winner) for large format Li-Ion batteries and MMC 274 coin-cell calorimeter. Top-loading TGA & STA (DSC-TGA) w. no hang-down wires for ease-of-use and coupling to FTIR, MS, & GC-MS. New LFA 467 HyperFlash Light Flash Analyzer for thermal diffusivity / conductivity, plus DMA, TMA, Dilatometers, & DEA for in-situ cure monitoring. **Booth** # 126

Norgren-AFP (Analytical Flow Products)
Norgren's parent company, IMI acquired Analytical Flow

Products (AFP) in August, 2013. AFP delivers unique technical expertise, including research capabilities and innovative analytical technologies. Norgren brings a comprehensive product line and global support to the relationship. Together, they give OEMs, integrators and end-users of analytical equipment greater access to superior fluid control components and custom-engineered fluidic assemblies. **Booth** # 1116,1118

o2si smart solutions - We provide innovative, cost effective, on time smart solutions to meet your needs. Registered and operating under the guidelines of ISO 17025 Guide 34 and ISO 9001:2008, o2si provides a complete line of Organic and Inorganic NIST Traceable Reference Standards used in the Chemical, Environmental, Petroleum, Clinical, Food, Industrial Hygiene, and Pharmaceutical Industries. At the end of the day, o2si provides what you are looking for, a smart solution to your problem. **Booth** # 113

OI Analytical - OI Analytical/Xylem provides instruments used for analysis of petrochemical and environmental samples including; the PFPD – pulsed flame photometric detector and S-PRO 3200 GC system for measurement of sulfur species in hydrocarbons, FBA 5320 fluorinated by-products analyzer, TOC analyzers, and Purge-and-Trap sample concentrators for VOC analysis. Bellingham + Stanley®'s RFM990-AUS32 laboratory refractometer conforming to ISO22241 (DEF manufacture), ASTM D 1218, D1747, D2140 & D5006 and the new OPTi digital hand held refractometer will also be featured. **Booth** # 222

Owlstone, Inc. - Owlstone Inc. - Owlstone develops high performance chemical analyzers to detect VOCs in liquids (crude oil and processed water) and gases in real-time at trace concentrations. Owlstone Inc. is showcasing its portable rapid detection instrument…Lonestar. The instrument is designed so that non-technical personnel can obtain rapid quantitative results surrounding VOCs of interest (such as methanol, amines, H2S scavenger chemicals, acetic acid and organic chlorides) in crude oil and processed water. No sample prep is needed and multiple applications can be programmed on the same instrument. **Booth** # 212

PAC LP - PAC is a leading global provider of advanced analytical instruments for laboratories and online process applications in industries such as refinery, petrochemical, biofuels, environmental, food & beverage, and pharmaceutical. To provide its customers with cutting edge technology, PAC leverages significant R&D resources to support its core technologies, including chromatography, elemental analysis, physical properties, and fuels composition. PAC's product portfolio includes leading product lines with long histories of developing innovative instrumentation: AC Analytical Controls, Advanced Sensors, Antek, Alcor, Cambridge Viscosity, PetroSpec, PSPI, ISL and Walter Herzog. **Booth** # 103,105,107,202,204,206

Pace Analytical Services, Inc. - Pace Analytical's LabOps Division includes an Instrument Support Group (ISG) and Professional Staffing Services. ISG provides pre-qualified, refurbished chromatography instrumentation, and a variety of other analytical equipment, to companies worldwide. Instrumentation service, including maintenance, repair and qualification, is also available for GC, GC/MS, LC, and LC/MS. LabOps Professional Staffing Services is an effective and innovative way to acquire personnel, while also reducing costs and increasing productivity and profitability. **Booth** # 418

PANalytical - PANalytical offers a wide range of X-ray analysis instrumentation for the petroleum industry. New for benchtop XRF is Epsilon 3 and 3XL, offering more sensitivity and sample flexibility than ever. The Axios 1KW WDXRF is a low-power spectrometer needing no external cooling. Axios^{mAX}-Petro is the most sensitive WDXRF for applications ranging from sulfur through catalysts to wear metals, with ZETA no-drift tube technology and Oil Trace software, to analyze halogens and metals with one calibration. PANalytical's XRD platforms include the cost effective X'Pert Powder, ideal for powder applications such as catalyst analysis, pipe scale identification, and exploration mineralogy. For even more application range, the R&D100 award winning Empyrean does everything from diffraction to SAXS and even CT. **Booth** # 710,712

Parker Hannifin Corp., Balston - Parker Balston Gas Generators for analytical instruments eliminate the expense and danger associated with high pressure compressed gas cylinders. The inconvenience of changing cylinders and supply interruptions will no longer be a concern. A Parker Balston Gas Generator offers price stability and eliminates long-term commitments, contract negotiations and tank rental fees. A continuous supply of consistent purity is available 24/7 without the need for operator attention. Parker Balston offers Gas Generators for a variety of analytical applications including LCMS, GC, FTIR, and NMR. Parker offers global distribution and support. **Booth** # 1110

Parker Hannifin Corp., Instrumentation Products Division - Parker Instrumentation Products Division, located in Huntsville, Alabama is dedicated to being a global leader in the design, manufacture and distribution of high quality, critical flow instrumentation fitting and valve components for the petrochemical, chemical processing, oil and gas, power generation, water analysis, and analytical equipment industries. **Booth** # 1112

Particle Sizing Systems - PSS distributes the Tracker™ an automated drop tensiometer that measures variations in surface tension or interfacial tension over time. The contact angle of a liquid against a solid can also be measured. With optional lenses, the interfacial tension measurement can be less than 0.1mN/m. The Tracker can be equipped with pressure cells that achieve temperatures up to 200 degrees C and 200 bar. We also offer the Foamscan which is designed to characterize foam properties by using digital image analysis and conductivity. **Booth** # 1007

Peak Petroleum Testing Services, Inc. - Peak Petroleum Testing Services, Inc. is a fuel testing lab specializing in fast, accurate analysis for product quality specification. We provide same day turnaround time in most cases, backed by ISO 17025 accreditation. Please give us a chance. You won't be disappointed. **Booth** # 506

Peak Scientific Instruments LTD - Peak Scientific Instruments are a manufacturer of laboratory gas generators including nitrogen, hydrogen and zero air suitable to operate most laboratory analytical applications such as LCMS (liquid chromatography mass spectroscopy) and GC (gas chromatography). **Booth** # 1005

PerkinElmer - As a global scientific leader and solutions provider to refining and natural gas labs, PerkinElmer's proven technology and experience meets the ever-changing needs of the oil and gas industry. PerkinElmer is committed to the success of your oil and gas sample analysis by providing the instrumentation, consumables, software and services you need for fast, easy and precise testing. The result: better control of your operations and improved product quality. **Booth** # 803,805,902,904,907

Perma Pure LLC - Perma Pure LLC Makes Analysis Possible by providing solutions to reduce and control the moisture content of your sample gas stream. We offer a wide range of Sample Gas Dryers, Humidifiers, Moisture Exchangers and Accessories, including full Sample Conditioning Systems for virtually any analytical application using our exclusive Nafion tubing as the moisture transfer membrane. With over 40 years of experience, we can select the right product for your equipment or analysis project. **Booth** # 602

Petro Industry News - Petro Industry News (PIN) is a world-wide publication that focuses on the instrumentation sector of the oil and petroleum related industries. The magazine is published every 2 months and reaches a global audience of over 30,000 buyers or end-users of analytical equipment in refineries, plants and petroleum/petrochemical labs. In addition, there is a website (www.petro-online.com) which is updated daily with the latest news, events, product launches and application articles of relevance to

analytical chemists working within the oil/petroleum related sectors. PIN is part of International Labmate, a publishing house which recently celebrated 40 years of specialising in magazines related to analytical instrumentation technology. Other magazines in the International Labmate range include International Environmental Technology, Asian Environmental Technology, International Labmate, Lab Asia, Measurement Analysis China and Chromatography Today. International Labmate also hosts several specialist technical exhibitions and conferences focused on very specialist analytical applications such as environmental and petroleum analysis, air monitoring, stack emission monitoring and water/waste water testing and analysis. **Booth** # 120

Petrolab Company - AMETEK Petrolab Company is your source for the latest in Analytical Laboratory Instrumentation. Grabner Instruments designs and manufacturer's the most advanced selection of products for the petroleum industry. Petrolab Company provides products for analysis of Octane, Cetane, Flash Point, Distillation, Vapor Pressure, Viscosity, Color and Water Content. Be sure to check out the Online Vapor RVP process analyzer that determines vapor pressure of gasoline, crude oil, LPG, NPG and vapor-liquid ratio (LVR) of gasoline. **Booth** # 1211, 1213

Phase Technology - Precision. Reliability. Trust. - Phase Technology customers depend upon our ASTM methods for freeze, cloud and pour point testing. They have confidence in our 30 years of experience testing millions of samples. Our deep knowledge of cold flow properties gives them assurance and peace of mind. Now, Phase Technology introduces the new 70Xi analyzer series - combining speed, simplicity and interactive diagnostics to deliver maximum productivity and uninterrupted uptime. Come see the 70Xi, the intelligent workflow optimizer. **Booth** # 507

Phenomenex - Phenomenex is a global technology leader committed to developing novel analytical chemistry solutions that solve the separation and purification challenges of researchers in industrial, government and academic laboratories. Phenomenex's core technologies include products for liquid chromatography, gas chromatography, sample preparation, bulk purification chromatographic media, and chromatography accessories and equipment. **Booth** # 1318

Pittcon 2015 - Pittcon 2015 is the world's largest annual conference and expo for laboratory science. March 8-14, 2015, in New Orleans, LA. See all the innovations in instrumentation from leading companies from around the world, learn about the latest techniques used in your industry, select from over 2,000 technical sessions and over 100 short courses, and participate in networking opportunities with world renowned scientists. **Booth** # 224

Pollution Equipment News/Rimbach Publishing Inc. POLLUTION EQUIPMENT NEWS features products and services used by those who design or are responsible for the pollution abatement systems and policies for their organization. PEN informs and educates professionals in the air pollution control, water, wastewater, and hazardous waste disposal industries. INDUSTRIAL HYGIENE NEWS features products and services that help keep employees safe and the organization OSHA compliant. IHN informs and educates occupational safety and health professionals dealing with workplace safety. **Booth** # 1221

Praxair Specialty Gases - Praxair creates technologies, products and services that support our mission of making our planet more productive. Praxair is a manufacture and distributor of specialty gases including UHP pure gases, specialty calibration gas standards,including hydrocarbon gas standards, EPA protocol gas standards,laboratory gas standards, and custom calibration gas and liquid calibration gas standards. Praxair services the refinery, chemical, petrochemical, natural gas LNG/NGL markets along with the power and energy markets. Praxair also provides specialty gas distribution equipment including regulators, changeover manifolds, heating blankets, protocol stations, gas cabinets, custom cylinder holding racks as well as custom engineered specialty gas distribution equipment. Praxair also is a provider of Tube trailers for purge gas operations pure gas operations as well as bulk and micro-bulk gas systems and services. Please visit us at www.praxair.com **Booth** # 1208

Premier Lab Supply - XRF Sample Preparation Specialists for Liquids, Powders and Fusion Applications; Items include; XRF Sample Cups, X-Ray Films, Aluminum Cups, Binders, PHOENIX VFD Fusion Machines and Platinum Lab Ware Products. **Booth** # 610,612

Process Instruments, Inc. - Process Instruments, Inc. specializes in Raman spectroscopy for on-line process control applications. We offer ATEX, IEC EX, and NRTL (ETL) certified Raman systems with multiplexing capabilities up to 18 streams and laser power up to 1500 mW. With detection capabilities < 3 ppm for many components our instrumentation can be used for measuring most petroleum product parameters including total sulfur in gasoline and diesel. On-line applications include LPG streams, Alkylation acid, specialty chemicals, polymer production, and pharmaceutics, as well as an economical replacement for multiple, on-line GCs. We provide comprehensive chemometric modeling services and/or customer training for in-house modeling of on-line applications.**Booth** # 1022

Protectoseal / ESD - ESD is well-known for supplying On-Line and Laboratory Analyzers and for pioneering the use of the Falling Level Method (Dynamic Fuel Level) for octane number determination. Installation, parts and service are available throughout the world. **Booth** # 1021

Proton Onsite - Proton OnSite is the world's leading supplier of on-site generators for laboratories. Proton Onsite offers a safe, affordable and high performance solution for onsite hydrogen generators, nitrogen generators, air compressors, air generators and zero air purifiers. Proton's units are manufactured in a wide range of space saving stackable systems and we offer a complete line of advanced equipment for the LCMS and GC lab market. **Booth** # 1203,1205

PSL Rheotek - PSL-RHEOTEK's range of viscosity apparatus is manufactured by Poulten Selfe & Lee Ltd in the UK. Products include a wide range of glass capillary viscometers for petroleum, asphalts, polymers and pulp, viscosity reference standards, viscometer baths, precision digital thermometers, automatic viscometers for kinematic viscosity and solution viscosity. Automated viscometers include AV2.5 for new and used lubes, JETVISC for aviation turbine fuels, AutoKV and MultiKV for diesels and base oils, RPV-1 and RPV-2 for polymers and cellulose. In USA contact Lazar Scientific for additional information. **Booth** # 824

Purge Solutions - Purge Solutions is an original equipment manufacturer committed to providing innovative and reliable type Z, Y and X purge/pressurization systems. Our focus is on simplicity of installation and operation, while employing state of the art technology with long life and minimum maintenance requirements. All purge/pressurization systems are certified ATEX, CEC, NEC/NFPA and IECEx with the CE mark by recognized certification agencies for installation and use in Zone 1 & 2 or Division 1 & 2 hazardous areas. **Booth** # 1325

Qorpak, a division of Berlin Packaging - For over 30 years, Qorpak has been a leading resource for laboratory packaging and supplies. We handle customers of all types and have deep expertise in the industrial, chemical, pharmaceutical, environmental, and educational marketplaces. We carry a wide range of products: a complete line of lab glassware, including beakers, vials, flasks; containers and packaging products such as bottles, caps and closures, jugs, bags, and metal containers; and also a variety of lab consumables and lab supplies such as chemical solutions, gloves, lab filters, balances, mixers, and thousands of other items. **Booth** # 1223

Quantum Analytics - Rent, lease or purchase from our inventory of new and reconditioned instruments. Instruments include: GC, GC/MS, GC/TOF, HPLC, LC/MS, Molecular

and Atomic Spectroscopy, Pyrolysis Systems, Thermal Desorption Systems, Purge and Trap, GC/MS-FTIR (IRD), AED, MSD Direct Inlet Probe, Post-Column Systems, SimDis Software, Gas Generators, Sample Preparation and Handling, Data Systems and Software; manufacturers include: AgilentTechnologies, ASAP, Diablo, Frontier Laboratories, LEAP Technologies, Markes, Peak Scientific, Pickering Laboratories, Scientific Instruments Manufacturer, Teledyne Tekmar and more. **Booth** # 324,325

Ramin' Corporation - Ramin' Corporation has produced and distributed environmental & petroleum glassware, laboratory & scientific apparatus, custom glass designs, precision machined metals and plastics since 1984. Our custom glassblowing facility manufactures ISO, ASTM, and OEM products for petroleum testing and specialty applications. Custom engineering, calibration, and certification services are available. **Booth** # 223

Restek Corporation - A leading innovator of chromatography solutions for both LC and GC, Restek has been developing and manufacturing columns, reference standards, sample preparation materials, accessories, and more since 1985. We provide analysts around the world with products and services to monitor the quality of air, water, soil, food, pharmaceuticals, chemicals, and petroleum products. Our experts have diverse areas of specialization in chemistry, chromatography, engineering, and related fields as well as close relationships with government agencies, international regulators, academia, and instrument manufacturers. www.restek.com **Booth** # 312

Retsch Inc. - Retsch is the world leader in solid material sample preparation equipment for quality control and research and development laboratories. Our expertise and devotion to providing the highest quality products for accurate and reproducible sampling methods is unsurpassed. Our selection of mills, sieve shakers, and sample dividers offer the industry standards for sample preparation. **Booth** # 116,118

RICCA Chemical Company - Founded in 1975, RICCA CHEMICAL COMPANY is the largest independent manufacturer of inorganic analytical solutions and standards in North America. Three manufacturing sites provide you risk mitigation on over 15,000 products available in 400 packaging configurations, from one ounce volumes to large totes. Our 1600 gallon batch size capability can reduce your lot analysis and there are no minimum order requirements. Our ISO 9001 and ISO/IEC 17025 quality systems offer an extensive breadth of line that meets or exceeds standards established by the ACS, AOAC, APHA, ASTM, EPA, and others. Most products are NIST traceable. We specialize in Custom Solutions for most industries. Visit our booth to learn more about our quality line of pH Buffers, Titrants, Conductivity Standards, AA/ICP standards, Chemical Indicators, High Purity Water, and Turbidity Standards. **Booth** # 316

Rigaku Americas/Applied Technologies - Rigaku provides the world's most complete line of X-ray diffraction and X-ray fluorescence instruments and components. Systems include the MiniFlex benchtop XRD and Supermini benchtop WDXRF systems, the Ultima IV and SmartLab(r) multi-purpose diffractometers with SAXS and in-plane capabilities, DMAX Rapid II micro-diffraction systems, SMAX3000 small angle scattering systems, and the ZSX Primus series of high-powered WDXRF spectrometers with mapping capabilities, in either tube-above or tube-below configurations. **Booth** # 511,513

Rudolph Research Analytical - Rudolph Research Analytical is a US based manufacturer of automatic density meters,refractometers and polarmeters a well as automation. **Booth** # 216,218

RURO Inc. - RURO laboratory information management software and RFID solutions are used around the world, most especially in Translational Science, Sequencing, Testing and Biobanking. RURO's most popular solutions are its sample management system, FreezerPro, and full scale laboratory information management system, Limfinity. RURO's solutions are capable of comprehensive integration and allow users to grow the scale of their information management suite within the same RURO framework as needed. www.ruro.com **Booth** # 1321

S&S Professional Services - Based in Houston, TX, S&S has been offering scientific placement expertise to the chemical and petrochemical industries for the past 20 years. As a proud member of the Texas Small Business Association, PICS, DISA, and Houston Area Safety Council, S&S has built its reputation on strong client relationships, a competitive candidate pool, and a commitment to ongoing career development. As the chemical and petrochemical industries continue to grow and flourish, S&S is devoted to staying in touch with new technologies implemented in laboratory environments and the high standard of job specific experience of its placements. As a woman owned business, S&S continues to champion careers in the science field across all communities and works to promote equal opportunity of all qualified candidates. **SERVICES** - S&S offers full range staffing services, with a specialized focus in the scientific industry. We offer competitive rates for: • Contract • Temp to Hire • Direct Hire • Payroll Management - **Booth** # 209

Saybolt - Saybolt provides professional around the clock chemical and petroleum laboratory testing capabilities, cargo inspection, along with calibration and many other technical services. Saybolts expertise supports the local as well as the global petroleum and chemical industries. Laboratory testing and expertise includes ASTM and ISO methods, along with advanced troubleshooting and problem solving expertise. Visit www.corelab.com to learn more. **Booth** # A5

Scientific Marketing - Representing Gerstel's automated sample prep solutions for GC/MS and LC/MS workflows that deliver custom and robust solutions, and Nippon Instruments industry leading suite of mercury analyzers.**Booth** # A9

SCP SCIENCE- A successful privately owned manufacturer and distributor of analytical instruments, digestion equipment, supplies, reagents and certified reference materials for the spectroscopy market. Products include CONOSTAN - oil-based calibration and verification standards including metallo-organic, sulfur in oil, and viscosity standards; NovaWAVE - an automated microwave digestion system; DigiPREP - a family of graphite block digestion systems; EasyPREP - chemistry analyzers; ICP supplies including sample introduction systems and QC standards; XRF supplies including fusion fluxex, films and cells; and AA supplies. **Booth** # 1312

Selerity Technologies, Inc. - Selerity Technologies, Inc is the market leader in supercritical fluid chromatographs targeted for the petroleum industry, which includes a turn-key system for ASTM methods D5186 and D6550. Selerity's line of supercritical fluid products include a complete system equipped with an FID that is used for applications using pure carbon dioxide as the mobile phase; and a stand-alone high pressure CO2 pumping system that can be used with an existing HPLC for applications requiring modified CO2. **Booth** # 104

Separation Systems - Separation Systems is a highly experienced provider of gas chromatography (GC) based analysis solutions for petroleum refining, bio-fuels, petrochemical, industrial gases and power industries. Our systems are comprehensive in nature and incorporate the Agilent 7890 GC, our own patented or trademarked hardware and software technologies as well as consumables, reference & calibration standards, training and support. While the majority of our systems are specifically designed to meet the requirements of methods from international standard organizations such as ASTM, UOP, GPA and others, we also design systems to meet special requirements including custom software. Please stop by our booth to discuss your analytical challenges and how we can help you overcome them. Or visit us at www.separationsystems.com. **Booth** # 704, 706

SGS North America Inc. - SGS is the world's leading inspection, verification, testing and certification company. Oil, Gas & Chemicals Services is a global provider to the petroleum and chemical industry. We are committed to adding value for our customers by helping to maintain our customer's reputation for high quality products and reducing the commercial and environmental risks associated with the production, trading, distribution and storage of oil, gas and chemicals. Since analysis results are essential to any commercial and technical decisions that you make, SGS laboratories have the professional staff and modern instrumentation to meet your needs. Quality assurance standards are constantly monitored through participation in numerous industry and internal round robins. **Booth** # 203

Shamrock Glass Co., Inc. - Shamrock Glass has been serving science and industry since 1979. A full service manufacturerer of vials, caps and septa for gc/mass specs as well as culture tubes, storage containers and many other lab items. Glass blowers build special apparatus and repair it as well. Shamrock Glass delivers fast, friendly service. **Booth** # 110

Shimadzu Scientific Instruments, Inc. - Shimadzu offers a full line of analytical measurement and testing instrumentation for a broad range of applications in science and industry. Products include chromatographs (HPLC/UHPLC, GC); mass spectrometers (GC/MS/MS, LC/MS/MS, MALDI); spectrophotometers (FT-IR, Fluorescence, UV-VIS-NIR); atomic spectrometers (AA, ICP); X-ray spectrometers (EDX, XRD, XRF); thermal analyzers; Total Organic Carbon (TOC) analyzers; particle size analyzers; balances; and materials testers. In particular, our GC/GCMS instruments deliver powerful application-based solutions to address the wide-ranging demands of the petrochemical, refining, and environmental industries. With such a broad lineup of systems, we can provide you with the versatility to ensure compliance with methods from ASTM, the GPA, the EPA, and more. **Booth** # 405,407,409

Siemens Industry, Inc. - Siemens is a leading provider of process analyzers and process analysis systems. We offer customers the best possible solutions for their applications based on innovative analysis, technologies, customized system engineering, sound knowledge of their applications and professional support. Siemens is your qualified partner for efficient solutions that integrate process analyzers in your automation systems in the process industry. **Booth** # Entrance to Convention Center (Outdoor Booth)

SilcoTek Corporation - SilcoTek® Corporation is the leader in high performance coatings used in process, analytical, industrial, oil and gas applications. Dursan®, a hard durable coating is designed to extend the life of stainless steel components while creating chemical inertness. SilcoTek's SilcoNert® 2000 treatment provides proven performance for hydrogen sulfide, mercury, ammonia and many other active compounds. Find us on the web at www.SilcoTek.com or call (814)353-1778. **Booth** # 322

Skalar Inc - Automated EPA approved analysis for cyanide, ammonia /TKN phenol, phosphate and other nutrients with on-line distillation & digestion (no sample prep needed). Also, TOC, TN & BOD instrumentation for automation. **Booth** # 1308

SKC Gulf Coast, Inc. - SKC Gulf Coast Inc., world leader in sampling technologies, offers a complete line of air sampling pumps, sorbent tube/ thermal desorption tubes for OSHA/EPA compliance sampling, passive samplers for BTEX and other VOCs, filters, ClearSense direct-read dosimeter badge for H2S, and direct-reading gas instruments from Dräger and RAE Systems. Occupational and environmental health and safety professionals rely on SKC Gulf Coast for sampling instruments and media that protect workers and the environment. **Booth** # 1218

Specialloy Texas, Inc. - Specialloy Texas, Inc. is a preeminent distributor of instrumentation products, within the Greater Houston and Gulf Coast Region, for 40 plus years. We offer a broad range of analog and digital pressure gauge products, including digital calibration equipment, pressure transmitters, transducers, bi-metal thermometers and thermo-wells. Our brands include McDaniel Controls, Noshok, ENFM, Reo-Temp, Additel and a host of others. We pride ourselves on being the "instrumentation specialists" to the oil and gas, petrochemicals and refining industries. **Booth** # 1311

Specialty Gas Report - Specialty Gas Report magazine is published quarterly, and reaches all levels of personnel involved in specialty gas production, applications, distribution, and marketing. The majority of our readers are based in North America. The publications are circulated to key industry decision makers. We aim to ensure the magazine gets into the hands of those who make purchasing decisions, to maximize the value to your company when it appears in the publication. Our editorial coverage targets readers with fact-filled articles that range from the basics of specialty gas production and handling, through to sophisticated application coverage. The Specialty Gas Report team is in attendance at this conference & also attends other key conferences and events throughout the year. Please contact Kevin M. Carr at kevin.carr@gasworld.com or call 1-203-997-6674 for a meeting during the Gulf Coast Conference 2014. **Booth** # Publication Bin

Spectrum Quality Standards - Spectrum Quality Standards was established in 1994 with the sole business purpose of manufacturing hydrocarbon standards for the Petrochemical Industry. Since its inception, Spectrum has become a major supplier of standards to Refineries, Chemical Plants, Regulatory Authorities, and Independent laboratories. Spectrum is also the manufacturer of NIST Standard Reference Materials. **Booth** # 1225

SPEX SamplePrep/Katanax - SPEX SamplePrep/Katanax provides superior sample preparation equipment. Our Katanax® Fluxers are automated fusion machines that prepare fused beads for XRF analysis and solutions for AA, ICP, and wet chemistry analysis. Typical samples include catalyst support, ceramics, rocks and minerals. The 3636 X-Press® is a 35 ton laboratory press idea for pressing sample pellets for XRF. Typical samples include Cement, Rocks, Minerals, Soils and Ceramics. Stop by to see our innovative products in person. **Booth** # 1304

ST Laboratories Group, LLC - ST Labs provides testing services for the petroleum, petrochemical, refining and chemical industries. Accuracy has always been our hallmark. We provide testing services that exceed industry standards for ASTM,UOP, Federal Specifications, Military Specifications and many others. **Booth** # 1017

StanCo Scientific, Inc. - StanCo Scientific Inc. was founded on the need for a reliable customer service company to provide support at highly competitive pricing. We offer service contracts for the repair, preventative maintenance, and calibration of current and obsolete petroleum instruments, including distillation, flashpoint, jet fuel analyzers, carbon residue, viscosity and many others. It doesn't matter if the instrument is current or discontinued, we can supply parts and have consumables for a wide variety of instruments. We refurbish 501C meters, temperature controllers and convert 501T meters for knock engines. StanCo has developed and is manufacturing a system to aid your jet fuel analyzer to work more efficiently. New this year is our collaboration with Lazar Scientific, providing instrument sales and service of the StanHope-Seta product line within our territory in the Pacific and Northwest Region. Through our membership in ASTM, attending D-02 meetings, we can continue to vote on crucial issues. We also attend the Octane Regional Group meetings. With over 20 years of experience, StanCo Scientific, Inc. is striving to bring back customer confidence within the industry. Visit our booth for more information. **Booth** # 716

Stanhope-Seta - Stanhope-Seta is a global leader in the design and manufacture of quality control instruments for fuels, crude oil, lubricants, grease and bitumen in accordance with over 200 different ASTM Test methods. PM-93 Automated Pensky-Martens (ASTM D93) sets new safety standards for flash point testing incorporating a fully

integrated fire extinguishing system. Setaflash Small Scale flash point testers (ASTM D3278,3828,7236) provide rapid and cost effective flash point tests for DoT compliance. Other new highlights include: H2S Analyser (ASTM D7621) for marine and crude fuels, FIJI (ASTM D7797) to measure Fame in Jet, Cold Soak Filter Blocking (ASTM D7501) for Biodiesel, and Salt in Crude Tester (ASTM D3230). **Booth** # 725

Supelco/Sigma-Aldrich Corporation Supelco and Fluka both belong to the analytical side of Sigma-Aldrich. Our deep offering of products serve several analytical workflows prevalent in petroleum and chemical industries, namely gas chromatography, liquid chromatography, and titration. Whether your need is the characterization of fuels and feed stocks, the analysis of industrial monomers and polymers, or the determination of moisture content in raw and finished materials, we can help. We also excel at manufacturing OEM products for instrument manufacturers. **Booth** # 1012

Superior Lab Services/LabQuip - Superior Lab Services - Fume hood and clean room certification lab design and conosulting, installation and remodeling of labs, repairs and maintenance services. Refrigeration, balances, centrifuge, microscope, and more. Maintenance and calibration. Labquip - Sales of lab equipment for Labconco, Central Blowers, HEMCO Chicago faucets, AirMasters. **Booth** # 605,607

Teklab Inc. - GC consumable supplies. A stocking distributor for Valco Instruments, Hamilton Syringes, SGE and VICI Precision Sampling. We manufacturer packed columns for all applications. Tubing, fittings, ferrules, septa, vials, caps, closures, filter driers, oxygen traps, integrator supplies and a variety of tools and accessories. **Booth** # 111

Teledyne CETAC Technologies - Teledyne CETAC Technologies has been a worldwide leader in sample introduction and sample handling equipment for elemental analysis for over 25 years. Headquartered in Omaha, Nebraska, CETAC has been supplying robust, high quality products that help atomic spectrometrists do more with their AA, ICP-AES, and ICP-MS equipment, expanding the scope of possible measurements and pushing the boundaries of productivity. CETAC offers specialist automation products, advanced sample introduction system, solid sample introduction devices, and complete mercury analyzer systems based on both atomic absorption and atomic fluorescence. For more information please visit us at our booth or website at www.cetac.com or email us at sales@cetac.com. **Booth** # 323

Teledyne Leeman Labs - Our company offers a complete line of analytical instrumentation for elemental analysis including Inductively Coupled Plasma (ICP) Spectrometers, Mercury Analyzers including cold vapor atomic adsorption (CVAA), cold vapor atomic fluorescence (CVAF) and Atomic Absorption with Thermal Decomposition for solid sample analysis. To complement these systems, we offer a line of ICP Standards, available in single and custom multi-element formats, and mercury reagents. www.teledyneleemanlabs.com **Booth** # 321

Teledyne Tekmar - Our company is the leader in analytical instrumentation for the laboratory. Our world-renown Volatile Organic Compound (VOC) products include systems for Gas Chromatography Sample Introduction, High-Throughput Purge and Trap sample concentration, Static and Dynamic Headspace analysis. Total Organic Carbon (TOC) and Total Nitrogen (TN) Analyzers provide unparalleled accuracy, precision, throughput and robustness for water samples. Automated QuEChERS Workstation for SVOC Pesticide Sample Preparation. www.tekmar.com **Booth**# 319

Thermo Scientific - Visit Thermo Scientific to explore our integrated analysis workflow solutions for petrochemical industry applications. Talk to our experts about how FT-IR, GC, GC/MS, IC, LC, Raman, UV-Vis and XRF spectrometers can help you answer your analytical questions. We also represent Thermo Scientific water analysis pH meters and chromatography columns and consumables. See the Trace 1300 Series GC, the iS50 FT-IR spectrometer and the iCAP-Q ICP-MS spectrometer! **Booth** # 303

Torion Technologies - **TORION**, the leader in GC-MS miniaturization, will feature the TRIDION™-9 GC-MS, which is the world's fastest and most portable GC-MS. It combines a high-speed capillary gas chromatograph and a miniaturized toroidal ion trap mass spectrometer. The TRIDION-9 weighs ~32 lbs., is ~1.2 cubic feet in size, and is battery operated. Target analyte libraries facilitate automated compound identification. The miniature GC-MS is ideal for rapid (~3 min) screening of a wide variety of GC-amenable compounds at the sample's location. Torion also offers a line of CUSTODION®-SPME fiber and CUSTODION-NT (needle trap) syringes for sample collection and GC injection, as well as CALION™ calibration standards and CHROMION™ GC-MS data processing software. **Booth** # 624

Tosoh Bioscience - As experts in GPC, Tosoh Bioscience offers dedicated systems for GPC analysis, the EcoSEC GPC System and the EcoSEC High Temperature GPC System. In addition, TSKgel GPC columns for ambient and high temperature applications are available. Both EcoSEC GPC Systems deliver unsurpassed efficiency, reliability, and reproducibility. **Booth** # 200

Turnkey Technical Solutions - Turnkey Technical Solutions is dedicated to serving and supporting XRF and OES users with a wide selection of consumables, accessories, and services such as sample cups & film, calibration and instrument check standards, radiation dosimetry rings, badges, and surveys, instrument & personnel certification, and our customized EZee Remote, EZee Chart, and EZee Report software. Turnkey Technical Solutions also provides OES and XRF training courses for the novice industrial XRF and OES operator as a part of its EZee Technology Training Series, as well as API-U Training Courses for certification of XRF and OES users for PMI (Positive Material Identification), API-RP 578 Certification, and Alloy/Metallurgy Courses. **Booth** # 1108

United Science - United Science manufactures titration and sensor systems for measuring various processes. **Booth** # A8, A10

VacuuBrand Inc. - VACUUBRAND offers exceptionally quiet, corrosion-resistant, oil-free vacuum pumps with ultra-long service intervals for labs, scale-up and OEM use. Products include both simple dry pumps and self-regulating, automated vacuum systems for critical evaporative applications. The line also includes the unique HYBRID pumps, which reduce oil-changes by 90%, even in corrosive applications. VACUUBRAND will also show corrosion-resistant digital vacuum gauges and controllers. New products include high flow-rate, chemical-resistant dry vacuum pump for kilo-lab and pilot-scale applications. **Booth**# 1010

Van London Co. - Van London Co. (VLC) manufactures a variety of electrodes and sensors for pH, conductivity, ORP, Dissolved oxygen, chlorine, and ion-specific applications. Our product line can be found in fields such as: sewage treatment, swimming pool, agriculture, education, food processing, metal plating, pharmaceuticals, steam/power generators, paper, and high purity water. VLC specializes in custom sensor design for harsh environments and a sizable inventory of sensors, analyzers, and meters are available to expedite the ordering process. **Booth** # 422

Verder Scientific, Inc. - Verder Scientific, Inc. sets the standards in high-tech scientific equipment for quality control, research, and development. The company manufactures and supplies laboratory instruments for sample preparation and heat treatment of solid materials. Comprised of the Retsch and Carbolite product brands, Verder Scientific, Inc. is the market leader in sample preparation and treatment. **Booth** # 116,118

VGC Chromatography - VGC Chromatography, located in Dayton, Ohio manufactures and sells consumable components and instrumentation for the chemical analysis industry. We develop and manufacture variable geometry columns (VGC's) for the gas chromatography industry. July 2014 marked the launch of our First Adopters Program for our faster, more-efficient differential acceleration columns

that have a retention gradient built into the column that enables the same or better chromatographic performance as conventional open tubular columns, but in 20-40% less time. **Booth** # 1309

VHG Labs - Calibration Standards and Reference Materials including metallo-organic standards for the analysis of wear metals, metal additives and contaminants by ICP, RDE, DCP or XRF; sulfur, chlorine and nitrogen standards in petroleum products for ASTM methods; biodiesel standards; reference materials for the analysis of acid number, base number, soot, flash point, fuel dilution, Karl Fischer, and physical properties in accordance with ASTM methods; Proficiency Testing Samples in petroleum products. Instrumentation consumables. **Booth** # 603

VICI Valco Instruments - VICI Valco Instruments Co., Inc. is a designer and manufacturer of standard and custom valves and fittings for precision analytical, biomedical, and biocompatible instrumentation. Products also include a variety of related products including pneumatic and electric actuators, tubing and sampling loops, heated enclosures, valve sequence and temperature controllers, gas purifiers, GC detectors, and digital interfaces. We also manufacture devices and instrumentation for the generation of calibration gas standards, containment traps and gas specific purifiers. - **Booth** # 917,919

VUV Analytics, Inc. - VUV Analytics is dedicated to pioneering the use of vacuum ultraviolet (VUV) optical technologies for widespread use in the analytical sciences. Despite the recognized importance of this spectral region, the experimental difficulties associated with it have largely restriced such studies to synchrotron facilities. VUV Analytics' introduction of a VUV based gas chromatography detector represents perhaps the most important innovation in molecular spectroscopy in decades. **Booth** # 1219

VWR International, LLC - VWR, headquartered in Radnor, Pennsylvania, is a global laboratory supply and distribution company with worldwide sales in excess of $4.1 billion in 2011. VWR enables the advancement of the world's most critical research through the distribution of a highly diversified product line to most of the world's top pharmaceutical and biotech companies, as well as industrial, educational and governmental organizations. With over 150 years of industry experience, VWR offers a well-established distribution network that reaches thousands of specialized labs and facilities spanning the globe. VWR has over 8,000 associates around the world working to streamline the way researchers across North America, Europe, and Asia Pacific stock and maintain their labs. In addition, VWR further supports its customers by providing onsite services, storeroom management, product procurement, supply chain systems integration and technical services. **Booth** # 425,524,525

Wasson-ECE Instrumentation - Wasson-ECE specializes in customizing gas chromatographs from Agilent for use in both the lab and the field. We add extra ovens for columns and valves, plumbing, flow control, electronics, and software to yield complete solutions for each customer sample. Wasson-ECE provides lab and environmental hardware including vaporizers, auto-samplers, SUMMA cleaners, concentrators, and dynamic blenders. Our analytical engineering group designs fully integrated custom sampling systems. Staffed with engineers of all disciplines, our ability to understand our customer's objectives and design analytical solutions is unsurpassed. **Booth** # 720,721,722,723

Waters Corporation - Waters Corporation creates business advantages for laboratory-dependent organizations by delivering scientific innovation to enable customers to make significant advancements. Waters helps customers make profound discoveries, optimize laboratory operations, deliver product performance, and ensure regulatory compliance with a connected portfolio of separations and analytical science, laboratory informatics, mass spectrometry, as well as thermal analysis. **Booth** # 903,905

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Yokogawa Corporation of America - Yokogawa Corporation of America (http://yokogawa.com/us) is a leading provider of Industrial Automation and Test and Measurement solutions. Combining superior technology with engineering, system integration, project management, and maintenance services, Yokogawa delivers field-proven operational efficiency, safety, and reliability. Yokogawa Corporation of America is headquartered in Sugar Land, TX, and is the North American Division of Yokogawa Electric Corporation's global network of 25 manufacturing facilities and 4 regional project engineering centers. **Booth** # 1320, 1322

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