

Air Quality Measurement Methods and Technology 2019

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TECHNICAL PROGRAM - Tuesday, April 2

7:30 am - 5:00 pm

Conference Registration
Imperial Foyer

7:30 am - 8:30 am

Continental Breakfast and Presenters' Meetings
Imperial 4567 and Session Rooms

9:00 am - 6:00 pm

Exhibition Viewing
Imperial 4567

8:30 am - 9:45 am

Imperial 123

Introductory Welcome – Dr. Ray Merrill, Conference Chair

Opening Remarks – Michele Gehring, A&WMA President

Keynote Address: Robust Measurements for Environmental Stewardship in the 21st Century

Mike Koerber, Deputy Director for EPA's Office of Air Quality Planning and Standards

9:45 am - 10:15 am

Refreshment Break and Exhibition Viewing (Imperial 4567)

Session 1A:

OPTICAL GAS IMAGING METHODS

[concurrent with Session 2A and 3A]

Imperial 123

Chairs: Jon Morris, Providence Photonics, and Jason Dewees, U.S. EPA

10:15 am – 10:40 am

ME12

The Use of Optical Gas Imaging Cameras in Leak Detection – The Role of Method Development, Validation and Performance Assessment

Rod Robinson, Jon Helmore, NPL, Teddington, UK

10:40 am – 11:05 am

ME94

Evaluating Quantitative Optical Gas Imaging for Internal Floating Roof Tank Emissions Measurements

Tracey L. Footer, Eastern Research Group, Inc., Cottonwood Heights, UT; Cary Secrest, U.S. EPA, Washington, DC; Jon Morris, Yousheng Zeng, Providence Photonics, LLC., Baton Rouge, LA

11:05 am – 11:30 am

ME70

Optical Gas Imaging Sensitivity Study: Envelop of Sensitivity Performance

Ram A. Hashmonay, Omer Yanai, Opgal Optonics, Alberto Wahnon, Industries Ltd., Karmiel, Israel

11:30 am – 11:55 am

ME93

Detection Limits of Optical Gas Imaging and Their Impact to Emission Inventories

Jon Morris, Yousheng Zeng, PhD, Providence Photonics, LLC, Baton Rouge, Louisiana

Session 2A: ADVANCES IN VOC MEASUREMENT TECHNIQUES

[concurrent with Session 1A and 3A]

Empire ABC

Chairs: Ingrid George, U.S. EPA and Eric Apel, National Center for Atmospheric Research

10:15 am - 10:40 am

ME68

Lower Cost High Temporal Resolution Benzene Sensors by QCL-PAS

Peter Zemek, Ph.D, Montrose Environmental, Hollis, NH; David Berkowitz, Enthalpy Analytical, Durham, NC

10:40 am - 11:05 am

ME30

Field Demonstration of a Novel Portable Automated Gas Chromatograph for Speciated Air Toxic VOC Measurement in Louisville, KY

Ingrid George, Eben Thoma, Rachele Duvall, Tai Wu, EPA ORD NRMRL, RTP, NC; T-K Allen Chou, Sharon Liu, Daniel Chung, Tricornetech Corp., New Taipei City, Taiwan; Parikshit Deshmukh, Jacob Cansler, Jacobs Technology, RTP, NC; Andrea Cooley, Billy Dewitt, Bryan Paris, Louisville Metro APCD, Louisville, KY

11:05 am - 11:30 am

ME18

Prototype Coded Aperture Miniature Mass Spectrometer for Environmental Sensing

Jason J. Amsden, Phillip J. Herr, Raul Vyas, Kathleen Horvath, Matthew P. Kirley, Xiaohan Li, Charles B. Parker, Brian R. Stoner, Michael E. Gehm, Jeffrey T. Glass, Duke University, Durham, NC; Adam D. Keil, Broadway Analytical, LLC Monmouth, IL; James B. Carlson, RTI International, Research Triangle Park, NC; Steven J. Edwards, Roger P. Sperline, M. Bonner Denton, University of Arizona, Tucson, AZ

11:30 am - 11:55 am

ME100

The NCAR Trace Organic Gas Analyzer for VOC Analysis

Eric C. Apel, Rebecca S. Hornbrook, Alan J. Hills, Lizzy Asher, Daniel D. Riemer, Siyuan Wang, National Center for Atmospheric Research, Boulder, CO

Session 3A: CITIZEN SCIENCE AND AIR SENSOR MEASUREMENTS

[concurrent with Session 1A and 2A]

Auditorium

Chairs: Kristen Benedict, U.S. EPA and Tim Dye, TD Environmental Services

10:15 am - 10:40 am

ME34

Overview of the Kansas City Transportation and Local-scale Air Quality Study (KC-TRAQS)

Sue Kimbrough, Timothy Barzyk, Vlad Isakov, Carry Croghan, U.S. EPA, RTP, NC; Stephen Krabbe, Matthew Brown, Mike Davis, Shawn Henderson, U.S. EPA, Kansas City, KS; Steven Brown, Amy Shields U.S. EPA, Lenexa, KS; Stephen Feinberg, Richard Baldauf, Chad Bailey, U.S. EPA, RTP, NC; Tim McArthur, Science Systems and Applications, Inc., RTP, NC, Russell Logan, Parikshit Deshmukh, Jacobs Technology Inc., RTP, NC

10:40 am - 11:05 am

ME26

Measurement of PM_{2.5} in Kansas City, Kansas Using Low-cost Sensor Technologies

Rachele Duvall, Sue Kimbrough, U.S. Environmental Protection Agency, Research Triangle Park, NC; Stephen Krabbe, U.S. Environmental Protection Agency, Kansas City, KS; Parikshit Deshmukh, Jacobs Technology Inc., Research Triangle Park, NC; Geoff Henshaw, Aeroqual Ltd., Auckland, New Zealand

11:05 am - 11:30 am

ME73

Calibration and Validation of a Network of Sensors Measuring Nitrogen Dioxide Across Los Angeles

Geoff Henshaw, Kyle Alberti, Elaine Miles, Aeroqual, Auckland, New Zealand; Georgia Miskell, David Williams, University of Auckland, Auckland, New Zealand; Brandon Feenstra, Vasileios Papapostolou, Andrea Polidori, South Coast Air Quality Management District, Diamond Bar, CA

Lunch for all sessions
12:00 pm – 1:30 pm
Empire DE

Speaker
Melissa Lunde Chief Scientist at Aclima

FINAL PROGRAM

TECHNICAL PROGRAM - Tuesday, April 2 con't.

Session 1B:

OPTICAL GAS IMAGING METHODS

[concurrent with Session 2B and 3B]

Imperial 123

Chairs: Jon Morris, Providence Photonics, and Jason Dewees, U.S. EPA

Session 2B: ADVANCES IN VOC REMOTE SENSING

[concurrent with Session 1B and 3B]

Empire ABC

Chairs: Ingrid George, U.S. EPA and Eric Apel, National Center for Atmospheric Research

Session 3B: CITIZEN SCIENCE AND AIR SENSOR MEASUREMENTS

[concurrent with Session 1B and 2B]

Auditorium

Chairs: Kristen Benedict, U.S. EPA and Tim Dye, TD Environmental Services

1:30 pm – 1:55 pm

ME09

Optical Gas Imaging Leak/No-Leak Emissions Factor Development Using Site-Specific Method 21 Leak Detection and Repair Data

Duane R. McGregor, J. Derek Reese, ExxonMobil Research & Engineering Co., Spring, TX

1:55 pm – 2:20 pm

ME33

Understanding Cooled vs Uncooled Optical Gas Imaging

Craig O'Neill, FLIR, Wilsonville, OR; Ron Lucier, Infrared Training Center, Nashua, NH

2:20 pm – 2:45 pm

ME50

Non-Thermal Multispectral IR Technology for Imaging & Quantification of Methane, VOCs and CO₂ Emissions

Allen Waxman, Jason Bylsma, Stefan Bokaemper, Ryan Aylward, Allan Vaites, Terry Jones, Thomas McArthur, Paola Massoli, MultiSensor Scientific Inc. Somerville, MA, USA

2:45 pm - 3:10 pm

ME83

New Quantitative Features Expand the Possibilities for Optical Gas Imaging

Craig O'Neill, FLIR, Wilsonville, OR; Håkan Nygren, FLIR, Taby, Sweden; Yousheng Zeng, Jon Morris

1:30 pm – 1:55 pm

ME104

Monitoring of Fugitive Ship Emissions Using Optical Remote Sensing on Mobile Platforms

Catalina Tsai, Olga Pikelnaya, Andrea Polidori, South Coast Air Quality Management District, Diamond Bar, CA; Brian Offerle, Marianne Eriksson, Johan Mellqvist, Jerker Samuelsson, Fluxsense Inc., San Diego, CA

1:55 pm - 2:20 pm

ME47

Deployment of a Network of Weekly Whole Air Samplers (WAS) and a Mobile Measurement Platform to Monitor Changes

Arsineh Hecobian, Yong Zhou, Jeffrey L. Collett Jr., Department of Atmospheric Science, Fort Collins, CO

2:20 pm - 2:45 pm

ME103

Understanding Seasonal Variations in Refinery VOC Emissions Using Quarterly Optical Remote Sensing Mobile Surveys

Olga Pikelnaya, Andrea Polidori, Jack Porter, Ross Cheung, Catalina Tsai, South Coast Air Quality Management District, Diamond Bar, California; Johan Mellqvist, Jerker Samuelsson, Marianne Eriksson, FluxSense Inc., San Diego, California

1:30 pm – 1:55 pm

ME77

Data Quality Control System—The Key to Sensor Application in Air Quality Monitoring Network

Yi Li, Varun Yadav, John A. Cooper, Sunset CES Inc., Beaverton, OR, USA; Cui Houxin, Zhang Ling, Wu Mengxian, Feng Zhanbang, Zhang Ke, Wang Yueru, Chen Chen, Wang Chunying, Ma Jingjin, Sailhero Environmental Technology, Shi-Jia-Zhuang City, Hebei Province, China

1:55 pm - 2:20 pm

ME110

Mining Big Data from Low Cost Air Sensors in California

Jennifer DeWinter, Hilary Hafner, Sonoma Technology

2:20 pm - 2:45 pm

ME111

Mobile PM Monitoring Study

Tim Dye, TD Environmental Services; Dave Bush, T & B Systems

Refreshment Break and Exhibition Viewing for all Sessions

3:10 pm - 3:40 pm

Imperial 4567

TECHNICAL PROGRAM - Tuesday, April 2 con't.

Session 1C:

OPTICAL GAS IMAGING METHODS

[concurrent with Session 3C]

Imperial 123

Chair: Jon Morris, Providence Photonics, and Jason Dewees, U.S. EPA

3:40 pm – 4:05 pm

ME105

Optical Gas Imaging with LWIR Uncooled Microbolometer Cameras

Matthew Schmidt, Kirk Johnson, Justin Sheard, Fluke Corporation, Everett, WA; Jon Morris, Providence Photonics, Baton Rouge, LA

4:05 pm – 4:30 pm

ME106

Inspection of Industrial Flares Using the Video Imaging Spectral Radiometry (VISR) Method

Yousheng Zeng, PhD, PE, Jon Morris, Providence Photonics, LLC, Baton Rouge, LA

4:30 pm – 4:55pm

ME92

Precision and Accuracy of the VISR Method for Flare Monitoring

Jon Morris, Yousheng Zeng, PhD, Providence Photonics, LLC, Baton Rouge, LA

Session 3C:

EMERGING SOURCE ISSUES AND APPROACHES

[concurrent with Session 1C]

Auditorium

Chair: Ned Shapley, U.S. EPA

3:40 pm – 4:05 pm

ME67

Proton Transfer Reaction Mass Spectrometry (PTR-MS) for Ambient and (Compliance) Source Testing

Peter Zemek, Ph.D, Montrose Environmental, Hollis, NH

4:05 pm – 4:30 pm

ME72

Optimization of EPA Method TO-15 for Analysis of ppt Levels of Ethylene Oxide in Ambient Air

David Berkowitz, Denese Adcock, Enthalpy Analytical, LLC, Durham, NC

4:30 pm – 4:55pm

ME20

Sample Collection and Measurement of Ethylene Oxide at Parts-Per-Trillion

Kelly R. McPartland, Martin L. Spartz, Max Analytical Technologies, East Windsor, CT

Networking Reception in the Exhibit Hall

5:00 pm – 6:00 pm

Imperial 4567

Visit the booths of these exhibitors:

2B Technologies (#1)
Advisian Digital (#4)
Aeroqual (#11)
AethLabs (#2)
Alliance Source Testing (Table #1)
Ambilabs (#23)
Atmosfir Optics (#9)
ARA Instruments (Table #3)
Chromatotec Inc. (#26)
Dekati Ltd. (#12)
DR DAS LTD (#5)
Durag, Grimm Technologies Division (Table #2)
ENMET (#21)
Entech Instruments (#18)
Global Analyzer Systems, Ltd. (#27)
Heath Consultants, Inc. (#19)
HORIBA Instruments, Inc. (#13)
M&C TechGroup North America (#6)

Magee Scientific, Co. (#14)
Markes International (#22)
MetOne Instruments, Inc. (Table #6)
Micro Pulse LiDAR, part of Hexagon (#10)
Montrose Air Quality Services (#28)
Omniscient (#3)
Orsat (#15)
PerkinElmer (Table #6)
Restek Corporation (Table #4)
SCI/Cooper Environmental Services (#25)
Sonoma Technology (#7)
Sunset Laboratory, Inc. (Table #5)
Teledyne API (#29)
Tisch Environmental (#17)
TricornTech Corporation (#20)
TSI, Inc. (#8)
U.S. EPA National Air & Energy Research Program (#16)
URG Corporation (#30)

See pages 14-16 for exhibitor company descriptions and floor plan.

FINAL PROGRAM

TECHNICAL PROGRAM - Wednesday, April 3

7:30 am – 5:00 pm
Conference Registration
Imperial Foyer

7:30am - 8:30 am
Continental Breakfast and Presenters' Meetings
Imperial 4567 and Session Rooms

9:00 am - 4:00 pm
Exhibition Viewing
Imperial 4567

Session 4A: SOURCE TEST METHODS
[concurrent with Sessions 5A and 6A]
Imperial 123

Chairs: Jeff Ryan and Ray Merrill, U.S. EPA

Session 5A: AMBIENT AIR METHODS
[concurrent with Sessions 4A and 6A]
Empire ABC

Chairs: Julie Swift, ERG and Doris Chen, U.S. EPA

Session 6A: FACILITY/FUGITIVE FENCELINE 1

[concurrent with Sessions 5A and 6A]
Auditorium

Chairs: Arvind Ravikumar, Harrisburg University, and Eben Thoma, U.S. EPA

8:30 am – 8:55 am

ME37

Determining Particulate Matter Removal Efficiency on a Particle Size Basis

Michael J Krall, Tim Rios, Montrose Environmental Group, New Braunfels, TX

8:55 am – 9:20 am

ME84

Advances in the Measurement of Particulate Matter from Stationary Sources: OTM-37 Field Testing

Triana Fleming, Beverly Coleman and Wes Beck, Chevron Products Company, Inc., Pascagoula, MS; Jim Barufaldi, David Elam, TRC Environmental Corporation, Austin, TX; Glenn C. England, Ramboll US Corporation, Irvine, CA

9:20 am – 9:45 am

ME59

Identifying Functional Groups and Predicting OC-EC on Cookstove Source Emissions Using Fourier Transform Infrared Spectroscopy

Emily Li, Michael Hays, James Jetter, Guofeng Shen, Satoshi Takahama, ORAU/US EPA, Raleigh-Durham, NC

9:45 am – 10:10 am

ME64

Measuring Emission Factors from Open Fires and Detonations

Johanna Aurell, University of Dayton Research Institute, Dayton, OH; Bill Mitchell, Dale Greenwell, Amara Holder, Dennis Tabor, Brian Gullett U.S. EPA, Office of Research and Development, Research Triangle Park, NC; Filimon Kiros, Oak Ridge Associated Universities, U.S. EPA, Office of Research and Development, Research Triangle Park, NC

8:30 am – 8:55 am

ME95

Optimization of U.S. EPA Method TO-11A for the Measurement of Carbonyls in Ambient Air

Ian C. MacGregor, Brannon A. Seay, Nicholas D. Skomrock, Martha W. McCauley, Douglas J. Turner, Larry A. Mullins, Dennis J. Tomcik, Christina Saeger, Battelle, Columbus, OH; David M. Shelow, U.S. EPA (retired)

8:55 am – 9:20 am

ME97

Inter-comparison of Formaldehyde Measurement Methods in the Lewiston-Clarkston Formaldehyde Study

Julie Simpson, Mary Fauci, Nez Perce Tribe, Lewiston, ID; B Thomas Jobson, Yibo Huangfu, Miao Wen, Washington State University, Pullman, WA; Julie Swift, Laura VanEnwyck, Eastern Research Group, Research Triangle Park, NC

9:20 am – 9:45 am

ME27

Field Applications of Portable Aeris MIR Laser-Based Gas Analyzers: Natural Gas Leak Detection and Real-Time Indoor/Outdoor Formaldehyde (HCHO) and Carbon Monoxide (CO) Monitoring

James J. Scherer, Joshua B. Paul, Jerome Thiebaud, Stephen So, Aeris Technologies, Hayward, CA

9:45 am – 10:10 am

ME76

Traffic-Related Air Pollution Monitoring Laboratory with Computer Vision Based Traffic Count and Cloud Based Data Visualization Techniques

Asanga Wijesinghe, John Colvin and Mustapha Beydoun, Houston Advanced Research Center, The Woodlands, TX

8:30 am – 8:55 am

ME17

A Sensor Network System for Process Unit Emissions Monitoring

Wenfeng Peng, Dave Massner Lingying Lin, Alex Chernyshov, Molex, Lisle, IL; Barry Kelley, Mike Clausewitz, Koch Industries, Rosemount, MN; Deb Cartwright, Flint Hills Resources, Corpus Christi, TX

8:55 am – 9:20 am

ME102

An Optical Tent as an Early Warning System for BTEX Releases Inside Refineries

Jochen Stutz, Fedele Colosimo, University of California Los Angeles, Los Angeles, CA; Olga Pikelnaya, Andrea Polidori, South Coast Air Quality Management District, Diamond Bar, CA

9:20 am – 9:45 am

ME44

Cost Reduction for Leak Detection and Fence Line Monitoring Activities Through Automation

Dennis Prince, Airdar Inc, Edmonton, Alberta; Chris Madland, Golder Associates Ltd, Calgary, Alberta; Brendan Matkin, Airdar Inc, Edmonton, Alberta; Terry Butler, Airdar Inc, Edmonton, Alberta; Wendell Shumway, Airdar Inc, Fort Worth, TX

9:45 am – 10:10 am

ME74

IoT Cloud Portal for Environmental Measurements

Dr. David Johnsen, Dan Pearson, Scott Evans, Clean Air Engineering, Palatine, IL

Refreshment Break and Exhibition Viewing

10:10 am – 10:40 am
Imperial 4567

TECHNICAL PROGRAM - Wednesday, April 3 con't.

Session 4B:

SOURCE TEST METHODS

[concurrent with Sessions 5B and 6B]

Imperial 123

Chairs: Jeff Ryan and Ray Merrill, U.S. EPA

10:40 am – 11:05 am

ME38

Ammonia and Particulate Matter Concentrations in a Free-Range Layer House of US Southeast

Lilong Chai, University of Georgia, Athens, GA

11:05 am – 11:30 am

ME10

Development of a Long-Range, Open-Path Analyzer Based on Novel, Mid-Infrared Laser Spectroscopy

Doug Millington-Smith, Graham Leggett, Arun Kannath, MIRICO Ltd., Oxford, United Kingdom

11:30 am – 11:55 am

ME19

Real-Time Monitoring of Formaldehyde from Natural Gas Turbines

Martin L. Spartz, Kelly R. McPartland, Max Analytical Technologies, East Windsor, CT

Session 5B: AMBIENT AIR METHODS

[concurrent with Sessions 4B and 6B]

Empire ABC

Chairs: Julie Swift, ERG and Doris Chen, U.S. EPA

10:40 am – 11:05 am

ME71

Continuous Real-Time Monitoring and Validation of Ambient H₂S to Odor Threshold Levels by Quantum Cascade Laser

Curtis T. Laush, Ph.D., Geosyntec Consultants, Knoxville, TN

11:05 am – 11:30 am

ME15

Harmonizing Environmental Methodologies for Air Toxics, Ozone Precursors and Polar Compounds Using One Cryogen-Free TD-GC-FID/MS

Nicola Watson, Rui Li, Claire Keller, Jan Peter Mayser, Markes International, Sacramento, CA

11:30 am – 11:55 am

ME01

Value-Added Data Validation for Ambient Air Measurements

Yousaf Hameed, Clark County Department of Air Quality, Las Vegas, NV

Session 6B: FACILITY/FUGITIVE FENCELINE 2

[concurrent with Sessions 4B and 5B]

Auditorium

Chairs: Arvind Ravikumar, Harrisburg University and Eben Thoma, U.S. EPA

10:40 am – 11:05 am

ME53

The Development and Validation of a New Standardised Method For Monitoring Diffuse and Fugitive VOC Emissions From Oil and Gas Facilities

Rod Robinson, Fabrizio Innocenti, NPL, Teddington, UK

11:05 am – 11:30 am

ME80

Measurements of Fugitive Emissions of VOCs from Stationary Sources Using the SOF Method - Standardization Efforts and Results From Recent Studies in California

Johan Mellqvist, Chalmers University of technology, Gothenburg Sweden; Jerker Samuelsson, Brian Offerle, Samuel Brohede, Pontuas Andersson, Oscar Isoz, Marianne Ericsson, FluxSense Inc., San Diego, CA; Olga Pikelnaya, Andrea Polidori, South Coast Air Quality Management District, Diamond Bar, CA

11:30 am – 11:55 am

ME55

Advanced Remote Sensing Solutions Accommodating Petrochemical/Chemical Industrial Monitoring Needs and Challenges

Gilad Shpitzer Yael Etzion, Robert Kagann, Atmosfir Optics Ltd.

LUNCH

12:00 pm – 1:30 pm

Empire DE

FINAL PROGRAM

TECHNICAL PROGRAM - Wednesday, April 3 con't.

Session 4C:

SOURCE TEST METHODS

[concurrent with Sessions 5C and 6C]

Imperial 123

Chairs: Jeff Ryan, and Ray Merrill, U.S. EPA

1:30 pm – 1:55 pm

ME78

Remote Emission Measurements of Marine Vessels In Real Operation To Check Compliance With IMO Legislation And Investigate Influence On Air Quality

Johan Mellqvist, Vladimir Conde, Chalmers University of Technology, Sweden; Oscar Isoz, Marianne Ericsson, FluxSense Inc., San Diego, CA

1:55 pm – 2:20 pm

ME11

Assessment of NO₂/NO_x Ratios at Fossil Fuel Power Plants

Stephanie Shaw, Electric Power Research Institute, Palo Alto, CA; Rich Hamel, Mike Sussman, Beth Barfield, Environmental Resources Management (ERM); Ana Alvarez, contractor

2:20 pm – 2:45 pm

ME98

High Frequency Gaseous Instrumental Measurements to Characterize Industrial Facility Emissions During Startup, Shutdown, and Transient Operating Conditions

Thomas A. Dunder, Ph.D., TRC Environmental Corporation, Raleigh, NC

2:45 pm – 3:10 pm

ME06

EPA Protocol Gas Standards Update

Andy Shurtleff, Refining & Petrochem, New Braunfels, TX; Phillip O. Midgett Environmental Products, Southport, NC

Session 5C: AMBIENT AIR

APPLICATIONS

[concurrent with Sessions 4C and 6C]

Empire ABC

Chairs: Julie Swift, ERG and Doris Chen, U.S. EPA

1:30 pm – 1:55 pm

ME16

Seasonal Variation of Endotoxin in the Ambient Air of a Sewage Treatment Plant (STP) in Delhi, India

Arun Srivastava, Sunita Maharir, Jawaharlal Nehru University, New Delhi, India

1:55 pm – 2:20 pm

ME21

Comparison of the Dispersion Of Air Pollutants Between the Cities of Chihuahua and Aldama, Mexico

Eduardo F. Herrera, Martín Bojórquez, Julio Núñez, Marisol Bencomo, Elías Ramírez, Alfredo Campos, Jorge Carrillo, Ramón Gómez, Research Centre of Advanced Materials, Chihuahua, México; Michel Montelongo, Autonomous University of Chihuahua; Carmen Navarro, Municipal Board of Water and Sanitation, Chihuahua, México

2:20 pm – 2:45 pm

ME22

Water and Air Contamination on Aquifer Meoqui-Delicias on Chihuahua, Chihuahua, Mexico

Marisol Bencomo, Martín Bojórquez, Julio Núñez, Elías Ramírez, Jorge Carrillo, Alfredo Campos, Research Centre of Advanced Materials, Chihuahua, México; Michel Montelongo, Autonomous University of Chihuahua; Carmen Navarro, Municipal Board of Water and Sanitation, Chihuahua, Mexico

Session 6C: FACILITY/FUGITIVE

FENCELINE 3

[concurrent with Sessions 4C and 5C]

Auditorium

Chairs: Arvind Ravikumar, Harrisburg University, and Eben Thoma, U.S. EPA

1:30 pm – 1:55 pm

ME48

Demonstration of Open Path UV-DOAS as an Alternative Method to Meet Fenceline Monitoring Provisions for Benzene Provided in 40 CFR 63.658

Brent Olive, University of North Alabama, Florence, Alabama; Don Gamiles, Argos Scientific Inc., Camas, WA

1:55 pm – 2:20 pm

ME46

Evaluation of Benzene Detections By OP-FTIR Automated System During Controlled Release Measurements and Simulations Over Operational Fence-Line Measurements Data

Yael Etzion, Robert Kagann, Gilad Shpitzer, Atmosfir Optics Ltd.

2:20 pm – 2:45 pm

ME07

Next Generation Emission Measurements of 1,3-Butadiene Emissions in Louisville, KY— Interim Results

Eben D. Thoma, Rachele Duvall, Ingrid George, Tai Wu, Don Whitaker, Karen Oliver, Shaibal Mukerjee, EPA ORD NRMRL, RTP, NC; Njeri Carlton-Carew, Jane Spann, Tiereny Bell, Ken Mitchell, EPA Region 4, Atlanta, GA; Parik Deshmukh, Jacob Cansler, Tamira Cousett, Jacobs Technology, RTP, NC; Andrea Cooley, Steven Gravatte, Kyle Zimmerman, Billy Dewitt, Bryan Paris, Louisville Metro APCD, Louisville, KY

2:45 pm – 3:10 pm

ME54

Towards Better Understanding of the Temporal Methane Emission Variation from Landfills

Jacob Mønster, FORCE Technology, Brøndby, Denmark; Charlotte Scheutz, DTU Environment, Technical University of Denmark, Lyngby, Denmark

3:10 pm – 3:40 pm

Networking Break and Exhibition Viewing

Imperial 4567

TECHNICAL PROGRAM - Wednesday, April 3 con't.

Session 4D:

SOURCE TEST METHODS

[concurrent with Session 5D and 6D]
Imperial 123

Chairs: Jeff Ryan and Ray Merrill, U.S. EPA

Session 5D:

AMBIENT AIR APPLICATIONS

[concurrent with Session 4D and 6D]
Empire ABC

Chairs: Julie Swift, ERG and Doris Chen, U.S. EPA

Session 6D:

LARGER AREA OIL AND GAS METHODS

[concurrent with Session 4D and 5D]
Auditorium

Chairs: Arvind Ravikumar, Harrisburg University and Eben Thoma, U.S. EPA

3:40 pm – 4:05 pm

ME108

US EPA ORD Research for the Development of Industrial PFAS Emissions Measurement Methods

Jeffrey V. Ryan, US EPA Office of Research and Development

4:05 pm – 4:30 pm

ME109

The Sampling and Analysis Strategy for the Characterization of Selected Perfluorinated Alkyl Substances (PFAS) in Stack Gas

William Anderson, Courtney Adkins, Patti Bales, Test America, Inc.

3:40 pm – 4:05 pm

ME42

Analysis of Air Pollutants Data from Continuous Ambient Monitoring Stations in Urban Areas – A Case Study

A.M. Alenezi, M.F. Hamoda, Environmental Group, Department of Civil Engineering, Kuwait University, Kuwait

4:05 pm – 4:30 pm

ME61

Investigation of Temporal and Spatial Correlations Between Citizen Science Odor Reports and Gas Measurements from Open-Path UV-DOAS

Robert Crampton, Argos Scientific Inc., Camas, WA; Create Lab, Carnegie Mellon University, Pittsburgh, PA; Brent Olive, University of North Alabama, Florence, AL

4:30 pm – 4:55 pm

ME99

Ambient Observations of Air Toxics – Data Availability, Data Uses and Data Analysis Tools

Madeleine Strum, Doris Chen, Josh Drukenbrod EPA/OAQPS, Research Triangle Park, NC; Regi Oommen, Bebhinn Do, Eastern Research Group

3:40 pm – 4:05 pm

ME79

Mobile Optical Measurements of Emissions And Fenceline Concentrations From Oil and Gas Production

Johan Mellqvist, Chalmers University of Technology, Gothenburg Sweden; Jerker Samuelsson, Brian Offerle, Samuel Brohede, Pontuas Andersson, Oscar Isoz, Marianne Ericsson, FluxSense Inc., San Diego, CA; Olga Pikelnaya, Andrea Polidori, South Coast Air Quality Management District, Diamond Bar, CA

4:05 pm – 4:30 pm

ME40

Drone-Based Natural Gas Leak Detection: Minimum Detection Limit Modeling

Thomas Barchyn, Chris Hugenholtz, Thomas Fox, University of Calgary, Calgary, Alberta, Canada

4:30 pm – 4:55 pm

ME08

Optimized Airborne Inspection of Upstream Oil & Gas Methane Emissions

Andrew E. Pomerantz, Kashif Rashid, Andrew Speck, Timothy P. Osedach, and Dominic V. Perroni Schlumberger-Doll Research, Cambridge, MA

4:55 pm - 5:20 pm

ME39

Comparisons of Aerial and Ground-Based Infrared Leak Detection Camera Surveys at Oil and Gas Wells

Seth Lyman, Trang Tran, Marc Mansfield, Utah State University, Vernal, UT; Arvind Ravikumar, Stanford University, Stanford, CA

FINAL PROGRAM

TECHNICAL PROGRAM - Thursday, April 4

7:30 am – 10:30 am
Conference Registration
Imperial Foyer

7:30am - 8:30 am
Continental Breakfast and Presenters' Meetings
Imperial 4567 and Session Rooms

Session 7A:

AMBIENT AIR PARTICULATE SPECIATION

[concurrent with Session 8A and 9A]

Auditorium

Chair: Xiaoliang Wang, Desert Research Institute

8:30 am – 8:55 am

ME86

Estimation of Brown Carbon in PM_{2.5} Samples from IMPROVE and CSN Networks

Xiaoliang Wang, Judith C. Chow, Brandon Daub, Steven B. Gronstal, Mark C. Green, John G. Watson, Desert Research Institute, Reno, NV

8:55 am – 9:20 am

ME49

The Total Carbon Analyzer—A New Method for the Characterization of Carbonaceous Aerosols

Martin Rigler, Aerosol Co., Ljubljana, Slovenia; Tony Hansen, Magee Scientific, Berkeley, CA

9:20 am – 9:45 am

ME36

Long Path Photometry for Direct Measurements of NO₂ and Black Carbon

Andrew A. Turnipseed, Craig Williford, Peter C. Andersen, John W. Birks, 2B Technologies, Boulder, CO

9:45 am – 10:10 am

ME29

Monitoring for Particulate, Airborne Metals, and Explosives in a Remote Environment

Jodi Lee, Jacobs Engineering, Portland, OR; Mitch Lindsay, Jacobs Engineering, Salt Lake City, UT

10:10 am – 10:35 am

ME91

Lidar Remote Detection of Small Aerosol Size and Number

Hans Hallen, C. Russell Philbrick, Physics Department, North Carolina State University, Raleigh, NC

Session 8A:

PHOTOCHEMICAL AIR MONITORING

[concurrent with Session 6B]

Imperial 4

Chairs: Kevin Cavender, U.S. EPA and Doug Turner, Battelle

8:30 am – 8:55 am

ME56

Visualization and Validation of PAMS AutoGC Data

Carol J. Meyer, Orsat, LLC., Pasadena, TX

8:55 am – 9:20 am

ME101

Field Evaluation of an Automated-Gas Chromatograph System for Monitoring Volatile Organic Compounds (VOCs) in Ambient Air

Andrea Cooley, Bryan Paris, Billy DeWitt, Tom Lobb, Louisville Metro Air Pollution Control District, Louisville, KY

9:20 am – 9:45 am

ME62

Development Of On-Line and Field Dual TD-GC/MS-FID for Automatic and Continuous Ambient Air Monitoring

Franck Amiet, Louis Vivola, Jean-Philippe Amiet, Damien Bazin, Chromatotec, Saint-Antoine, FR

9:45 am – 10:10 am

ME75

Next Generation Cost Effective True NO₂ Monitoring Trends

Charles Odame-Ankrah, N. Kelly Pickrell, Christopher Swainson, W. Brian Rosentreter, D. Brodie Biggar, Global Analyzer Systems Ltd, Calgary, AB, Canada

10:10 am - 10:35 am

Refreshment Break

Imperial Foyer

Session 9A: OIL AND GAS: NEXT GEN

METHOD COMPARISONS

[concurrent with Session 7A and 8A]

Imperial 123

Chairs: Arvind Ravikumar, Harrisburg University, and Eben Thoma, U.S. EPA

8:30 am – 8:55 am

ME13

Detection Limits of Optical Gas Imaging for Natural Gas Leak Detection in Realistic Controlled Conditions

Daniel Zimmerle, Timothy Vaughn, Clay Bell, Kristine Bennett, Rebecca Tullber, Colorado State University, Fort Collins, CO; Eben Thoma, Jason DeWees EPA/ORD/NRMRL/AEMD, Durham, NC; Parik Deshmukh, Jacobs Technology, Durham, NC

8:55 am – 9:20 am

ME60

Methodology to Determine Equivalence for New Methane Emissions Detection Technologies

Arvind P. Ravikumar, Harrisburg University, Harrisburg, PA; Adam Brandt, Stanford University, Stanford, CA

9:20 am – 9:45 am

ME89

An Overview of Screening Technologies for Targeting Fugitive Methane From Oil and Gas

Thomas A. Fox, Thomas E. Barchyn, Chris H. Hugenholtz, University of Calgary, Calgary, Alberta; David Risk, St. Francis Xavier University, Antigonish, Nova Scotia; Arvind P. Ravikumar, Harrisburg University, Harrisburg, PA

9:45 am – 10:10 am

ME52

Evaluation of Next Generation Emissions Measurement Technologies

Clay Bell, Dan Zimmerle, Timothy Vaughn, Kristine Bennett, Colorado State University, Fort Collins, CO

Session 9B: PANEL SESSION ON DETERMINING EQUIVALENCE FOR NEW METHANE LEAK DETECTION TECHNOLOGIES

Chair: Arvind Ravikumar, Harrisburg University

10:40 am – 12:30 pm Imperial 123

Panelists include:

- Brad Morello, Science & Policy Advisor – Air, Shell
- Drew Pomerantz, Principal Research Scientist and Program Manager, Schlumberger
- Tim Taylor, Oil and Gas Team Work Lead, Colorado Dept. of Public Health and Environment
- Dan Zimmerle, Senior Researcher and Director of MECTEC, Colorado State University

CONFERENCE ADJOURNS
12:30 pm