Oct 14-18, 2019

Oregon Convention Center

center for aerosol science and engineering

WELCOME ATTENDEES

37th Annual Aerosol Conference
(AAAR 2019)
October 14—18, 2019

Portland, OR

Center for Aerosol Science and Engineering (CASE)
Washington University in St. Louis

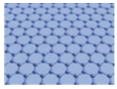
aerosols.wustl.edu

Globally-leading program in aerosol science and engineering that addresses grand challenges related to the environment, energy, advanced materials and human health

Climate & Environment

Health

Medicine



Advanced Materials

Energy

Agriculture

Commodity Powders

CORE FACULTY: Richard Axelbaum, Pratim Biswas, Rajan Chakrabarty, Rudy Husar, Benjamin Kumfer, Randall Martin, Elijah Thimsen, Jay Turner, Jian Wang, and Brent Williams.

CAMBUSTION

Now you can size-select 25nm – 5µm particles!

AAC NEW! Continuous Scanning

Classify aerosol particles by *aerodynamic diameter*...

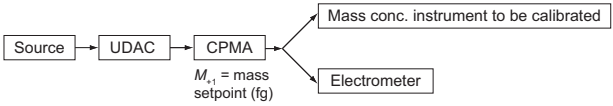
...without charging

...without a radioactive or X-ray source!

CPMA

Classify particles by mass:charge ratio

A traceable aerosol particle mass standard for instrument calibration



m_{total} = mass *setpoint* × indicated electrometer *concentration* + zero charge correction

SCS

Smoking machine for:

- Tobacco
- Cannabis
- E-cigarettes
- Heat-not-burn
- Water pipes

Booth #23 - AAAR 2019

sales@cambustion.com

N. America: 1-800-416-9304

UK HQ: +44 1223 210250

Carbon/Salt Particle Image Credits: Nasa/Goddard Space Flight Center

WHAT'S YOUR AEROSOL APPLICATION?

+ Particle formation and growth
+ Ultrafine particles in urban air
+ Sensor and instrument calibration
+ Biomass combustion
+ Indoor aerosol exposure

Visit the TSI booth!
Share your challenge.
Let us help you
find a solution.

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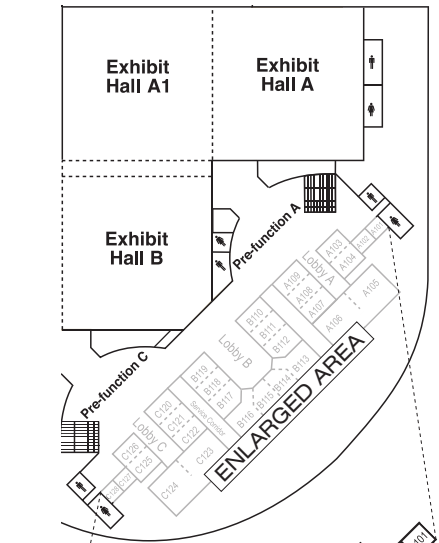
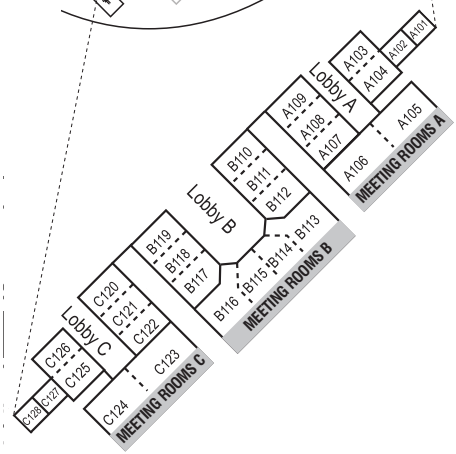
AAAR 2019

LOWER LEVEL FLOOR PLAN

OREGON CONVENTION CENTER

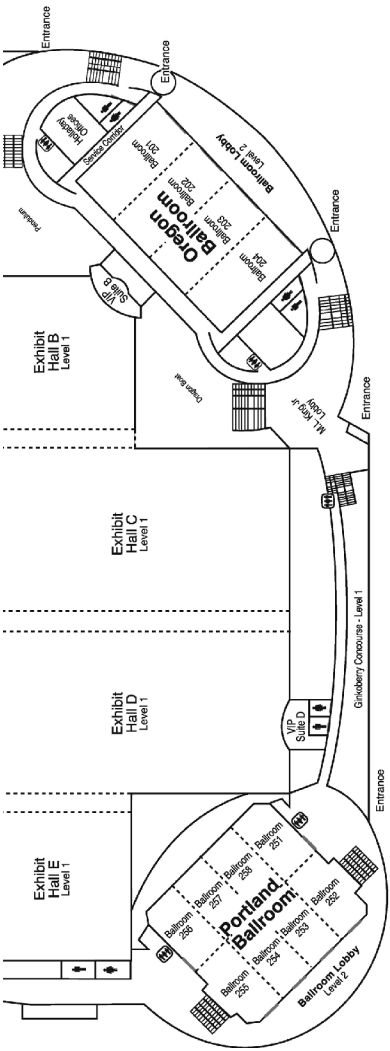




AAAR 2019

UPPER LEVEL FLOOR PLAN

OREGON CONVENTION CENTER



AAAR FUTURE MEETINGS

AAAR 38TH
ANNUAL CONFERENCE

October 5-9, 2020
Raleigh Convention Center
Raleigh, North Carolina

AAAR 39TH
ANNUAL CONFERENCE

October 18-22, 2021
Albuquerque Convention Center
Albuquerque, New Mexico

37TH AAAR
ANNUAL CONFERENCE
OCT. 14-18, 2019
OREGON CONVENTION CENTER

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IMPORTANT INFORMATION

Registration Hours

Sunday, October 13	6:00 PM – 7:30 PM
Monday, October 14	7:00 AM – 6:00 PM
Tuesday, October 15	7:00 AM – 7:00 PM
Wednesday, October 16	7:00 AM – 6:00 PM
Thursday, October 17	7:00 AM – 6:00 PM
Friday, October 18	7:00 AM – 11:00 AM

Exhibit Hours

Monday, October 14	**Set-Up** 10:30 AM – 5:00 PM
Tuesday, October 15	9:00 AM – 4:00 PM
	Welcome Reception 6:00 PM – 8:00 PM
Wednesday, October 16	9:00 AM – 5:00 PM
Thursday, October 17	9:00 AM – 3:30 PM
	Move Out 3:30 PM – 7:00 PM

Platform Sessions

A platform session is based on a submitted and approved abstract. Each oral presentation is limited to 15 minutes, including time for questions, and should be accompanied by PowerPoint visuals. No other visual equipment will be provided. There will be a presentation preview/speaker ready room, which is **Room A 103** of the Oregon Convention Center. **All speakers must visit the speaker ready room the day prior to their presentation to load their PowerPoint file onto the conference computer system.**

Poster Sessions

Monday, October 14	
Set-Up	2:00 PM – 5:00 PM
Tuesday, October 15	
Set-Up	9:00 AM – 12:00 PM
Technical Session 2 (First Poster Session)	1:00 PM – 3:00 PM
Technical Session 4 (Poster Session 2 – Meet the Job Seekers)	6:00 PM – 8:00 PM
Thursday, October 17	
Exhibit Hall Open	9:00 AM – 3:30 PM
Technical Session 9 (Poster Session 3)	12:15 PM – 1:45 PM
Dismantle Posters	3:30 PM – 4:00 PM

A poster in the poster session is based on a submitted and approved abstract. The size of a poster cannot exceed 44" wide by 45" tall. Posters will be located in **Exhibit Hall A of the Oregon Convention Center.** There are three poster sessions during which authors will present their posters according to the scheduled sessions and will be available for discussions.

Posters are available for viewing throughout the conference at the times indicated on the next page.

Poster Viewing Times

Tuesday, October 15	
Posters Open	9:00 AM – 4:00 PM
	6:00 PM – 8:00 PM
Posters (Session 2)	1:00 PM – 3:00 PM
Posters (Session 4 - Job Seekers)	6:00 PM – 8:00 PM
Welcome Reception	6:00 PM – 8:00 PM

Wednesday, October 16	
Posters Open	9:00 AM – 5:00 PM

Thursday, October 17	
Posters Open	9:00 AM – 3:30 PM
Posters (Session 9)	12:15 PM – 1:45 PM

Instructions to Poster Presenters

Posters should be placed on the assigned display boards between the hours of 2:00 PM – 5:00 PM on Monday, October 14, or between 9:00 AM – 12:00 PM on Tuesday, October 15. They should be removed at 3:30 PM and no later than 4:00 PM on Thursday, October 17. **All posters not removed by 4:00 PM on Thursday will be discarded.**

Welcome Reception

Tuesday, October 15	6:00 PM – 8:00 PM

This is your opportunity to meet and greet the exhibitors. Representatives from well-known and respected corporations are happy to discuss their products and talk with you about the latest in aerosol technology and advances in the field. The reception will be held in **Exhibit Hall A** of the Oregon Convention Center.

AAAR Annual Business Meeting

This year the Annual Business Meeting takes place on Wednesday, October 16, from 6:00 PM – 7:00 PM in Room B 113-114 of the Oregon Convention Center. This important session provides an overview of the AAAR today and tomorrow. During this meeting, the ceremonial passing of the gavel will mark the transfer of leadership responsibility from **Murray Johnston to Andrea Ferro.**

Working Group Meetings

Working Group Meetings 1	
Tuesday, October 15	5:00 PM – 6:00 PM

Working Group Meetings 2	
Wednesday, October 16	5:00 PM – 6:00 PM

Working Groups play key roles in planning the technical content of future AAAR conferences. Working Group Meetings will take place on Tuesday, October 15 and Wednesday, October 16. All AAAR members and students are encouraged to attend Working Group Meeting(s) corresponding to their research interests. Please refer to the Schedule-at-a-Glance for topics and specific meeting times.

Americans with Disabilities Act (ADA) Accommodations

AAAR will use its best efforts to provide reasonable accommodations for attendees with disabilities. Please contact the registration manager at the **AAAR Registration Desk** if you need assistance.

CM Points – American Board of Industrial Hygiene

The CM point approval process for Category 4 education events has been discontinued. Diplomates determine their own CM credit. All affected CM documents were updated (Dec 2011-Feb 2012). For more information on the American Board of Industrial Hygiene and CM points, please visit www.abih.org.

Award Presentations

Join us in honoring the recipients of the following awards, which will be presented immediately after each plenary session: **Kenneth T. Whitby Award, Benjamin Y.H. Liu Award, David Sinclair Award, Thomas T. Mercer Joint Prize, Sheldon K. Friedlander Award,** and the **AS&T Outstanding Paper and Reviewer Awards.** Please refer to the Schedule-at-a-Glance for the specific award presentation times.

Student Poster Awards and Fine Particle Art Prizes

The Student Poster Awards and Fine Particle Art Prizes will be presented on Friday, October 18, at 9:00 AM in the Oregon Ballroom.

Fellows Award

The newly appointed AAAR Fellows will be recognized on Tuesday, October 15, at 9:00 AM in the plenary session, which will be held in the Oregon Ballroom.

Speaker Ready Room

There will be a presentation preview/speaker ready room, which is **Room A 103** of the Oregon Convention Center. All speakers must visit the speaker ready room the day prior to their presentation. There will be a technician in the room to assist with presentations. Please note: LCD projectors are the only form of visual equipment that will be provided. Use of your personal computer will not be permitted.

Speaker Ready Room Hours

Sunday, October 13	6:00 PM – 7:30 PM
Monday, October 14	7:00 AM – 6:00 PM
Tuesday, October 15	7:00 AM – 7:00 PM
Wednesday, October 16	7:00 AM – 6:00 PM
Thursday, October 17	7:00 AM – 6:00 PM
Friday, October 18	7:00 AM – 11:00 AM

Conference Venue and Hotel Information

All scientific sessions, food and beverage events, exhibits, and registration will be located in the

Oregon Convention Center
777 NE Martin Luther King Jr. Blvd.
Portland, OR 97232
503-235-7575

Hotels

DoubleTree by Hilton Portland
1000 NE Multnomah Street
Portland, OR 97232
503-281-6111

Quality Inn Downtown Convention Center
431 NE Multnomah Street
Portland, OR 97232
503-233-7933

Onsite Meal and Snack Options

The Portland Roasting Coffee Shop in the convention center offers various beverages, pastries, snacks and light lunch items, such as sandwiches and salads.

AAAR will provide a box lunch for all attendees on Thursday, October 17, in the Exhibit Hall prior to the Thursday Poster Session.

CONFERENCE COMMITTEE

Nga Lee "Sally" Ng, Conference Chair

Donald Dabdub, Abstracts

Pat Keady and Julie Stone, Exhibits Co-chairs

Andrea Ferro, Development Committee Chair

Scott Epstein, Early Career Committee Chair

Rawad Saleh, Tutorial Chair

Kirsten Koehler, Tutorial Vice Chair

Technical Program Committee

Tran Nguyen, Aerosol Chemistry

Chuji Wang, Aerosol Physics

Rich Moore, Atmospheric Aerosols

Paul Dabisch, Bioaersols

Naomi Zimmerman, Combustion & Material Synthesis

Christine McCool, Control Technology

Kerry Kelly, Health Related Aerosols

Jay Turner, History of Aerosol Science

Donghyun Rim, Indoor Aerosols & Aerosol Exposure

Gavin McMeeking, Instrumentation

Committee Meetings

Awards Committee	
Tuesday, October 15	7:00 AM – 8:00 AM, Room A 107
Bylaws Committee	
Thursday, October 17	12:00 PM – 1:00 PM, Room A 107
Conference Committee	
Wednesday, October 16	7:00 AM – 8:00 AM, Room A 107
Development Committee	
Wednesday, October 16	12:00 PM – 1:00 PM, Room A 107
Early Career Committee	
Thursday, October 17	7:00 AM – 8:00 AM, Room A 107
Education Committee	
Wednesday, October 16	12:00 PM – 1:00 PM, Room A 108
Endowment Committee	
Tuesday, October 15	7:00 AM – 8:00 AM, Room A 108
Executive Committee Meeting	
Monday, October 14	2:00 PM – 4:30 PM, Room A 109
Finance Committee	
Wednesday, October 16	7:00 AM – 8:00 AM, Room A 108
Internet Communications Committee	
Tuesday, October 15	7:00 AM – 8:00 AM, Room A 109
Long Range Planning Committee	
Thursday, October 17	12:00 PM – 1:00 PM, Room A 108

Committee Meetings (continued)

Membership Committee	
Thursday, October 17	7:00 AM – 8:00 AM, Room A 108

Newsletter Committee	
Wednesday, October 16	7:00 AM – 8:00 AM, Room A 109

Publications Committee	
Thursday, October 17	7:00 AM – 8:00 AM, Room A 109

Working Group Chairs 2019 Strategy Meeting	
Tuesday, October 15	12:00 PM – 1:00 PM, Room A 109

Working Group Chairs 2020 Technical Program Meeting	
Thursday, October 17	5:00 PM – 6:00 PM, Room A 107

2018-2019 BOARD OF DIRECTORS

Murray Johnston, President

Andrea Ferro, Vice President

Sergey Nizkorodov, Vice President-Elect

Amy Sullivan, Treasurer

Faye McNeill, Secretary

Kelley Barsanti, Secretary-Elect

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Cari Dutcher

Arantza Eiguren

Allen Goldstein

Lea Hildebrandt-Ruiz

Chris Hogan

Jesse Kroll

Timothy Raymond

Jason Surratt

ORGANIZATIONAL MEMBERS

Aerodyne Research Inc.
45 Manning Road
Billerica, MA 01821
www.aerodyne.com

Cambustion
J6 The Paddocks
347 Cherry Hinton Road
Cambridge, CB1 8DH, UK
www.cambustion.com/aerosol

Magee Scientific
1916A M.L. King Jr. Way
Berkeley, CA 94704
www.mageescientific.com

Particle Instruments
1048 Centerville Circle
Vadnais Heights, MN 55127
www.particleinstruments.com

TSI Incorporated
500 Cardigan Road
Shoreview, MN 55126
www.tsi.com

URG Corp.
116 S. Merritt Mill Road
Chapel Hill, NC 27516
www.urgcorp.com

2019 TRAVEL GRANT WINNERS

U.S. Student Travel Grant Recipients:

Ali Akehrati
Colorado State University

Sahil Bhandari
University of Texas at Austin

Tyler Capek
Michigan Technological University

Sarah Chambliss
University of Texas at Austin

Yunle Chen
Georgia Tech

Yuzhi Chen
University of North Carolina at Chapel Hill

Xi Chen
Indiana University Purdue University Indianapolis

Zezhen Cheng
University of Georgia

Megan Christiansen
University of Iowa

Breann Coffaro
Rutgers, The State University of New Jersey

Audrey Dang
Washington University in St Louis

Justin Davis
University of Washington

Sukrant Dhawan
Washington University in St Louis

Magdalena Fandino Del Rio
Johns Hopkins Bloomberg School of Public Health

Kevin Fischer
University of Vermont

Fangzhou Guo
Rice University

Ruikang He
Rutgers, The State University of New Jersey

Han Huynh
Columbia University

Ifayoyinsola Ibikunle
Georgia Institute of Technology

Maksim Islam
NC State University

Md. Robiul Islam
University of Iowa

Kamaljeet Kaur
University of Utah

Devan Kerecman
University of Delaware

Dishant Khatri
Washington University in St Louis

2019 TRAVEL GRANT WINNERS (CONTINUED)

Weimeng Kong
California Institute of Technology

Eric Monsu Lee
Illinois Institute of Technology

Jamy Lee
University of Michigan, Ann Arbor

Yiting Li
University of California, Davis

Kaisen Lin
Virginia Tech

Naser Mahfouz
Carnegie Mellon University

Deborah McGlynn
Virginia Tech

Jessica Mirrielees
Texas A&M University

Julia Montoya-Aguilera
University of California, Irvine

Joshua Moss
MIT

Amirhosein Mousavi
University of Southern California

Emily-Jean Ott
The Pennsylvania State University

Weihan Peng
University of California, Riverside

Luis Javier Perez Lorenzo
Yale University

Lucas Rocha Melogno
Duke University

Priyatanu Roy
University of Minnesota

Nishit Shetty
Washington University in St Louis

Matthew Stewart
Harvard University

Lee Tiszenkel
University of Alabama Huntsville

Pengfei Wang
Louisiana State University

Yixiang Wang
University of Illinois at Urbana Champaign

Huan Yang
University of Minnesota

Yu Yao
University of Illinois at Urbana Champaign

Jianan Zhao
Oklahoma State University

2019 TRAVEL GRANT WINNERS (CONTINUED)

International Professional Travel Grant Recipient:

Boris Galvis
Universidad de La Salle

International Student Travel Grant Recipients:

Karen Ballesteros
Universidad de los Andes

Nicholas Carrigy
University of Alberta

Mrinmoy Chakraborty
University of British Columbia

Bowen Du
University of Toronto

Rivkah Gardner-Frolick
University of British Columbia

Sakshi Jain
University of British Columbia

Mohsen Kasemimanesh
University of Alberta

Bingqi Liu
University of British Columbia

Daniela Mendez Molano
Universidad de los Andes

Juan Rincon
Universidad de los Andes

Maria Rincon
Universidad de los Andes

Javier Ustariz
Pontificia Universidad Católica de Chile

Aaron Wylie
University of Toronto

Zilin Zhou
University of Toronto

2019 STUDENT ASSISTANTS

The AAAR would like to acknowledge the 2019 Student Assistant Volunteers:

Chethani Athukorala
Bryan Berman
Sahil Bhandari
Matthew Brege
Yunle Chen
Megan Christiansen
Madeline Cooke
Khanh Do
Carley Fredrickson
Mohammad Islam
Taekyu Joo
Kamaljeet Kaur
Joseph Ko
Kaitlyn Koehler
Jamy Lee
Naser Mahfouz
Catherine Masoud
Mara Otero-Fernandez
Kanan Patel
Yiming Qin
Tofigh Sayahi
Deep Sengupta
Masayuki Takeuchi
Hang Yi
Jianan Zhao
Qianjing Zheng

DATES AND TIMES OF SPECIAL SYMPOSIA

Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health				
Day	**Session**	**Time**	**Room**	**Format**
Tuesday	1BC	9:45-11:30	B 113-114	Platform
Tuesday	2BC	1:00-3:00	EXHIBIT HALL A	Poster
Tuesday	3BC	3:30-5:00	B 113-114	Platform
Wednesday	5BC	9:45-11:30	B 113-114	Platform
Wednesday	6BC	1:00-3:00	B 113-114	Platform
Wednesday	7BC	3:30-5:00	B 113-114	Platform
Thursday	8BC	9:45-11:30	B 113-114	Platform

From Aerosol Dosimetry and Toxicology to Health				
Day	**Session**	**Time**	**Room**	**Format**
Tuesday	1AD	9:45-11:30	A 106	Platform
Tuesday	2AD	1:00-3:00	EXHIBIT HALL A	Poster
Tuesday	3AD	3:30-5:00	A 106	Platform

The Air We Breathe: Indoor Aerosol Sources and Chemistry				
Day	**Session**	**Time**	**Room**	**Format**
Thursday	9IS	12:15-1:45	EXHIBIT HALL A	Poster
Thursday	10IS	1:45-3:00	B 110-112	Platform
Thursday	11IS	3:30-5:00	B 110-112	Platform
Friday	12IS	9:45-11:00	B 110-112	Platform
Friday	13IS	11:15-12:30	B 110-112	Platform

DATES AND TIMES OF SPECIAL SYMPOSIA (CONTINUED)

Air Quality Sensors: Low-cost != Low Complexity				
Day	**Session**	**Time**	**Room**	**Format**
Thursday	9AS	12:15-1:45	EXHIBIT HALL A	Poster
Thursday	10AS	1:45-3:00	B 115-116	Platform
Thursday	11AS	3:30-5:00	B 115-116	Platform
Friday	12AS	9:45-11:00	B 115-116	Platform
Friday	13AS	11:15-12:30	B 115-116	Platform

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SCHEDULE-AT-A-GLANCE

Sunday, October 13	
6:00 PM – 7:30 PM	**AAAR Registration** Exhibit Hall A Pre-Function
6:00 PM – 7:30 PM	**Speaker Ready Room** | A 103
7:30 PM – 8:30 PM	**Student Assistant Orientation** | B 110-112
Monday, October 14	
7:00 AM – 6:00 PM	**AAAR Registration** Exhibit Hall A Pre-Function
7:00 AM – 6:00 PM	**Speaker Ready Room A 103**
8:00 AM – 9:40 AM	**First Tutorial Session** 1. **Introduction to Aerosols 1: Single Particle Properties and Characterization** | B 110-112 Richard Flagan 2. **Soft Ionization Mass Spectrometry, Principles, Best Practices, and Applications to Aerosol Research** | B 113-114 Lynn Mazzoleni and Manjula Canagaratna 3. **Introduction to Environmental Chambers: Approaches and Challenges** | B 115-116 David Cocker 4. **Quantifying Aerosol Exposure** | B 117-119 Andrea Ferro and Ellison Carter

10:00 AM – 11:40 AM	**Second Tutorial Session**
	5. **Introduction to Aerosols 2: The Particle Size Distribution and its Dynamics** | B 110-112 Richard Flagan 6. **Sensor Data Science Bootcamp** | B 113-114 Josh Apte and John Volckens 7. **Designing and Conducting Field Campaigns that Include Indoor Environments** | B 115-116 Shelly Miller and Jeff Siegel 8. **Data Inversion for Aerosol Science and Technology** | B 117-119 Markus Petters
11:40 AM – 1:00 PM	**Lunch (on your own)**
1:00 PM – 2:40 PM	**Third Tutorial Session**
	9. **Aerosol Measurements with Microfluidics** | B 110-112 Cari Dutcher 10. **Combustion Synthesis of Materials: How to Closely Control Product Aerosol Particle Characteristics** | B 113-114 Sotiris E. Pratsinis 11. **Dynamic Modeling of PM Transport and Deposition in Human Respiratory Systems** | B 115-116 Yu Feng 12. **Hands-On Aerosol Instrumentation Design and Measurement – Group A** | Exhibit Hall A Moderated by Rawad A. Saleh
2:00 PM – 4:30 PM	**AAAR Executive Committee Meeting** | A 109

12:00 PM – 5:00 PM	**Exhibitor Set-Up** | Exhibit Hall A
2:00 PM – 5:00 PM	**Poster Set-Up** | Exhibit Hall A
3:00 PM – 4:40 PM	**Fourth Tutorial Session**

13. **Teaching Aerosol Science to Undergraduate Students** | B 110-112
Tim Raymond
14. **Electrostatic Precipitation** | B 113-114
Herek Clack
15. **Inhalation Delivery Study Design and Results** | B 115-116
Krystal Pollitt and Otmar Schmid
16. **Hands-On Aerosol Instrumentation Design and Measurement – Group B** | Exhibit Hall A
Moderated by Rawad A. Saleh

7:00 PM - 8:00 PM	**Membership Committee Mentors Training** | B 110-112

Tuesday, October 15	
7:00 AM – 7:00 PM	**AAAR Registration** Exhibit Hall A Pre-Function
7:00 AM – 7:00 PM	**Speaker Ready Room** | A 103
7:00 AM – 8:00 AM	**Awards Committee Meeting** | A 107
7:00 AM – 8:00 AM	**Endowment Committee Meeting** | A 108
7:00 AM – 8:00 AM	**Internet Committee Meeting** | A 109
8:00 AM – 9:15 AM	**Plenary Session 1: Friedlander Lecture: Airborne Ultrafine Particles and Nanomaterials: Adverse Effects on the Respiratory System and Beyond** | Oregon Ballroom Flemming Cassee **Friedlander Award Presentation** Shelly Miller **Announcement of AAAR 2019 Fellows** Pratim Biswas
9:00 AM – 4:00 PM	**Exhibits/Posters Open** | Exhibit Hall A
9:15 AM – 9:45 AM	**Coffee Break** | Exhibit Hall A
9:45 AM – 11:30 AM	**Technical Session 1: Platform** 1AC. **Aerosol Chemistry I** I Oregon Ballroom 1AD. **Symposium: From Aerosol Dosimetry and Toxicology to Health I** I A 106 1BC. **Symposium: Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health I** I B 113-114 1CC. **Aerosols, Clouds, and Climate I** I B 110-112 1IM. **Instrumentation and Methods I** I B 115-116 1UA. **Urban Aerosols I** I B 117-119
11:30 AM – 1:00 PM	Lunch (on your own)

11:30 PM – 1:00 PM	**AAAR Board of Directors Luncheon** | C 125-126
11:45 AM – 12:45 PM	**Meet the Aerosol Pioneers** | A 106
12:00 PM – 1:00 PM	**Working Group Chairs 2019 Strategy Meeting** | A 109
1:00 PM – 3:00 PM	**Technical Session 2: Poster** | Exhibit Hall A 2AC. **Aerosol Chemistry II** 2AD. **Symposium: From Aerosol Dosimetry and Toxicology to Health II** 2AE. **Aerosol Exposure I** 2BC. **Symposium: Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health II** 2CC. **Aerosols, Clouds, and Climate II** 2HA. **Health-Related Aerosols I** 2IM. **Instrumentation and Methods II** 2RA. **Remote and Regional Atmospheric Aerosol I** 2SA. **Source Apportionment I** 2UA. **Urban Aerosols II**
3:00 PM – 3:30 PM	**Coffee Break** | Exhibit Hall A
3:30 PM – 5:00 PM	**Technical Session 3: Platform** 3AC. **Aerosol Chemistry III** | Oregon Ballroom 3AD. **Symposium: From Aerosol Dosimetry and Toxicology to Health III** | A 106 3BC. **Symposium: Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health III** | B 113-114 3CC. **Aerosols, Clouds, and Climate III** | B 110-112 3IM. **Instrumentation and Methods III** | B 115-116 3UA. **Urban Aerosols III** | B 117-119

5:00 PM – 6:00 PM	**Working Group Meetings 1** **Aerosol Chemistry** | B 113-114 **Combustion and Materials Synthesis** | B 117-119 **Health Related Aerosols** | B 110-112 **History of Aerosol Science** | A 106 **Instrumentation and Methods** | B 115-116
5:00 PM - 5:30 PM	**Grand Challenges Organizers Meet the Program Managers** | A 107
6:00 PM – 8:00 PM	**Welcome Reception** | Exhibit Hall A
6:00 PM – 8:00 PM	**Technical Session 4: Meet the Job Seekers Poster Session** | Exhibit Hall A
8:30 PM - 10:30 PM	**Celebrating Diversity and Inclusivity within AAAR** | Altabira City Tavern

Wednesday, October 16	
6:30 AM	**Fun Run** (Check at Registration for details)
7:00 AM – 6:00 PM	**AAAR Registration** | Exhibit Hall A Pre-Function
7:00 AM – 6:00 PM	**Speaker Ready Room** | A 103
7:00 AM – 8:00 AM	**Conference Committee Meeting** | A 107
7:00 AM – 8:00 AM	**Finance Committee Meeting** | A 108
7:00 AM – 8:00 AM	**Newsletter Committee Meeting** | A 109
8:00 AM – 9:15 AM	**Plenary Session 2: What to do about the Toll Biomass Burning is taking on our Health, Indoor Environments, and Climate** | Oregon Ballroom Shelly Miller **Whitby Award Presentation, Liu Award Presentation** Timothy Raymond **AS&T Outstanding Paper Award Presentation and Outstanding Reviewer** Warren Finlay
9:00 AM – 5:00 PM	**Exhibits/Posters Open** | Exhibit Hall A
9:15 AM – 9:45 AM	**Coffee Break** | Exhibit Hall A
9:45 AM – 11:30 AM	**Technical Session 5: Platform** 5AC. **Aerosol Chemistry IV** I Oregon Ballroom 5AE. **Aerosol Exposure II** I A 106 5BC. **Symposium: Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health IV** I B 113-114 5IA. **Indoor Aerosols I** I B 110-112 5IM. **Instrumentation and Methods IV** I B 115-116 5UA. **Urban Aerosols IV** I B 117-119
11:30 AM – 1:00 PM	**Lunch (on your own)**

11:30 AM – 1:00 PM	**Early Career Event** | Oregon Ballroom
11:30 AM – 1:00 PM	**AS&T Editorial Advisory Board Luncheon** | C 125-126
12:00 PM – 1:00 PM	**Development Committee Meeting** | A 107
12:00 PM – 1:00 PM	**Education Committee Meeting** | A 108
1:00 PM – 3:00 PM	**Technical Session 6: Platform** 6AC. **Aerosol Chemistry V** I Oregon Ballroom 6BC. **Symposium: Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health V** I B 113-114 6HA. **Health-Related Aerosols II** I B 110-112 6IM. **Instrumentation and Methods V** I B 115-116 6RA. **Remote and Regional Atmospheric Aerosol II** I A 106 6SA. **Source Apportionment II** I B 117-119
3:00 PM – 3:30 PM	**Coffee Break** | Exhibit Hall A
3:30 PM – 5:00 PM	**Technical Session 7: Platform** 7AC. **Aerosol Chemistry VI** I Oregon Ballroom 7BC. **Symposium: Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health VI** I B 113-114 7HA. **Health-Related Aerosols III** I B 110-112 7IM. **Instrumentation and Methods VI** I B 115-116 7RA. **Remote and Regional Atmospheric Aerosol III** I A 106 7UA. **Urban Aerosols V** I B 117-119

5:00 PM – 6:00 PM	**Working Group Meetings 2** **Aerosol Physics** | B 117-119 **Atmospheric Aerosols** | B 115-116 **Bioaerosols** | B 113-114 **Control and Mitigation Technology** | A 106 **Indoor Aerosols and Aerosol Exposure** | B 110-112
6:00 PM – 7:00 PM	**AAAR Annual Business Meeting** | B 113-114
7:00 PM – 8:30 PM	**AS&T Editors Dinner** | C 125-126

Thursday, October 17	
7:00 AM – 6:00 PM	**AAAR Registration** | Exhibit Hall A Pre-Function
7:00 AM – 6:00 PM	**Speaker Ready Room** | A 103
7:00 AM – 8:00 AM	**Early Career Committee Meeting** | A 107
7:00 AM – 8:00 AM	**Membership Committee Meeting** | A 108
7:00 AM – 8:00 AM	**Publications Committee Meeting** | A 109
8:00 AM – 9:15 AM	**Plenary Session 3: Soot Formation and Chemical Evolution during Combustion** | Oregon Ballroom Hope Michelsen **Sinclair Award Presentation, Mercer Award Announcement** Matti Maricq
9:00 AM – 3:30 PM	**Exhibits/Posters Open** | Exhibit Hall A
9:15 AM – 9:45 AM	**Coffee Break** | Exhibit Hall A

9:45 AM – 11:30 AM	**Technical Session 8: Platform** 8AE/IA. **Aerosol Exposure III and Indoor Aerosols II** I B 115-116 8AP. **Aerosol Physics I** I B 117-119 8BC. **Symposium: Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health VII** I B 113-114 8CM. **Control and Mitigation Technology I** I B 110-112 8IM. **Instrumentation and Methods VII** I Oregon Ballroom 8NM. **Nanoparticles and Materials Synthesis I** I A 106
11:30 AM – 12:15 PM	**Light Take-Away Lunch** | Exhibit Hall A
11:30 AM – 1:00 PM	**IARA Board Meeting (Participants will pick up box lunches in Exhibit Hall A and proceed to Room A 109 for the meeting.)** | Room A 109
12:00 PM – 1:00 PM	**Bylaws Committee Meeting** | A 107
12:00 PM – 1:00 PM	**Long Range Planning Committee Meeting** | A 108

12:15 PM – 1:45 PM	**Technical Session 9: Poster** | Exhibit Hall A 9AC. **Aerosol Chemistry VII** 9AP. **Aerosol Physics II** 9AS. **Symposium: Air Quality Sensors: Low-cost != Low Complexity I** 9BA. **Bioaerosols I** 9CA. **Carbonaceous Aerosols in the Atmosphere I** 9CM. **Control and Mitigation Technology II** 9CO. **Combustion I** 9IA. **Indoor Aerosols III** 9IS. **Symposium: The Air We Breathe: Indoor Aerosol Sources and Chemistry I** 9NM. **Nanoparticles and Materials Synthesis II**
1:45 PM – 3:00 PM	**Technical Session 10: Platform** 10AC. **Aerosol Chemistry VIII** I Oregon Ballroom 10AS. **Symposium: Air Quality Sensors: Low-cost != Low Complexity II** I B 115-116 10BA. **Bioaerosols II** I B 113-114 10CA. **Carbonaceous Aerosols in the Atmosphere II** I B 117-119 10CO. **Combustion II** I A 106 10IS. **Symposium: The Air We Breathe: Indoor Aerosol Sources and Chemistry II** I B 110-112
3:00 PM – 3:30 PM	**Coffee Break** | Exhibit Hall A
3:30 PM	**Exhibit Hall Closes**

3:30 PM – 5:00 PM	**Technical Session 11: Platform** 11AC. **Aerosol Chemistry IX** I Oregon Ballroom 11AS. **Symposium: Air Quality Sensors: Low-cost != Low Complexity III** I B 115-116 11BA. **Bioaerosols III** I B 113-114 11CA. **Carbonaceous Aerosols in the Atmosphere III** I B 117-119 11CO. **Combustion III** I A 106 11IS. **Symposium: The Air We Breathe: Indoor Aerosol Sources and Chemistry III** I B 110-112
5:00 PM – 6:00 PM	**Working Group Chairs 2020 Technical Program Meeting** | A 107
6:00 PM – 9:00 PM	**Potential Aerosol Mass Oxidation Flow Reactor (Andrew Lambe independent meeting)** | B 110-112

Friday, October 18	
7:00 AM – 11:00 AM	**AAAR Registration** | Exhibit Hall A Pre-Function
7:00 AM – 11:00 AM	**Speaker Ready Room** | A 103
8:00 AM – 9:15 AM	**Plenary Session 4: AEESP Lecture: This is Getting Dynamic: How the Volatility Basis Set Informs Particle Formation and Growth** | Oregon Ballroom Neil Donahue **Student Poster Competition Awards Presentation** Shunsuke Nakao **Fine Particle Art Prizes** Marit Meyer **Concluding Remarks and Preview for 2020** Nga Lee "Sally" Ng and Matti Maricq
9:15 AM – 9:45 AM	**Coffee Break** | Hall A Pre-Function

9:45 AM – 11:00 AM	**Technical Session 12: Platform** 12AC. **Aerosol Chemistry X** I Oregon Ballroom 12AP. **Aerosol Physics III** | A 106 12AS. **Symposium: Air Quality Sensors: Low-cost != Low Complexity IV** | B 115-116 12BA. **Bioaerosols IV** | B 113-114 12CA. **Carbonaceous Aerosols in the Atmosphere IV** | B 117-119 12IS. **Symposium: The Air We Breathe: Indoor Aerosol Sources and Chemistry IV** | B 110-112
11:00 AM – 11:15 AM	**Break (no beverages)**
11:15 AM – 12:30 PM	**Technical Session 13: Platform** 13AC. **Aerosol Chemistry XI** I Oregon Ballroom 13AP. **Aerosol Physics IV** I A 106 13AS. **Symposium: Air Quality Sensors: Low-cost != Low Complexity V** I B 115-116 13BA. **Bioaerosols V** I B 113-114 13CA. **Carbonaceous Aerosols in the Atmosphere V** I B 117-119 13IS. **Symposium: The Air We Breathe: Indoor Aerosol Sources and Chemistry V** I B 110-112
12:30 PM	**Conference Ends**
12:30 PM – 4:00 PM	**AAAR Board of Directors Meeting** I C 125-126

37TH AAAR
ANNUAL CONFERENCE
OCT. 14-18, 2019
OREGON CONVENTION CENTER

TUTORIALS

Tutorials are Pre-Conference Sessions held on Monday October 14, 2019.

There will be 16 tutorials scheduled over four Tutorial Sessions.

Session	Time
First	**8:00 AM – 9:40 AM**
Second	**10:00 AM – 11:40 AM**
Third	**1:00 PM – 2:40 PM**
Fourth	**3:00 PM – 4:40 PM**

FIRST TUTORIAL SESSION

8:00 AM – 9:40 AM

TS1 | Room B 110-112

Introduction to Aerosols 1: Particle Aerodynamics, Diffusion, and Size Measurement

Abstract: This tutorial is the first of two that introduce the broad field of aerosol science. We begin with the behavior of individual particles to understand how they behave in the environment, and the physical principles on which most aerosol measurements are based. The drag forces that act on a particle determine its settling velocity and whether it is able to follow the flow of a gas. Several different models describe the drag forces: Stokes law applies for spherical particles moving at modest velocities, though a slip correction must be introduced to account for non-continuum effects for particles small compared to the mean-free-path of the gas molecules. Other corrections are required if the velocity becomes large enough the fluid inertia affects the motion. Knowledge of these scaling principles makes it possible to relate particle behavior in seemingly disparate systems, and make it possible to determine particle size. The drag forces also determine Brownian motion, and, hence, affect their deposition and losses in the respiratory tract, in sampling systems, and in filters, causing aerosol filtration to be more effective than filtration of particles from liquid media. We will briefly look at how this aerodynamic behavior is employed in determining particle size in a wide range of instruments, including the migration of charged particles in mobility analyzers.

Richard Flagan

Bio: Richard C. Flagan is the Irma and Ross McCollum/ William H. Corcoran Professor of Chemical Engineering and Environmental Science and Engineering at the California Institute of Technology. He has served as President of the AAAR and Editor-in-Chief of Aerosol Science and Technology. His research spans the field of aerosol science, including atmospheric aerosols, aerosol instrumentation, aerosol synthesis of nanoparticulate materials, and bioaerosols. His many contributions to the field of aerosol science have been acknowledged with the Smoluchowski Award, the Sinclair Award, and the Fuchs Award. He is a member of the U.S. National Academy of Engineering.

TS2 | Room B 113-114

Soft Ionization Mass Spectrometry: Principles, Best Practices, and Applications to Aerosol Research

Abstract: Atmospheric organic aerosol is a complex mixture of thousands of organic compounds and therefore presents a substantial analytical challenge. Organic aerosol composition can be studied using on-line and off-line soft ionization high resolution mass spectrometry methods. Since a mass spectrometer measures only the introduced ion beam, a focus on the strengths and weaknesses of the major ionization methods, including key lab and field results, will be discussed. Techniques that will be highlighted include electrospray ionization, extractive electrospray ionization, chemical ionization, and atmospheric pressure photoionization. Next, methods for accurate mass measurements will be discussed, including mass resolution, internal mass recalibration, and peak deconvolution. Current methods for calibrating and quantifying ion signals in soft ionization mass spectra will also be presented. Finally, the post-processing methods for ultrahigh resolution mass spectrometry measurements will be discussed, including noise estimation, isotope filtering, mass recalibration, and molecular formula assignment. Examples, from an open-source R package, MFAssignR, with a full set of these post-processing tools will be provided. Background information and the R code for MFAssignR can be found in the public GitHub repository (https://github.com/ChARM-Group/MFAssignR).

Lynn Massoleni

Bio: Dr. Mazzoleni is an Associate Professor of Chemistry and the Co-Director of the Chemical Advanced Resolution Methods (ChARM) Laboratory at Michigan Tech. She received her Ph.D. in Environmental Sciences and Health from the University of Nevada, Reno in 2005. Dr. Mazzoleni has worked at the Desert Research Institute, Colorado State University, and Los Alamos National Laboratory before becoming a professor at Michigan Tech. Her primary research interests are focused on the identification of organic aerosol constituents from various atmospheric environments with a special interest in biomass combustion and aqueous phase chemistry. Dr. Mazzoleni's research group uses a combination of advanced mass spectrometry, liquid chromatography, and data science methods for a discovery-centered approach to identify organic molecules in atmospheric complex mixtures. She is the recipient of several national awards, including a Fulbright U.S. Scholar Award for a research-focused sabbatical at the Italian National Center for Research in Bologna, Italy.

Manjula Canagaratna

Bio: Manjula Canagaratna is an associate center director of the Center for Aerosol and Cloud Chemistry at Aerodyne Research (ARI) in Billerica, MA. She received her Ph.D. in Physical Chemistry from University of Minnesota and completed a post-doctoral chemistry fellowship at MIT. Dr. Canagaratna's work at ARI focuses on the development and application of advanced mass spectrometric techniques for the study of gas and particulate species in the atmosphere. She has participated in many field and laboratory experiments using ARI's aerosol mass spectrometer (AMS) and chemical ionization mass spectrometer (CIMS) systems. In addition, she has focused on the use of multivariate analysis methods for analysis of AMS/CIMS spectra with the particular focus of obtaining improved chemical information about organic aerosol species.

TS3 | Room B 115 - 116

Introduction to Environmental Chambers: Approaches and Challenges

Abstract: Environmental chambers are widely used to study atmospheric chemistry and secondary organic aerosol formation. While very useful for these studies, the presence of chamber surfaces presents a unique set of experimental challenges. This tutorial will explore the historical development of chambers (static and flow), the role of surfaces in influencing the chemistry within the chamber, and how these effects are characterized and accounted for within such experiments. Chamber quality control experiments including assessment of low-NOx experimental conditions, wall loss, particle background, particle-gas-wall interactions, HONO release, and implications for kinetic and aerosol modeling will be discussed.

David Cocker

Bio: David Cocker is Professor and Chair of Chemical and Environmental Engineering at the University of California Riverside. He completed a PhD in Environmental Engineering Science at the California Institute of Technology in 2001. His research interests include secondary organic aerosol formation, emission characterization and air quality systems. His research group hosts the world's largest indoor environmental chamber for the study of ozone and secondary organic aerosol formation. His research group focuses on connecting gas-phase oxidation processes with secondary organic aerosol formation and evaluating the role of kinetic limitation on gas-particle processes. The ultimate goal of the research is to provide the experimental foundation necessary for development of air quality models with increasing accuracy.

TS4 | Room B 117-119

Quantifying Aerosol Exposure

Abstract: Quantifying aerosol exposure is important for many applications, including supporting epidemiology studies, risk assessments, development of mitigation strategies, and sustainability efforts for cities and communities. This tutorial will review current measurement and modeling methods for estimating aerosol exposure in non-industrial indoor and in-cabin microenvironments, such as homes, schools, hospitals, commercial buildings, and vehicles. In this tutorial, we will discuss existing as well as promising future approaches for quantifying aerosol exposure. There will be multiple real-world examples as well as a hands-on activity.

Andrea Ferro

Bio: Andrea Ferro is a professor of Civil and Environmental Engineering at Clarkson University, the Clarkson Institute for a Sustainable Environment Associate Director for Research, a faculty affiliate of the Clarkson Center for Air Resources Engineering and Science (CARES), and the current Vice President of AAAR. Her technical expertise is focused on indoor air quality and human exposure to aerosols. She has worked directly with communities, schools, and hospitals and to measure, understand and mitigate sources of PM exposure. She has been conducting research in the field of particle resuspension for more than 20 years, including measurement and modeling of particle adhesion, detachment and transport at multiple scales, as well as the quantification of human exposure to resuspended particles for various exposure scenarios.

Ellison Carter

Bio: Ellison Carter is an assistant professor of Civil and Environmental Engineering at Colorado State University. Her technical expertise is focused on indoor air quality and human environmental exposures in residential environments. She has conducted field-based studies nationally and internationally in rural and urban settings to evaluate patterns and predictors of air pollution exposures. This work is frequently in collaboration with interdisciplinary teams including social and health scientists, as well as clinicians, chemists, and building scientists. Her work in this field of research includes measurement of stationary indoor and outdoor air pollution, as well as personal exposure monitoring, and assessments of housing quality.

SECOND TUTORIAL SESSION

10:00 AM – 11:40 AM

TS5 | Room B 110 – 112

Introduction to Aerosols 2: The Particle Size Distribution and Its Dynamics

Abstract: This tutorial continues the basic introduction to aerosol science. In this session we focus on developing the tools to describe the dynamics of aerosol populations. An aerosol is an ensemble of particles in a gas, and the particles are distributed over a range of sizes. Therefore, they must be represented by a particle size distribution. We will discuss the representation of aerosol populations as size distributions, their graphical representation, and models such as the log normal-distribution. Condensation and evaporation of volatile species onto particles determines their growth in the atmosphere, and efficient counting of particles too small to detect optically in condensation particle counters. Both continuum and non-continuum effects must again be considered, as must the surface tension which governs particle activation, initial activation, and the possibility of nucleating new particles from the vapor phase. These processes also alter the shape of the size distribution. Particle-particle collisions lead to coagulation, which further alters the size distribution. We will examine how these diverse processes are combined to describe the population dynamics for aerosol systems.

Richard Flagan

Bio: Richard C. Flagan is the Irma and Ross McCollum/ William H. Corcoran Professor of Chemical Engineering and Environmental Science and Engineering at the California Institute of Technology. He has served as President of the AAAR and Editor-in-Chief of Aerosol Science and Technology. His research spans the field of aerosol science, including atmospheric aerosols, aerosol instrumentation, aerosol synthesis of nanoparticulate materials, and bioaerosols. His many contributions to the field of aerosol science have been acknowledged with the Smoluchowski Award, the Sinclair Award, and the Fuchs Award. He is a member of the U.S. National Academy of Engineering.

TS6 | Room B 113 – 114

Sensor Data Science Bootcamp

Abstract: The recent proliferation of low-cost aerosol and gas sensors has sparked much interest among the scientific community. Such devices show promise to enable measurements at unprecedented spatial and temporal scales, which, in turn, can lead to the creation of distributed sensor networks to support both traditional research and community-based research. With these exciting prospects, however, come challenges of sensor performance, sensor reliability, and data management. This tutorial will review basic principles of statistics and data science for real-time aerosol sensors, with a focus on low-cost (<$2,000) devices. Topics to be covered will include data management and cleaning, exploratory data analysis, linear models, troubleshooting techniques (and potential solutions), statistical issues relevant to time-series data (such as autocorrelation), and determination of analytic figures of merit (e.g., accuracy, bias, prevision, limit of detection). Participants need not have formal training in data science beforehand; self-help resources for learning basic data science in the R and MATLAB programming languages will be provided

Josh Apte

Bio: Dr. Josh Apte is an assistant professor in the Department of Civil, Architectural and Environmental Engineering at the University of Texas at Austin. He studies human exposure to air pollution in the built environment to understand the relationships between emissions, atmospheric transformations, concentrations, human exposures and health effects. His work is interdisciplinary and draws methods from environmental engineering, aerosol science, exposure assessment, and environmental health, with the goal of applying these insights to designing healthy, energy-efficient, and sustainable cities for the world. His research on air pollution mapping using Google Street View Cars has won numerous awards and has garnered both national and international attention for impact. His paper “High-Resolution Air Pollution Mapping with Google Street View Cars: Exploiting Big Data” won the “Top Environmental Technology Paper” award from Environmental Science and Technology in 2017.

John Volckens

Bio: Dr. John Volckens is a professor of Mechanical Engineering and the Director of the Center for Energy Development and Health at Colorado State University (CSU). He holds affiliate appointments in Environmental Health, Biomedical Engineering, the Colorado School of Public Health, and the CSU Energy Institute. His research interests involve air quality, low-cost sensors, exposure science, and air pollution-related disease. He is a founding member of the CSU Partnership for Air Quality, Climate, and Health – an organization that seeks to develop practical, science-vetted solutions to intertwined problems of air quality, climate, and health that we face as a society. He holds a BS in Civil Engineering from the University of Vermont and MS, PhD degrees in Environmental Engineering from the School of Public Health at the University of North Carolina at Chapel Hill. He then went on to a Postdoctoral position at the U.S. EPA's National Exposure Research Laboratory in Research Triangle Park, NC. At CSU, he has pioneered the development of several new pollution sensor technologies, which have been deployed for public health research in over 30 different countries and as far away as the International Space Station. He has published over 100 manuscripts related to exposure science, aerosol technology, and air pollution-related disease.

TS7 | Room B 115 – 116

Designing and Conducting Field Campaigns that Include Indoor Environments

Abstract: Health effects from particulate exposures are well understood from the context of outdoor air. People, however, spend more than 90% of their time indoors and sources and levels of exposures can vary widely compared to outdoor air. The driving factors in indoor particle concentrations stem from the outdoor environment, the building itself (e.g., the leakiness of the enclosure), the heating, ventilation, and air-conditioning (HVAC) systems in the building (e.g., the amount of outside air), and the activities of the occupants in the building (e.g., the temporal profile of indoor sources). All of these factors can be very different, even in seemingly similar buildings, and highly temporally variable in the same building. In this workshop we will review the key ingredients needed to include indoor environments in any field study. We will outline a two-step process for first selecting the building parameters that are important to measure depending on the goals of a field study and then to efficiently make measurements of these variables depending on the needed resolution and resources available. The tutorial is targeted at researchers with expertise in outdoor aerosol and air quality measurements and/or exposure assessments.

Shelly Miller

Bio: Shelly L. Miller, Ph.D., is a Professor of Mechanical Engineering and faculty in the Environmental Engineering Program at the University of Colorado Boulder. She holds an M.S. and Ph.D. in Civil and Environmental Engineering from University of California, Berkeley and a B.S. in Applied Mathematics from Harvey Mudd College. Dr. Miller teaches about and investigates urban air quality and works diligently to understand the impact of air pollution on public health and the environment. She has published over 60 peer reviewed articles on air quality, authored a Chapter on Indoor Air Quality in the Environmental Engineering Handbook, is an active scientist on twitter, and publishes open access as often as possible.

Jeffrey Siegel

Bio: Jeffrey Siegel, Ph.D., is a Professor of Civil and Mineral Engineering at the University of Toronto and a member of the university's Building Engineering Research Group. He holds joint appointments at the Dalla Lana School of Public Health and the Department of Physical & Environmental Sciences. He holds an M.S. and Ph.D. in Mechanical Engineering from the University of California, Berkeley as well as a B.Sc. from Swarthmore College. He is fellow of ASHRAE, a member of the Academy of Fellows of ISIAQ, and an associate editor for the journal Building and Environment. His research interests including control of indoor particulate matter, healthy and sustainable buildings, ventilation and indoor air quality in residential and commercial buildings, the indoor microbiome, and moisture interactions with indoor chemistry and biology. He teaches courses in indoor air quality, sustainable buildings, and sustainable energy systems. He has conducted indoor air quality and energy conservation research in over two thousand residential and commercial buildings.

TS8 | Room B 117 - 119

Data Inversion for Aerosol Science and Technology

Abstract: Many aerosol measurement techniques produce raw measurement response functions that must be inverted to properly interpret the data. This tutorial will introduce common inversion approaches used in Aerosol Science & Technology. One often used technique is mobility classification of aerosol using electrical mobility analyzers. The tutorial will provide hands-on examples for several instrument configurations. The examples are designed to demonstrate how the inversion of mobility analyzer response functions is critical to informing experimental design and data analysis.

At the end of the session, tutorial participants will have a starting point to modify supplied computer code for use in their own research projects.

Markus Petters

Bio: Markus Petters is an Associate Professor in the Department of Marine Earth and Atmospheric Sciences at North Carolina State University. He received a doctorate in Atmospheric Science from the University of Wyoming and was a postdoctoral researcher in the Department of Atmospheric Science at Colorado State University. His research interests include aerosol instrumentation and the study of aerosol phase transitions in the laboratory and field setting. He was co-recipient of the AAAR Kenneth T. Whitby Award in 2015.

THIRD TUTORIAL SESSION

1:00 PM – 2:40 PM

TS9 | Room B 110-112

Aerosol Measurements with Microfluidics

Abstract: Microfluidics is a powerful platform for precise, high-throughput, low-cost measurements with small volumes of sample. The microscale platform is already widely established in fields of biology, medicine, chemistry, and rheology, and, as highlighted in this tutorial, is rapidly emerging as important platform for aerosol science measurements. This tutorial on aerosol measurements with microfluidics will involve three main sections:

(1) Basic operating principles of microfluidic flows, with emphasis on two-phase flows for aerosol science applications. General techniques for generating, detecting, trapping, sorting, filtering, and manipulating droplets and particles in microscale flows will be presented.

(2) Current and emerging aerosol science microfluidic measurements, with comparison to conventional aerosol experimental methods where applicable. In addition, methods for sample collection will be discussed.

(3) Step-by-step guidance on designing, fabricating, and operating devices, with a practical hands-on demonstration of assembling a device and generating two phase flows.

Cari Dutcher

Bio: Cari S. Dutcher is the Benjamin Mayhugh Assistant Professor of Mechanical Engineering at the University of Minnesota, Twin Cities, with research interests in aerosol science and multiphase fluids. Cari currently serves on the AAAR board of directors. She has received a number of early faculty awards, including the 3M Non-Tenured Faculty Award, NSF CAREER, McKnight Land-Grant Professorship, and AAAR Kenneth T. Whitby Award. Cari received her Ph.D. from the University of California, Berkeley in Chemical Engineering and was a postdoc at the University of California, Davis in the Air Quality Research Center.

TS10 | Room B 113 – 114

Combustion Synthesis of Materials: How to closely control product aerosol particle characteristics

Abstract: We begin with the fascinating history of aerosol technology from production of inks in ancient China to the Bible printing by Gutenberg and to the manufacture of optical fibers, carbon blacks, pigments, fumed silica, filamentary nickel and nanosilver today. Advantages and disadvantages of aerosol over conventional technologies for material synthesis are presented. Flame aerosol reactors are highlighted for their proven scalability as they dominate by value and volume the manufacture of aerosol-made materials today. The significance of high temperature particle residence time, self-preserving particle size distribution and power laws for fractal-like particle structure in multi-scale (continuum, mesoscale and molecular dynamics) aerosol reactor design is presented. Basic design principles for synthesis of nanoparticles with closely controlled primary size and structure (from ramified or fractal-like to perfectly spherical particles) are introduced. Distinct examples are given with selected process variables such as reactant flowrates, concentration, composition, mixing, doping, charging and pressure. Opportunities for aerosol synthesis of functional films and particles for biomaterials, catalysts and gas sensors by combustion of sprayed solutions are presented.

Sotiris E. Pratsinis

Bio: Sotiris is professor of process engineering and materials science at ETH Zurich teaching mass transfer, introduction to nanoscale engineering and micro-nano-particle technology http://www.ptl.ethz.ch/people/person-detail.html?persid=79969 He has graduated 41 PhDs serving at leading industrial and academic institutions today. His research centers on aerosol dynamics and has been recognized by the Whitby, Smoluchowski and Fuchs awards while he is a member of the Swiss Academy of Engineering.

TS11 | Room B115 – 116

Dynamic modeling of PM transport and deposition in human respiratory systems

Abstract: Dynamic modeling of how particulate matters (PMs) transport and deposit in human respiratory systems due to indoor exposures is important for case-specific lung dosimetry predictions and occupational health analysis. Indeed, it used to be difficult to provide the high-resolution data for the researcher to understand the particle dynamics in human lung airways quantitatively and to evaluate the connections among realistic exposure levels, lung uptakes, and health effects. Such deficiencies are due to the invasive nature and imaging limitations of existing in vitro and in vivo studies. Additionally, the complexity of pre-existing lung diseases and breathing patterns make the personalized exposure health risk assessment even more challenging. However, the development of fluid dynamics, computational science, and medical imaging disciplines has spawned a new flourishing interdisciplinary research field in modeling the transport, deposition, and translocation of airborne PMs from the indoor environment to human respiratory systems. As an alternative, such models, i.e., computational fluid-particle dynamics (CFPD) models can quantify transport phenomena in respiratory systems. This tutorial will provide an overview of how to use CFPD based multiscale numerical approaches to predict the indoor PM lung dosimetry quantitatively. We will start with reviewing the past ten years of computational lung aerosol dynamics work and current challenges and research progress on modeling that are available. We will then cover the fundamentals of how to build the CFPD model based on conservation laws to simulate airflow and airborne particle dynamics and enhance the fundamental understandings of the underlying mechanisms. Focusing on indoor aerosol simulations, we will discuss (a) how subject-specific respiratory system configurations can be reconstructed form CT/MRI scanned data, (b) how to build a virtual indoor environment and integrate the digital human system, (c) how to generate different types of finite volume meshes (including poly-core and poly-hex core meshes), (d) how to solve the governing equations numerically, and (e) how to sufficiently utilize the high-resolution CFPD data for post-processing with in-depth scientific insights. We will also cover the basics of physiologically based pharmacokinetic/toxicokinetic (PBPK/TK) models and discuss examples on how to connect the PBTK model with CFPD model to bring the lung dosimetry predictions to the health endpoints. Finally, we will introduce application examples of using dynamic models on indoor aerosol exposure assessments.

Yu Feng

Bio: Dr. Yu Feng is an Assistant Professor in the School of Chemical Engineering at Oklahoma State University. He is also a center investigator in the Oklahoma Center for Respiratory and Infectious Diseases (OCRID). Yu Feng was a Research Assistant Professor and Lab Manager of the Computational Multi-Physics Laboratory (CM-PL) at North Carolina State University. He has also held an affiliation with the DoD Biotechnology HPC Software Applications Institute (BHSAI) as a Research Scientist II. Dr. Feng's lab focuses on making contributions to the medical world and human life by providing well-posed solutions to patient-specific pulmonary health problems using multi-scale modeling techniques. Outside of work, Dr. Yu Feng enjoys running (20 half marathons and 7 marathons so far) and hiking.

TS12 | Exhibit Hall A

Hands-On Aerosol Instrumentation Design and Measurement – Group A

Abstract: This tutorial will enable the participants to get an "under the hood" look at a broad spectrum of currently available aerosol instruments, with focus on aerosol sampling and speciation instruments. Whether you are an experimentalist, modeler, or both, this is an opportunity to learn how fundamental aerosol science principles are used in actual aerosol measurement technologies. Key capabilities, as well as limitations, of each technique will be described in order to instill a better appreciation of what different instruments can and cannot do. In this session, five aerosol instrumentation suppliers will present the concepts and engineering design processes that led to the successful development of different aerosol instruments. The tutorial is not a marketing and sales opportunity for participating vendors; this is an education session with an emphasis entirely on technology and the key physical concepts employed by the instruments. The goal is that by the end of the tutorial, participants no longer consider the instruments a "black box," but rather have some understanding of the principles and design consideration that went into the development of the various instruments. Furthermore, the information presented on measurement uncertainties and limitations will help the participants better interpret (avoid over-interpreting) measurement results.

Participating Companies

Aethlabs | microAeth MA Series
Magee Scientific | Total carbon analyzer
Innova Prep – ACD | 200 Bobcat Air Collector
Aerosol Devices | BioSpot bioaerosol sampler
URG Corp | Ambient Ion Monitor
Metrohm | MARGA gas and aerosol sampling system

FOURTH TUTORIAL SESSION

3:00 PM – 4:00 PM

TS13 | Room B 110 – 112

Teaching Aerosol Science to Undergraduate Students

Abstract: Aerosol education, or even simple awareness of aerosols, typically begins in graduate school where many students find an interest in the topic simply by accident. This is unfortunate for the discipline of aerosol studies, the schools with graduate programs in the area, and the undergraduate students who never learn about the topic. One reason for this, is that aerosol studies span many different majors/areas including Chemical Engineering, Mechanical Engineering, Civil Engineering, Environmental Engineering, Chemistry, Physics, Atmospheric Science, Human Health Studies, and Earth Sciences. Because of their relatively minor role in most of these individual areas, aerosols never get the position of a "required" course in any curriculum, and rarely even get the position of "elective" in most disciplines. Despite this, they remain an underlying "enabling discipline" for important work in all of these majors/areas mastered only by specialists who earn graduate degrees and hidden from the view of both the general public and often many other science and engineering professionals who remain unaware of the importance, opportunities, and problems associated with aerosols.

The goal of this tutorial is to demonstrate and discuss several ways that those involved in undergraduate education can begin to introduce aerosols into the undergraduate curriculum. Since many aerosol processes already involve principle concepts from chemistry, physics, thermodynamics, mass transfer, fluid dynamics, diffusion, and other topical classes, and since many applications involve the use of aerosols (spray drying, powder coating, drug delivery, manufacturing, fuel combustion, pollution mitigation, epidemiology, etc.), there are myriad opportunities to bring aerosols to many undergraduate classes in many disciplines. This tutorial will show some examples using case studies, class problems, demonstrations, etc. that have already been used in undergraduate curricula. Additionally, time will be reserved in the second half of the tutorial to actively engaging the audience to develop their own aerosol-related modules/problems/examples/case studies and then to share these (or ones previously developed) with the rest of the participants. All examples will be shared electronically with the tutorial participants and, hopefully, be disseminated more widely via free academic access sites in the near future.

Tim Raymond

Bio: Tim Raymond is Chair of the Department of Chemical Engineering at Bucknell University in Lewisburg. He earned his BS in Chemical Engineering from Bucknell and his PhD in Chemical Engineering from Carnegie Mellon University where he worked in the Pandis research labs, currently the Center for Atmospheric Particle Studies. Tim has been a member of AAAR for 20 years, attending and presenting at all but one conference, and has served the organization as Atmospheric Aerosol Working Group Chair, on the Awards Committee and on the Education Committee for several years. Tim is a current member of the Board of Directors of AAAR. His interests in aerosols encompass Aerosol Chemistry, Aerosol Physics, Atmospheric Aerosols, Health-Related Aerosols, and Indoor Aerosols & Aerosol Exposure. His past work as an NSF CAREER Awardee primarily involved aerosol-water interactions in the atmosphere with a focus on cloud condensation nuclei and complex, organic aerosols. Recently Tim's research has expanded to investigations of biologically-sourced aerosols and aerosols formed from electronic cigarettes. As a member of the AAAR Board of Directors, Tim would like to improve the visibility and reputation of aerosol studies as an "enabling discipline" among both the general public and other scientific and engineering research disciplines. With his background and position in undergraduate engineering education, Tim works to expose more undergraduates, particularly at non-PhD-granting institutions and those without active aerosol researchers, to the exciting possibilities and connections of aerosols to the environment, human health, energy, etc. Tim recently organized the Aerosol Education symposium at the International Aerosol Conference in St. Louis last year.

TS14 | Room B 113 – 114

Electrostatic precipitation

Abstract: Charging and manipulation of particles has been essential to the development of fast particle size classification and high throughput particle collection and gas cleaning. This tutorial will provide an overview of particle charging fundamentals and how they influence electrostatic precipitation. Important ancillary phenomena affecting particle collection rate and overall collection efficiency will be discussed, along with several novel or niche applications that rely on charged aerosol dynamics.

Herek Clack

Bio: Herek Clack earned an S.B. in Aeronautical and Astronautical Engineering from MIT (1987) and an M.S. (1997) and Ph.D. (1998) in Mechanical Engineering from the University of California, Berkeley. Previously an assistant, then associate, professor of mechanical and aerospace engineering at Illinois Institute of Technology (1999-2014), currently he is a research associate professor of civil and environmental engineering at the University of Michigan where his group focuses on electrostatic precipitation, electro-hydrodynamic phenomena, and inactivation of infectious aerosols by application of non-thermal plasmas. He has served on numerous National Research Council committees addressing issues ranging from the environmental implications of changing power plant regulations to assessing technologies for reducing air emissions from the thermal destruction of both conventional munitions and chemical warfare agents by the DoD. He has received the XVI Distinguished Young Alumni/ae award (MIT, 2000), the CAREER Award (NSF, 2004), the Harry J. White Award for Outstanding Achievement in the Science and Application of Electrostatic Precipitation (ISESP, 2013) and the University of Michigan College of Engineering Kenneth M. Reese Outstanding Research Scientist Award (2019). He is a member of the Board of Directors of the International Society for Electrostatic Precipitation (ISESP).

TS15 | Room B 115 – 116

Inhalation Delivery Study (Design and Results)

Abstract: Inhaled aerosol can be friend or foe depending on the type of aerosol. While urban dust or occupational aerosols are under scrutiny for public health risks, inhaled drugs alleviate symptoms of numerous patients suffering from chronic lung disease. Both aspects of inhaled aerosols are widely studied leveraging in vitro (cell) and in vivo (animal) models of the lung. In particular accurate dose-response curves are essential for risk or efficacy assessment. In this tutorial you will learn about various in vitro and in vivo aerosol exposure technologies with particular emphasis on control of the tissue-delivered dose. An overview of the currently available in vitro aerosol exposure systems is provided and two systems are presented in more detail: the VITROCELL®CLOUD system and the Electrostatic Aerosol in Vitro Exposure System (EAVES). Both were developed for ease-of-use combined with high substance efficiency and dose delivery rate. Moreover, two types of in vivo (animal) aerosol exposure technologies are presented, the conventional nose-only and the recently developed ventilator-assisted aerosol inhalation system featuring high delivery efficiency and dose rate. Technological details, study design and selected results for all of these aerosol exposure systems are presented.

Krystal Pollitt

Bio: Krystal Pollitt is an assistant professor in the Department of Environmental Health Sciences in the School of Public Health at Yale University. She received her Ph.D. from King's College London in Environmental Toxicology. She holds Bachelor and Master degrees in Chemical Engineering from the University of Toronto. Her research includes ambient aerosol chemical characterisation and evaluation of the health effects associated with exposure. She has experience performing human and animal aerosol inhalation studies as well as dose-controlled aerosol exposures using ex vivo models of the lung.

Otmar Schmid

Bio: Dr. Otmar Schmid is head of the Pulmonary Aerosol Delivery Group at the Comprehensive Pneumology Center, Helmholtz Zentrum München (Munich, Germany), and Adjunct Assistant Professor at the Missouri University of Science and Technology. His current research interests range from health risks of ambient aerosols, cigarette smoke and engineered nanomaterials to new opportunities for diagnostics and targeted drug delivery using nanomaterials. He has extensive experience in aerosol characterization and has developed patented methods for dose-controlled delivery of aerosols to animal models and cell culture models of the lung. He has published more than 80 peer-reviewed papers and book chapters, he has served on the boards of numerous professional associations, and he has served as consultant to pharma industry and regulatory bodies.

TS16 | Exhibit Hall A

Hands-On Aerosol Instrumentation Design and Measurement – Group B

Abstract: This tutorial will enable the participants to get an "under the hood" look at a broad spectrum of currently available aerosol instruments, with focus on aerosol sizing and counting instruments. Whether you are an experimentalist, modeler, or both, this is an opportunity to learn how fundamental aerosol science principles are used in actual aerosol measurement technologies. Key capabilities, as well as limitations, of each technique will be described in order to instill a better appreciation of what different instruments can and cannot do. In this session, six aerosol instrumentation suppliers will present the concepts and engineering design processes that led to the successful development of different aerosol instruments. The tutorial

is not a marketing and sales opportunity for participating vendors; this is an education session with an emphasis entirely on technology and the key physical concepts employed by the instruments. The goal is that by the end of the tutorial, participants no longer consider the instruments a “black box,” but rather have some understanding of the principles and design consideration that went into the development of the various instruments. Furthermore, the information presented on measurement uncertainties and limitations will help the participants better interpret (avoid over-interpreting) measurement results.

Participating Companies

Palas GmbH | U-SMPS and Charme

Dekati | High Resolution ELPI®+ with sintered collection plates

Cambustion | AAC (Aerodynamic Aerosol Classifier)

Brechtel Mtg. | Portable UAV/Drone deployable sizing and counting instruments

AirPhoton LLC | nephelometer model IN102Ex

TSI Inc. | 3789 Versatile Water-Based Condensation Particle Counter

PLENARY SESSIONS

Plenary Session 1

TUESDAY, OCTOBER 15, 2019
8:00 AM – 9:15 AM
Oregon Ballroom

Friedlander Lecture: Airborne Ultrafine Particles and Nanomaterials: Adverse Effects on the Respiratory System and Beyond

Flemming Cassee | Dutch National Institute for Public Health and the Environment (RIVM), Bilthoven, the Netherlands and Institute for Risk Assessment Studies Utrecht University, Utrecht, the Netherlands

The adverse effects of air pollution on respiratory and cardiovascular health have been established in a series of major observational studies. Even short term exposures to particulate matter (PM) pollution have been associated with marked increases in cardiovascular morbidity and deaths from myocardial ischemia, arrhythmia and heart failure. However, these observational data are limited by imprecision in the measurement of pollution exposure, and the potential for environmental and social factors to confound these apparent associations. Much attention has been paid to the role of tail pipe emissions on pulmonary and cardiovascular toxicity. Examples will be shown on the implications of particles traps, catalytic converters and changing fuels (biodiesel) on the toxicity and health risk associated with tailpipe emissions. Although the focus in the past few years has been on road traffic emissions, mainly from diesel engine, PM is emitted from other sources like brakes as well as well as e.g. aviation. Some sources have been shown to have a much higher oxidative potential compared to diesel soot. This will also include BioPM, a suspension of particles containing living microorganisms or parts thereof released in air. Very little is known as to what extent such effects are different for PM obtained from other sources. Similarities and differences with engineered nanomaterials will be discussed. For a causal association to have scientific credence, a clear mechanism must be defined. Oxidative stress has been suggested as a key aspect leading to cardiovascular toxicity and worsening of diseases.

This presentation will provide information on the effects of inhaled ultrafine particles and nanomaterials (including the role of physical and chemical properties) on the respiratory system as well as on cardiovascular health, neurodegeneration and reproduction.

Biosketch: Flemming Cassee, inhalation toxicologist since 1995, supports government authorities by coordinating and conducting research and providing advice to policy makers. His research focus is on aimbient particulate matter (PM) and airborne nanomaterials. He is a professor in Inhalation Toxicology at the Institute for Risk Assessment Sciences at the Utrecht University, the Netherlands. He also leads the Inhalation Toxicology unit at the National Institute for Public Health and the Environment (RIVM) of the Netherlands. He is Editor-in-Chief of Particle and Fibre Toxicology, Past-President of the Dutch Society of Toxicology, Past-President of the Inhalation and Respiratory Speciality Section, and President Elect of the Nanotoxicology Specialiy Section of the USA Society of Toxicology. He is also part of the coordination team of the EU Nanosafety Cluster and an advisor of the World Health Organization with respect to air pollution.

Plenary Session 2

WEDNESDAY, OCTOBER 16, 2019
8:00 AM – 9:15 AM
Oregon Ballroom

What to do about the Toll Biomass Burning is taking on our Health, Indoor Environments, and Climate

Shelly Miller | University of Colorado Boulder

Biomass burning emissions include those from wildfires, controlled and agricultural burns, and burning of biofuels for heating and cooking. Emissions of aerosols and gaseous pollutants from burning biomass have major impacts on air quality, public health and climate at spatial scales that range from indoors to global and impacts are felt in developed and developing countries alike. Exposures are experienced mostly indoors due to the time we spend at home, so the focus of this presentation will be on indoor-related impacts. Particulate matter is of special interest because of the large quantity produced during biomass combustion and because of its known adverse human health outcomes, including increased hospitalizations, mortality, respiratory symptoms and infections, and inflammation. Climate change is increasing the frequency of wildfires and area burned; also, biomass burning is linked to changing the climate.

This presentation will detail the latest science on impacts of biomass burning on indoor environments including wildfire impacts on residential exposure and biofuels combustion in homes in developing countries. Additional comments will include indoor cooking emissions from food preparation because this is a significant source of exposure to aerosols and toxic gases. A discussion of control strategies to reduce exposure will include how to effectively reduce exposures with ventilation, window opening, air cleaners, alternative fuels and cleaner stove technology.

Biosketch: Shelly L. Miller, Ph.D., is a Professor of Mechanical Engineering and faculty in the Environmental Engineering Program at the University of Colorado Boulder. She holds an M.S. and Ph.D. in Civil and Environmental Engineering from University of California, Berkeley and a B.S. in Applied Mathematics from Harvey Mudd College. Dr. Miller teaches about and investigates urban air quality and works diligently to understand the impact of air pollution on public health and the environment. She has published over 60 peer reviewed articles on air quality, authored a Chapter on Indoor Air Quality in the Environmental Engineering Handbook, is an active scientist on twitter, and publishes open access as often as possible.

Plenary Session 3

THURSDAY, OCTOBER 17, 2019
8:00 AM – 9:15 AM
Oregon Ballroom

Soot Formation and Chemical Evolution during Combustion

Hope Michelsen | University of Colorado Boulder

There are substantial gaps in our understanding of the mechanisms controlling soot inception, particle growth, and chemical evolution during combustion. The first steps in soot formation involve the transition of gas-phase hydrocarbon precursors to physically or covalently bound complexes. These complexes are known as “incipient particles”, and the search for their formation and growth mechanisms is a subject of active research [1-3]. These incipient particles undergo further particle growth, generating liquid-like hydrocarbon particles, which eventually reach sizes in the range of 10-50 nm, known as “primary particles” [1-5]. As these particles grow, they also lose hydrogen, solidify, and agglomerate into loosely bound clusters. Under high-temperature conditions, they become graphitic, covalently bound aggregates with a dendritic structure. Soot aggregate sizes, primary-particle sizes, and volume fractions grow as particles age in the flame [4,5].

At high temperatures in the presence of oxygen, the aggregates fragment [6,7], and the primary-particle sizes and volume fractions decrease through oxidation [4,8]. There is a poor understanding of the mechanisms by which particles undergo these transitions and the parameters that influence them.

This talk will describe our current understanding of soot formation and the scientific evidence that supports this understanding. This talk will also cover the gaps in our understanding of soot chemistry, some reasons for these gaps, and what we may need to do in order to bridge these gaps and develop more insight into soot formation and evolution.

1. H. A. Michelsen, Proc. Combust. Inst. 36, 717 (2017).
2. H. Wang, Proc. Combust. Inst. 33, 41 (2011).
3. K. O. Johansson, M. P. Head-Gordon, P. E. Schrader, K. R. Wilson, and H. A. Michelsen, Science 361, 997 (2018).
4. R. A. Dobbins, and C. M. Megaridis, Langmuir 3, 254 (1987).
5. R. Puri, T. F. Richardson, R. J. Santoro, and R. A. Dobbins, Combust. Flame 92, 320 (1993).
6. K. G. Neoh, J. B. Howard, and A. F. Sarofim, Twentieth Symposium (International) on Combustion 20, 951 (1985).
7. C. A. Echavarria, I. C. Jaramillo, A. F. Sarofim, and J. S. Lighty, Proc. Combust. Inst. 33, 659 (2011).
8. K. O. Johansson, F. El Gabaly, P. E. Schrader, M. F. Campbell, and H. A. Michelsen, Aerosol Sci. Technol. 51 (12), 1333 (2017).

Biosketch: Dr. Hope A. Michelsen has been a technical staff member in the Combustion Research Facility at Sandia National Laboratories since 1999. Her research program focuses on developing and using X-ray, optical, mass spectrometric, and theoretical techniques for studying the chemistry and characteristics of combustion-generated particles inside the combustor and their abundance in the atmosphere. Her research experience includes gas-surface scattering experiments, atmospheric modeling, soot-formation studies, combustion-diagnostics development, atmospheric black-carbon measurements, and greenhouse-gas source attribution. She received an A.B. in Chemistry from Dartmouth College and a Ph.D. in Chemistry with a minor in Physics from Stanford University. She completed an NSF postdoctoral fellowship at Harvard University in Earth and Planetary Sciences and was a staff scientist at Atmospheric and Environmental Research, Inc. before joining the technical staff at Sandia. She will join the faculty as an Associate Professor in the Department of Mechanical Engineering at the University of Colorado in Boulder in August 2019. Dr. Michelsen is a Fellow of The Optical Society, an inductee of the Alameda County Women's Hall of Fame, and an Associate Editor of the Proceedings of the Combustion Institute.

Plenary Session 4

FRIDAY, OCTOBER 18, 2019
8:00 AM – 9:15 AM
Oregon Ballroom

AEESP Lecture: This is Getting Dynamic: How the Volatility Basis Set Informs Particle Formation and Growth

Neil Donahue | Carnegie Mellon University

A large fraction of atmospheric nanoparticle growth is driven by condensation of organic compounds. Especially below 10 nm there is a fine dance between curvature induced volatility enhancement (the Kelvin effect) and mixing (the Raoult effect). In addition to Koehler and nano-Koehler behavior, the distribution of organic volatility over a very wide range plays a key role in particle growth. A major contribution comes from the new (to atmospheric chemistry) process of peroxy-radical auto oxidation, which forms highly oxygenated organic molecules (HOMs) rapidly during the initial stages of oxidation. In the CERN CLOUD experiment we have been able to measure the full distribution of organic products in both the gas and particle phases, establishing closure between observed vapor concentrations, growth rates, and particle composition at temperatures ranging from 250 to 320 K. Finally, we observe interesting and potentially critical couplings between different organic peroxy radicals that may have major implications for the behavior of atmospheric organics in low-NOx environments. All of these issues are well-suited to a dynamical version of the Volatility Basis Set that resolves peroxy-radical chemistry and provides a framework to describe the dynamics of organic particle nucleation and growth.

Biosketch: Neil Donahue was born in Pittsburgh and traveled the world before returning to Pittsburgh to take up a position at Carnegie Mellon University in 2000. He has an AB in Physics from Brown University, a PhD in Meteorology from MIT, and work at Harvard for a decade conducting research in gas-phase kinetics and oxidation of organic compounds, with notable contributions to alkene ozonolysis. At CMU he joined the thriving air-quality engineering group and with them formed the Center for Atmospheric Particle Studies (CAPS), which has become one of the world's leading atmospheric aerosol research groups. In addition to rich collaborations within CAPS, he has continued to collaborate around the world, including bringing multiple oxidation chambers together to study organic aerosol formation (the MUCHACHAS experiment) and more recently joining the CLOUD consortium at CERN. He is known as the father of the Volatility Basis Set and has received the Pittsburgh and Esselen awards from the American Chemical Society, the Carnegie Science Award for the Environment, and is a Fellow of the American Geophysical Union.

SPECIAL SYMPOSIA

Symposium 1

Biomass Combustion: Emissions, Chemistry, Air Quality, Climate, and Human Health

Organizers:

Amy Sullivan | Colorado State University

Andy May | Ohio State University

Amara Holder | US Environmental Protection Agency

Shelly Miller | University of Colorado Boulder

Biomass combustion is an important source of aerosols. Its relevance on local, regional, and global scales is becoming even more important as emissions from other sources are being better controlled. This smoke impacts human health, degrades visibility, and affects the Earth's radiation balance. Biomass combustion has a number of natural and anthropogenic sources including from wildfires, prescribed burning, residential heating and cooking (including cookstoves), and renewable energy generation. For these reasons and many others, over the last number of years, substantial research has focused on better understanding the emissions, chemistry, and aging of biomass combustion smoke, and its impacts on air quality, climate, and human health. This special symposium aims to share all of these recent results. Abstracts focusing on research from laboratory studies, field work, and computational efforts are all welcome.

Symposium 2

From Aerosol Dosimetry and Toxicology to Health

Organizers:

Otmar Schmid | Helmholtz Zentrum Munchen, Germany

Arthur Chan | University of Toronto, Canada

Flemming R. Cassee | National Institute for Public Health and the Environment, Netherlands

Current national ambient and occupational air quality standards of inhaled particles are based on particulate concentration (Qg/m3) as proposed by epidemiological studies. While this parameter is simple to measure, cell-/tissue-delivered dose, for example surface area dose, has been recognized as a highly relevant metric for biopersistent engineered and ambient particulate matter. Nevertheless, other parameters like chemical composition, shape and size may also affect particle toxicity.

The purpose of this symposium is to bring together aerosol scientists and engineers, toxicologists, epidemiologists and regulatory bodies for elucidating the connection between dosimetry, particle characteristics (e.g. particle size and surface area, chemical composition, mixing state and shape) and adverse health effects.

Symposium 3

The Air We Breathe: Indoor Aerosol Sources and Chemistry

Organizers:

Rachel E. O'Brien | College of William and Mary

Marina E. Vance | University of Colorado Boulder

Humans spend ~ 90% of their time indoors, making it important to understand the composition of indoor air. Indoor aerosols have a range of sources including nucleation and/or condensation of oxidized VOCs and from SVOCs emitted from different surfaces, such as a cooking and heating sources. Aerosols can also be brought indoors through open doors and windows or through the ventilation systems. Depending on the source and composition of the outdoor aerosol, the chemical composition and size of the particles can change once they are in the building. This indoor-outdoor exchange bridges the atmospheric chemistry of outdoor air to indoor environments.

Indoor aerosol undergoes similar aging processes (e.g., photolysis, oxidation, humidity effects, etc.), but operates at different time scales and with different intensities compared to outdoor aerosol. By applying the tools we use to understand ambient aerosol reactivity and aging to indoor environments, we can develop a better understanding of activities and other parameters that affect the identity, concentration, and size distribution of the aerosol in our buildings. This symposium will highlight studies of indoor aerosols including, but not limited to, sources (indoor emissions, re-suspension, and transport from outdoors) and heterogeneous reactions on aerosol particles and other indoor surfaces. We aim to build a dialogue around our current understanding of indoor aerosol chemistry and to identify needs for future research in this developing field.

Symposium 4:

Air Quality Sensors: Low-cost != Low Complexity

Organizers:

Eben Cross | Aerodyne Research, Inc.

Pratim Biswas | Washington University in St. Louis

John Volckens | Colorado State University

In an ideal world, air pollution could be characterized on a spatial and temporal scale sufficient to resolve the real-world concentration gradients over which it exists. Data obtained through this idealized system could be used to quantify the strength and use-patterns of pollutant sources, inform exposure levels, and promote pollution mitigation strategies to improve local air quality (AQ). Integrated air quality sensor systems have emerged over the past 5 years as an exciting and potentially game-changing approach through which distributed pollution measurements could be realized. But despite the promise and the hype, key questions remain regarding the trustworthiness of pollution concentrations reported by air quality sensors. In this symposium, we invite abstracts that address the following:

- Demonstrations of sensor performance in laboratory and field applications
- Identifying sensor degradation and failure, in-situ and post-process
- Optimization of machine learning approaches to sensor calibration and evaluation
- Data quality objectives – Defining 'good enough' and setting realistic expectations
- Measuring particulate matter concentrations across dynamic environmental domains
- Evaluating uncertainties

Meet the Aerosol Pioneers

TUESDAY, OCTOBER 15, 2019
11:45 AM - 12:45 PM
Room A 106

Spyros Pandis | *University of Patras, Carnegie Mellon University*

Biosketch: Spyros Pandis is Professor in the Chemical Engineering Department of the University of Patras in Greece and Research Professor of Chemical Engineering and Engineering and Public Policy in Carnegie Mellon University in the US. He received his Ph.D. from the California Institute of Technology in 1991 and joined the faculty of Carnegie Mellon University in 1993 and of the University of Patras in 2004. He is the author together with Prof. Seinfeld of the textbook "Atmospheric Chemistry and Physics". He has been awarded the Ken Whitby and the Sinclair awards by AAAR, the CAREER award by the NSF, the Book of the Year Award by the American Meteorological Society, the Vaughn and Lacey Lectureships by Caltech, the Cecil award by the American Institute of Chemical Engineering, and a European Research Council Senior Investigator award.

Lara Gundel | *Lawrence Berkeley National Laboratory*

Biosketch: Dr. Lara Gundel's research interests lie in the areas of heterogeneous physical chemistry in the service of public health and environmental protection; chemistry of second- and third-hand tobacco smoke; and miniaturization of instrumentation for monitoring air pollutants. She received her Ph.D. in Physical Chemistry (1975) from University of California, Berkeley. She has been at the Lawrence Berkeley National Laboratory since 1977 as a Chemist. She received the 2000 R&D Award in recognition of the invention of fine sorbent coating for minimizing sampling artifacts (biases) in monitoring semi-volatile (labile) and particulate air pollutants as well as the 2018 LBNL Director's Award for Exceptional Achievement: Societal Impacts.

Roger McClellan | *Independent advisor on inhalation toxicology and risk analysis*

Biosketch: Dr. Roger McClellan is an internationally recognized authority in the fields of inhalation toxicology, aerosol science, comparative medicine, and human health risk analysis. He received his Doctor of Veterinary Medicine degree from Washington State University in 1960 and a Master of Management Science degree from the University of New Mexico in 1980. He is a Diplomate of the American Board of Toxicology and the American Board of Veterinary Toxicology and a Fellow of the Academy of Toxicological Sciences, American Association for Aerosol Research, Society for Risk Analysis, American Thoracic Society and Health Physics Society. He was elected to the National Academy of Medicine in 1990. He provided leadership for two of the world's leading multi-disciplinary research laboratories; the Lovelace Inhalation Toxicology Research Institute of Toxicology (1966-1988) and the Chemical Industry Institute of Toxicology (1988-1999) and served as an advisor to numerous private and public entities concerned with potential health impacts of airborne radioactive and chemical agents. He is a strong advocate of multi-disciplinary "issue-resolving research" to provide scientific information to inform public policy decisions and set regulatory goals.

37TH AAAR
ANNUAL CONFERENCE
OCT. 14-18, 2019
OREGON CONVENTION CENTER

2019 EXHIBITORS

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2019 AAAR EXHIBITOR COMPANY DESCRIPTIONS

AAAR Membership Committee | Booth 29

www.aaar.org

Aerodyne Research Inc. | Booth 5

Our state-of-the-art scientific instruments measure gases and/or aerosol particles in real time and with great sensitivity. Our particle instruments include Aerosol Mass Spectrometer systems, the Aerosol Chemical Speciation Monitors, the CAPS PMex, SSA Monitors, and Aerosol Absorption Monitors. Additional instruments are ARISense AQ sensors and PAM chamber.

www.aerodyne.com

Aerosol Devices Inc. | Booth 20

Advance your aerosol research with unique instruments from Aerosol Devices Inc. using laminar-flow water condensation growth for particle collection and counting from 5nm to 10Qm. NEW! Series 110A SPOT SAMPLER™ aerosol particle collector for physical, biological and chemical analysis. See what's been added!

MAGIC CPC™ ultrafine particle counter – the world's first tippable, self-sustaining, compact, quiet, water-based condensation particle counter.

NEW! BIOSPOT™ VIVAS bioaerosol sampler for high efficiency, concentrated sampling into liquid to maintain cell structure and viability. Sample bare viruses to inhalable bacteria and fungal spores.

www.aerosoldevices.com

Aethlabs | Booth 30

AethLabs is the manufacturer of the microAeth® family of Black Carbon (BC) monitors. The new microAeth MA Series are battery powered, self-contained, multi-wavelength instruments with automatic filter tape advance for long duration BC measurements. The instruments feature DualSpot® technology and have many additional sensors, such as GPS, temperature, humidity and pressure, as well as wireless communications. The microAeth® family is based on proven Aethalometer® measurement technology that has been used world-wide for nearly 40 years.

www.aethlabs.com

Ambilabs | Booth 1

Ambilabs® specializes in innovative air pollutant monitoring technology solutions. Our gas and particulate measurement systems are utilized in both laboratory and field research. We offer instrumentation with regulatory approval designations. Different applications currently utilizing our instrumentation are in the areas of: smoke monitoring impacts; human health impacts; construction/demolition; impacts of air pollutants on coatings and components analysis; and various environmental analysis. We are committed to applying cutting edge science and technology to help ensure that our customers achieve the most valid, precise, and accurate air measurement information to assist in the areas of research, environmental consulting, and government regulatory monitoring requirements.

www.ambilabs.com

ARA Instruments | Booth 35

ARA Instruments is a manufacturer of innovative ambient air monitoring equipment. We specialize in portable, battery-powered particulate samplers for air pollution research. We also offer flow calibration instruments and accessories for routine air monitoring. Our goal is to help our customers make important air quality decisions by providing affordable, versatile, reliable, and accurate equipment.

www.arainstruments.com

Biaera Technologies, LLC | Booth 27

Biaera is your comprehensive resource for building and sustaining a laboratory-based aerobiology program. Biaera's patented AeroMP/Aero3G technology manages automation, control, and recording in infectious disease aerosol systems. Through creative partnerships with other industry leaders, Biaera's custom and turnkey solutions integrate the best-available technologies in high-containment inhalation studies.

www.biaera.com

Brechtel Manufacturing Inc. | Booth 12

UAV measurements? Portable instruments? Super-sensitive BC measurements? Fast water uptake and size distributions? Our products are easy to use and supported by the great service you deserve. With free lifetime product application support, our solutions are backed by over 27 years of sampling experience. Visit us at www.brechtel.com.

www.brechtel.com

Cambustion | Booth 23

Cambustion: Aerodynamic Aerosol Classifier (launched 2017) uniquely selects monodisperse aerosol between 25nm – 5Qm without charging artefacts. Continuous scanning mode new in 2019. Centrifugal Particle Mass Analyzer generates mass monodisperse aerosol. DMS500 offers 5nm - 2.5 Qm size-distributions at 10Hz.

SCS Smoking Machine allows investigation of electronic cigarette, tobacco and cannabis properties.

www.cambustion.com/aerosol

Catalytic Instruments | Booth 33

Catalytic Instruments is a German company specializing in innovative aerosol instrumentation based on Catalytic Stripper technology. The Catalytic Stripper contains a heated catalytic element used to remove the semi-volatile fraction of an aerosol sample. Our Catalytic Vapor Filter converts noxious CPC exhaust into clean air.

https://catalytic-instruments.com

Cooper Environmental/SCI | Booth 25

Cooper Environmental/SCI is a recognized global leader in metals measurement technology. The company was the first to develop and commercialize near real time measurement of metals using X-ray fluorescence (XRF). Its ambient metals monitor, the Xact 625i, has demonstrated accuracy in numerous studies and peer reviewed journal articles and it is widely used by researchers and environmental agencies. The instrument has also been used by several industrial sites to help achieve environmental or industrial hygiene limits by helping to quickly identify sources and plant activities that cause pollution. In addition to its ambient metals monitor, Cooper Environmental/SCI also makes instruments to measure metals in smoke stacks and water and it offers a complete line of sensor based measurements for criteria pollutants (SO2, CO, O3, NO2, PM10 and PM2.5), hazardous gases (HCl, Cl2, H2S, HF, NH3) and total VOCs.

www.cooperenvironmental.com

Dekati | Booth 15

Dekati's instrumentation is used across the globe in a variety of applications, including engine and non-engine emissions, inhalation aerosol manufacturing and research. Our products are rigorously tested to produce reliable and reproduceable data. Please visit us at Booth 15 for a hands-on look at three of our finest instruments:

The Dekati® High Resolution ELPI+® (Electrical Low Pressure Impactor, HR-ELPI®+) – An advanced version of our ELPI®+ that features a data inversion algorithm, providing real-time particle number size distribution up to 500 size classes (6nm-10Qm).

The Dekati® eDiluter™ - Our portable dilution system that greatly simplifies sample conditioning. The eDiluter™ comes with a standard fixed 1:60 dilution factor, but can be customized to your needs in the range of 1:25 – 1:225.

The Dekati® DePS™ (Dekati® electrical Particle Sensor) – A miniature sensor for real-time particulate matter measurements. The DePS™ allows for direct monitoring of particle LDSA concentration. Its measurement signal can be easily correlated to particle number or mass concentrations.

www.dekati.com

Droplet Measurement Technologies | Booth 13

Droplet Measurement Technologies pioneers, manufactures, and services leading cloud and aerosol instruments that propel breakthroughs in environmental science and engineering. With a legacy of fostering invention and a renewed commitment to science and innovation, we help champion discovery in support of people and planet.

www.dropletmeasurement.com

Grimm Technologies, Inc. | Booth 19

GRIMM Aerosol, Member of the DURAG Group, is one of the world's leading manufacturers in the field of high-tech aerosol measurement instrumentation. Instruments determine particle size, particle number and mass distribution.

The product portfolio of GRIMM includes:

- Dust Monitors for PM10, PM2.5 and PM1
- Nanoparticle Counting and Sizing
- Indoor Air Quality Monitors
- Workplace Monitors
- Filter Efficiency Test Systems
- Aerosol Generators

Applications include: IAQ, Atmospheric Aerosol Research, Epidemiological Studies, Materials Processing, Mobile Emissions, Environmental PM Monitoring & More. Grimm offers worldwide sales, service and training through our offices,subsidiaries and a large network of international representatives.

www.grimm-aerosol.com

Handix Scientific | Booth 31

The Portable Optical Particle Counter (POPS) is a light-weight particle counter designed for aerosol particle size distribution measurements from unmanned aerial platforms, indoor environments, ground-based sensor networks and clean room monitoring. The POPS accurately measures particle diameters between approximately 0.13 to 3.0 um using single-particle light scattering with a power consumption of ~5 W.

www.handixscientific.com

InnovaPrep | Booth 4

InnovaPrep makes tools for modern microbiology. The ACD-200 Bobcat Dry Filter Air Sampler with Rapid Filter Elution Kit and the SpinCon II Advanced Air Sampler are superior for collection of bio-aerosols; including sub-micron sized particles and perfectly suited for use with rapid molecular methods of analysis. Please visit our booth for a demonstration.

www.innovaprep.com

KANOMAX, INC. | Booths 21, 22

Kanomax's instruments are used worldwide by research and development professionals in both industry and academia. Kanomax prides itself on the quality and dependability of its instruments. Key areas of expertise include mass distribution measurements, particle density research and size distribution measurements. Please visit Booths 21 & 22 to see the following:

The Aerosol Particle Mass Analyzer (APM 3602) - Classifies particles by mass, based on the balance between centrifugal force and electrostatic force.

Fast Condensation Particle Counter Model 3650 - The 3650 has the fastest response time of any commercially available condensation particle counter on the market, with a 10-90% response time (~ 35 ms time constant ( ) ~20 ms) and a 50% detection efficiency at 2.4 nm.

The Drift Tube Ion Mobility Spectrometer (DTIMS) performs high-resolution ion mobility measurement of large molecules and nanoparticles in the gas phase or within aerosol processes.

The NanoAerosol Generator Model 3250 – A pneumatic-type nebulizer that produces an ultrafine aerosol.

www.kanomax-usa.com

Livermore Instruments Inc. | Booth 28

www.livermoreinstruments.com

Magee Scientific | Booth 16

Magee Scientific specializes in the measurement of carbonaceous aerosols.

The Aethalometer® measures 'Black' and 'Brown' Carbon aerosols in real time. The Total Carbon Analyzer measures TC, from which EC and OC may be derived in real time. The 'DRI-2015' multi-wavelength laboratory instrument is used for thermal analysis and speciation.

www.mageesci.com

Meet the Program Managers | Booth 9

We are proud and honored to have the following program managers as our guests this year: Karl Rockne (NSF), Stephanie Shaw (EPRI), Serena Chung (EPA), Barry Lefer (NASA), Donald Cronce (DTRA), and Sylvia Edgerton (NSF). AAAR attendees can sign up for a 15-minute meeting with the program managers.

Met One Instruments Inc. | Booth 26

www.metone.com

Metrohm USA | Booth 10

Metrohm offers analytical laboratory and process systems for titration, ion chromatography, electrochemistry and spectroscopy. From routine moisture analysis to sophisticated anion and cation quantification, we help you develop your method and configure the optimum system. Move your analysis from the lab to the production line with our dedicated process analyzers.

www.metrohmusa.com

Palas GmbH | Booth 11

www.palas.de

Particle Instruments LLC | Booth 14

Particle Instruments LLC represents the largest selection of aerosol instrumentation in North America. Our products are manufactured by Dekati Ltd, Kanomax, Inc., Pegasor OY and Topas GmbH. Instrumentation includes aerosol generators and conditioners, as well as impactors, spectrometers and sensors that measure particle size, mass and charge. Please visit us at booth 14 to learn more.

www.particleinstruments.com

Particles Plus Inc. | Booth 36

www.particlesplus.com

Sunset Laboratory Inc. | Booth 24

Sunset Laboratory has been leading the way for Organic/ Elemental Carbon Aerosol (OCEC) measurements since 1984. We remain the market leader in OCEC instrumentation and analysis for filters with our Laboratory-based OCEC analyzer and in ambient monitoring with our Semi-Continuous OCEC field-deployable aerosol analyzer. Our instrumentation has the ability to easily perform a variety of different analysis methods, such as NIOSH Method 5040, Improve-A, STN, EUSAAR2, as well as others.

Come see us and learn about the auto-loader for your Lab-based OCEC analysis needs. Sunset Laboratory Inc. OCEC analyzers are found throughout the world at many universities, commercial laboratories, meteorological stations, and both state and federal government agencies. Our domestic and international representatives are spread across six continents and many countries. We look forward to working with you today, as we have for the last 35 years.

www.sunlab.com

Taylor & Francis Group | Booth 32

Taylor & Francis partners with world-class authors operating at the top of their fields. We publish in all areas of the Medicine, Science, Technology, Social Sciences, Behavioural Sciences, and Humanities sectors. We are one of the world's leading publishers of scholarly journals, books, eBooks, text books and reference works.

www.taylorandfrancis.com

TSI Incorporated | Booths 6, 7, 8

Here is our booth description: As a global leader in aerosol instrumentation, TSI provides expertise in scientific research and industrial applications. Expand your research capabilities with our wide range of particle sizers, counters, aerosol generators, MOUDI and cascade impactors. Visit our booth to discover what's new with TSI and how we can expand your research.

www.tsi.com

URG Corp. | Booths 17, 18

URG's active development of advanced sampling systems helps ensure better air for better lives. The Ambient Ion Monitor provides speciated real-time measurements of gas and particulate matter air pollutants. We specialize in a wide range of cyclones for ambient sampling and diesel emissions testing, annular denuders and personal sampling systems.

www.urgcorp.com

U.S. EPA's National Air and Energy Research Program | Booth 2

The Air and Energy National Research Program in the U.S. Environmental Protection Agency (EPA) provides the science and engineering needed to inform actions that will improve air quality, public health and address the environmental impacts of energy development and use.

www.epa.gov/air-research

37TH AAAR
ANNUAL CONFERENCE
OCT. 14-18, 2019
OREGON CONVENTION CENTER

TECHNICAL PROGRAM

Tuesday 8:00 AM - 9:15 AM
OCTOBER 15, 2019

Plenary I

8:00
Welcoming Remarks
Nga Lee "Sally" Ng, *Georgia Institute of Technology*

8:05
Friedlander Lecture: Airborne Ultrafine Particles and Nanomaterials: Adverse Effects on the Respiratory System and Beyond
Flemming Cassee, *Dutch National Institute for Public Health and the Environment*
Moderator **Anthony Wexler,** *University of California, Davis*

9:00
Friedlander Award Presentation
Shelly Miller, *University of Colorado Boulder*

Announcement of AAAR 2019 Fellows
Pratim Biswas, *Washington University in St. Louis*

Tuesday 9:00 AM - 4:00 PM
Exhibits Open

Tuesday 9:15 AM - 9:45 AM
Coffee Break

Tuesday 9:45 AM - 11:30 AM
Session 1: Platform

1AC AEROSOL CHEMISTRY I: SOA FORMATION (GAS-PHASE REACTION)

OREGON BALLROOM

Andrew Berke and **Christopher Kenseth,** chairs

1AC.1 | 9:45

Autoxidation of Peroxy Radicals Formed from OH Radical-initiated Reactions of Trimethylbenzenes.

Yuwei Wang, Archit Mehra, Jordan Krechmer, Andrew Lambe, Francesca Majluf, Douglas Worsnop, Manjula Canagaratna, Hugh Coe, LIN WANG, *Fudan University*

1AC.2 | 10:00

Chlorine-Initiated Photo-Oxidation of a-Pinene Under High NOx Conditions: Oxidation Pathways, Product Distribution and Partitioning Behavior.

CATHERINE MASOUD, Lea Hildebrandt Ruiz, *University of Texas at Austin*

1AC.3 | 10:15

Atmospheric Chemistry of Volatile Chemical Products.

REINA BUENCONSEJO, Sophia Charan, Christopher Kenseth, Paul Wennberg, John Seinfeld, *California Institute of Technology*

1AC.4 | 10:30

The Effect of OH Scavengers on the Particle Phase Composition of a-Pinene Secondary Organic Aerosol.

DAVID BELL, Veronika Pospisilova, Amelie Bertrand, Dongyu S. Wang, Chuan Ping Lee, Felipe Lopez-Hilfiker, Claudia Mohr, Wei Huang, Imad El Haddad, Jay G. Slowik, Andre S.H. Prévôt, Josef Dommen, Urs Baltensperger, *Paul Scherrer Institute*

1AC.5 | 10:45

Secondary Organic Aerosol Formation from Healthy and Aphid-Stressed Scots Pine Emissions.

CELIA FAIOLA, Iida Pullinen, Angela Buchholz, Fatemeh Khalaj, Arttu Ylisirniö, Eetu Kari, Pasi Miettinen, Jarmo Holopainen, Minna Kivimäenpää, Siegfried Schobesberger, Taina Yli-Juuti, Annele Virtanen, *University of California, Irvine*

1AC.6 | 11:00

Estimating Vapor Wall-Loss to Improve Organic Aerosol Volatility Distributions.

KERRIGAN CAIN, Eleni Karnezi, Spyros Pandis, *Carnegie Mellon University*

1AC.7 | 11:15

Detailed Comparison of Chamber Measurements and Mechanistic Predictions to Improve Understanding of SOA Formation Mechanisms.

JOSHUA MOSS, Abigail Koss, Kevin Nihill, Martin Breitenlechner, Alexander Zaytsev, Richard Valorso, Marie Camredon, Bernard Aumont, Frank Keutsch, Jesse Kroll, MIT

1AD SYMPOSIUM: FROM AEROSOL DOSIMETRY AND TOXICOLOGY TO HEALTH I

ROOM A 106

Flemming Cassee and **Arthur Chan,** chairs

1AD.1 | 9:45

Analysis of Nanoparticle Toxicity at the Air-Liquid Interface of Lung Cells.

TREVOR TILLY, Ryan Ward, Alyssa Morea, Sarah Robinson, Arantzazu Eiguren Fernandez, Tara Sabo-Attwood, John Lednicky, Chang Yu Wu, *University of Florida*

1AD.2 | 10:00

Synergistic and Antagonistic Interactions Among the Particulate Matter (PM) Components for Cellular ROS activity and Cytotoxicity.

YIXIANG WANG, Joseph V Puthussery, Haoran Yu, Vishal Verma, *University of Illinois Urbana-Champaign*

1AD.3 | 10:15

CYCLEX: Cyclone Collection of Particulate Matter Followed by Exposure Experiments.

TOMOAKI OKUDA, Takaaki Goto, Hirohisa Takano, Akiko Honda, Toshinori Onishi, Michitaka Tanaka, Shuichi Hasegawa, Takayuki Kameda, Susumu Tohno, Chiharu Nishita-Hara, Keiichiro Hara, Masahiko Hayashi, Kozo Inoue, *Keio University*

1AD.4 | 10:30

How Realistic Are In-Vitro Doses Used for Particle Toxicity Studies: Is There Something "Wrong" with Our In-Vitro Assays?

OTMAR SCHMID, *Helmholtz Zentrum München*

1AD.5 | 10:45

Assessing Exposures and Health Effects of Ambient Particle Radioactivity: An Emerging Field for Investigation by Aerosol Researchers.

PETROS KOUTRAKIS, Harvard T.H. *Chan School of Public Health.* INVITED.

1AD.6 | 11:15

A Historical Perspective on Evaluation of Health Hazards of Airborne Plutonium.

ROGER MCCLELLAN, *Private Consultant*

1BC SYMPOSIUM: BIOMASS COMBUSTION: EMISSIONS, CHEMISTRY, AIR QUALITY, CLIMATE, AND HUMAN HEALTH I: LABORATORY AND FIELD EVALUATIONS OF RESIDENTIAL COOKSTOVES AND BIOMASS BURNING

ROOM B 113-114

Shelly Miller and **Anna Hodshire,** chairs

1BC.1 | 9:45

Particulate Matter and Black Carbon from an LPG Stove Intervention in Rural Households in Puno, Peru: Preliminary Results.

MAGDALENA FANDIÑO-DEL-RIO, Josiah Kephart, William Checkley, Kirsten Koehler, *Johns Hopkins Bloomberg School of Public Health*

1BC.2 | 10:00

Pellet-fed Gasifier Stoves Approach Gas-stove Like Performance during In-home Use in Rwanda.

WYATT CHAMPION, Ky Tanner, Andrew Grieshop, *North Carolina State University*

1BC.3 | 10:15

Coupling Laboratory and Field Measurements to Estimate Air Pollutant Emissions from Cookstoves.

KELSEY BILSBACK, Rose Eilenberg, Lauren Hoskovec, Michael Johnson, Jack Kodros, Eric Lipsky, Christian L'Orange, Jessica Tryner, Ander Wilson, Allen Robinson, Jeffrey R. Pierce, John Volckens, *Colorado State University*

1BC.4 | 10:30

Development of Volatility Distributions of Biomass Burning Organic Emissions.

ADITYA SINHA, Ingrid George, Amara Holder, Michael Hays, Andrew Grieshop, *North Carolina State University*

1BC.5 | 10:45

Chemical Characterization of Biomass Burning Sources Using Targeted and Untargeted Approaches.

CAMILLE NOBLET, François Lestremau, Marie Lemire, Jean-Luc Besombes, Jean-Luc Jaffrezo, Olivier Favez, Serge Collet, Alexandre Albinet, *INERIS, France*

1BC.6 | 11:00

Constituents of Health Concern from Biomethane Cooking Stove Combustion Exhaust.

CHAO WAN, Yin Li, Chris Alaimo, Jian Xue, Minji Kim, Norman Kado, Peter Green, Thomas Young, Ruihong Zhang, Michael Kleeman, *University of California, Davis*

1BC.7 | 11:15

Carbonaceous Semivolatile Organic Matter Emitted from a Pellet-fired Biomass Boiler.

MICHAEL HAYS, John Kinsey, Ingrid George, William Preston, Carl Singer, Bakul Patel, *U.S. EPA*

1CC AEROSOLS, CLOUDS, AND CLIMATE I

ROOM B 110-112

Shunsuke Nakao and **Kevin Sanchez,** chairs

1CC.1 | 9:45

Regional New Particle Formation as Modulators of Cloud Condensation Nuclei and Cloud Droplet Number in the Eastern Mediterranean.

Panagiotis Kalkavouras, Aikaterini Bougiatioti, Nikos Kalivitis, Iasonas Stavroulas, Maria Tombrou, ATHANASIOS NENES, Nikolaos Mihalopoulos, *National Observatory of Athens*

1CC.2 | 10:00

Cold Fronts Promote New Particle Formation over Mid-latitude Remote Oceans.

GUANGJIE ZHENG, Yang Wang, Michel Jensen, Chongai Kuang, Isabel McCoy, Rob Wood, Alyssa Matthews, Fan Mei, Jason Tomlinson, Ewan Crosbie, Luke Ziemba, Richard Moore, Jian Wang, *Washington University in St. Louis*

1CC.3 | 10:15

Geoengineering for Climate Change: Nature Has Already Demonstrated the Process and Effects.

RUSSELL SCHNELL, *National Oceanic and Atmospheric Adminstration*

1CC.4 | 10:30

Size-Dependent Nanoparticle Growth Profile from CLOUD Experiments.

WEIMENG KONG, Stavros Amanatidis, Dongyu S. Wang, Loïc Gonzalez Carracedo, Birte Rörup, Dominik Stolzenburg, Jasper Kirkby, John Seinfeld, Richard Flagan, *California Institute of Technology*

1CC.5 | 10:45

Wintertime New Particle Formation and Its Contribution to Cloud Condensation Nuclei in the Northeastern United States.

FANGQUN YU, Gan Luo, Yanda Zhang, James Schwab, Joseph P. Marto, Lauriana C. Gaudet, Kara Sulia, *The State University of New York at Albany*

1CC.6 | 11:00

Understanding and Modeling Sources of Ice Nucleating Particles in Earth System Models.

SUSANNAH BURROWS, Christina McCluskey, Xiaohong Liu, Paul DeMott, *Pacific Northwest National Laboratory*

1CC.7 | 11:15

Morphology and Optical Properties of Soot.

Georgios Kelesidis, SOTIRIS E. PRATSINIS, *ETH Zurich*

1IM INSTRUMENTATION AND METHODS I: OPTICAL AND PHYSICAL MEASUREMENTS

ROOM B 115-116

Markus Petters and **Tim Gordon,** chairs

1IM.1 | 9:45

Studying Coarse-Mode Aerosol Particles with Digital Holography from a UAV.

MATTHEW BERG, Osku Kemppinen, Jesse Laning, Ryan Mersmann, *Kansas State University*

1IM.2 | 10:00

Measuring Humidification Effects on Aerosol Optical Properties with a Novel Humidity Controlled Albedometer: Instrument Validation and Soot Experiments.

TYLER CAPEK, Jared Lam, Christian Carrico, Claudio Mazzoleni, Allison Aiken, Timothy Onasch, Andrew Freedman, Manvendra Dubey, *Michigan Technological University*

1IM.3 | 10:15

Design, Characterization, and Application of a New Field-Portable Dual-Cell Multiwavelength Photoacoustic Spectrometer with Integrated Nephelometers.

BENJAMIN SUMLIN, Rajan K. Chakrabarty, *Washington University in St. Louis*

1IM.4 | 10:30

A Three-Angle Light Scattering Technique for Measuring the Single-Cycle Exhaust Soot from the Internal Combustion Engines.

Pooyan Kheirkhah, Patrick Kirchen, STEVEN ROGAK, *University of British Columbia*

1IM.5 | 10:45

Evaluation of Black Carbon Mass Concentrations Measured Using a Miniaturized Aethalometer in Comparison with Continuous Soot Monitoring System (COSMOS) and a Single-Particle Soot Photometer (SP2).

TAKUMA MIYAKAWA, Petr Mordovskoi, Yugo Kanaya, *Japan Agency for Marine-Earth Science and Technology*

1IM.6 | 11:00

Evaluating the Consistency of Submicron Aerosol Mass during the Atmospheric Tomography Mission (ATom): A Focus on the Aerosol Mass Spectrometer Quantification.

HONGYU GUO, Pedro Campuzano-Jost, Benjamin A. Nault, Douglas Day, Christina Williamson, Agnieszka Kupc, Charles Brock, Gregory Schill, Karl D. Froyd, Daniel Murphy, Eric Scheuer, Jack Dibb, Joseph Katich, Jose-Luis Jimenez, *CIRES, University of Colorado, Boulder*

1IM.7 | 11:15

Excitation Emission Matrix Spectroscopy for Analysis of Chemical Composition of Combustion Generated Particulate Matter.

Gaurav Mahamuni, Jay Rutherford, Justin Davis, Jonathan Posner, Gregory Korshin, IGOR NOVOSSELOV, *University of Washington*

1UA URBAN AEROSOLS I: IN SITU STUDIES OF AEROSOL PROCESSES

ROOM B 117-119

Ali Akherati and **Rawad Saleh,** chairs

1UA.1 | 9:45

Measurement of Formation Rate of Secondary Aerosols in the Urban Atmosphere Using a Dual Chamber System.

SPIRO JORGA, Christos Kaltsonoudis, Aikaterini Liangou, Spyros Pandis, *Carnegie Mellon University*

1UA.2 | 10:00

SOA Potential of Urban Volatile Chemical Product (VCP) Emissions Explored Using In-Situ Oxidation Flow Reactor.

RISHABH SHAH, Matthew Coggon, Georgios Gkatzelis, Brian McDonald, Antonios Tasoglou, Carsten Warneke, Jessica Gilman, Heinz Huber, Allen Robinson, Albert A. Presto, *Carnegie Mellon University*

1UA.3 | 10:15

Volatility-Based Measurements of Aerosol Mixing State at an Urban Background Site in the Western United States.

CHIRANJIVI BHATTARAI, Andrey Khlystov, *Desert Research Institute*

1UA.4 | 10:30

On-Road Measurement of Auto Brake and Tire Wear Emissions.

FARZAN OROUMIYEH, Yifang Zhu, *University of California, Los Angeles*

1UA.5 | 10:45

Lab-in-the-Field Perturbation Experiments: SOA Formation in an Ambient Matrix.

JEAN RIVERA-RIOS, Adam Wright, Nga Lee Ng, *Georgia Institute of Technology*

1UA.6 | 11:00

Measuring Dry and Wet Deposition of Atmospheric Aerosols to Surfaces in Syracuse, NY.

ALEXANDER JOHNSON, Cliff Davidson, *Syracuse University*

1UA.7 | 11:15

Particle Size Distribution in a Polluted Megacity: The Delhi Aerosol Supersite Study.

SHAHZAD GANI, Sahil Bhandari, Kanan Patel, Sarah Seraj, Prashant Soni, Zainab Arub, Gazala Habib, Lea Hildebrandt Ruiz, Joshua Apte, *University of Texas at Austin*

Tuesday 11:45 AM - 12:45 PM
Meet the Aerosol Pioneers

Tuesday 1:00 PM - 3:00 PM
Session 2: Poster

2AC AEROSOL CHEMISTRY II: POSTERS

EXHIBIT HALL A

2AC.1

Chemical Composition and Evaporation Rates of Secondary Organic Aerosol from Cooking Oils.
MANPREET TAKHAR, Craig A. Stroud, Arthur W. H. Chan, *University of Toronto*

2AC.2

Secondary Organic Aerosol Yields of Volatile Chemical Products.
SOPHIA CHARAN, Reina Buenconsejo, Yuanlong Huang, John Seinfeld, *California Institute of Technology*

2AC.3

Estimation of Biogenic VOC Emissions and the Corresponding Impact on Ozone and Secondary Organic Aerosol Formation in China.
KAI WU, *Chengdu University of Information Technology*

2AC.4

Investigating the Atmospheric Age Distribution of Primary and Secondary PM during a Severe Wintertime Pollution Episode.
QI YING, Hongliang Zhang, Jianlin Hu, *Texas A&M University*

2AC.5

Heterogeneous Oxidation of SO2 in Sulfate Production During Nitrate Photolysis at 300 nm: Effect of pH, Relative Humidity, Irradiation Intensity, and the Presence of Organic Compounds.
Masao Gen, Ruifeng Zhang, Dan Dan Huang, Yong Jie Li, CHAK K. CHAN, *City University of Hong Kong*

2AC.6

Impacts of Water Partitioning and Polarity of Organic Compounds on Secondary Organic Aerosols over Eastern China.
JINGYI LI, Qi Ying, Jianlin Hu, Jianjun Chen, Haowen Zhang, *Nanjing University of Information Science & Technology*

2AC.7

Assessment of Model-Simulated Global Atmospheric Ammonia with Satellite Remote Sensing Measurements.
ARSHAD NAIR, Fangqun Yu, Gan Luo, *The State University of New York at Albany*

2AC.8

Acid-base Reactive Uptake of Dimethylamine and Nitric Acid onto Nanoparticles: Cluster Simulations and Nanoparticle Composition Measurements.
SABRINA CHEE, Nanna Myllys, Kelley Barsanti, Bryan Wong, James Smith, *University of California, Irvine*

2AC.10

Viscosity of SOA Formed from Stressed and Healthy Pine Tree Emissions under Varying Oxidation Levels.
NATALIE SMITH, Jesse Crescenzo, Anusha P.S. Hettiyadura, Ying Li, Celia Faiola, Alexander Laskin, Allan Bertram, Manabu Shiraiwa, Sergey Nizkorodov, *University of California, Irvine*

2AC.11

Investigating Brown Carbon Formation in Ambient Aerosols Undergoing Drying.
VIKRAM PRATAP, Michael Battaglia Jr., Annmarie Carlton, Christopher Hennigan, *University of Maryland, Baltimore County*

2AC.12

Effect of Relative Humidity on Secondary Brown Carbon Formation in Evaporating Droplets.
NETHMI KASTHURIARACHCHI, Laura-Helena Rivellini, Xi Chen, Yongjie Li, Alex Lee, *National University of Singapore*

2AC.13

Size-resolved Chemical Composition of Sub-40 nm Particles during New Particle Formation and Growth Events in Beijing.
XIAOXIAO LI, Yuyang Li, Chao Yan, Sabrina Chee, Jiming Hao, James Smith, Jingkun Jiang, *Tsinghua University*

2AC.16

Day and Night Variability of Carbonaceous Aerosols over Urban Region of Northern India.
ATAR SINGH PIPAL, Ajay Taneja, *Dr. B. R. Aambedkar University, Agra, India*

2AC.17

The Effect of Particle Physicochemical Properties on the Uptake of Semi-volatile and Intermediate-volatility Organic Molecules.
YIMING QIN, Junfeng Wang, Yali Lei, Jianhuai Ye, Scot T. Martin, *Harvard University*

2AC.18

Temporal Distribution of Short-Lived Climate Forcers, Atmospheric Processes, and Sources at IGP-CARE Site in India for Two Years in-situ Measurements.
RAVI KANT PATHAK, Harsh Raj Mishra, Bhilok Chand, Jai Prakash, Mattias Hallquist, Gazala Habib, Johan Boman, Håkan Pleijel, *University of Gothenburg, Sweden*

2AC.19

Temperature Effects on Sulfuric Acid Aerosol Nucleation and Growth: Initial Results from the TANGENT Study.
LEE TISZENKEL, Chris Stangl, Justin Krasnomowitz, Qi Ouyang, Michael J. Apsokardu, Murray Johnston, Shanhu Lee, *University of Alabama Huntsville*

2AC.20

Laboratory Studies of the Photolysis of Particulate Nitrate.
QING YE, Qianwen Shi, Jennifer G. Murphy, Jesse Kroll, *Massachusetts Institute of Technology*

2AC.21

Terpene Emissions and Their Oxidation Products in Forest Areas: Insight from Vocus PTR-TOF Measurements.
HAIYAN LI, Pekka Rantala, Kaspar Daellenbach, Jordan Krechmer, Douglas Worsnop, Markku Kulmala, Matthieu Riva, Mikael Ehn, Federico Bianchi, *University of Helsinki*

2AD SYMPOSIUM: FROM AEROSOL DOSIMETRY AND TOXICOLOGY TO HEALTH II: POSTERS

EXHIBIT HALL A

2AD.1

An Alternative Model for Testing of Acute Respiratory Local Toxic and Physiological Effects Based on in Vitro and Isolated Perfused Lung Technologies.
DETLEF RITTER, Jan Knebel, Sabrina Wilde, Tanja Hansen, Katharina Schwarz, *Fraunhofer ITEM, Germany*

2AD.2

Mimicking the Human Respiratory System: Online In Vitro Cell Exposure and Toxicity Assessment of Welding Fume Aerosol.
RYAN WARD, Trevor Tilly, Sarah Robinson, Arantzazu Eiguren Fernandez, Jun Wang, Tara Sabo-Attwood, Chang-Yu Wu, *University of Florida*

2AD.3

Applications of the Multi-angle Imager for Aerosols (MAIA) for Air Quality and Health: Connecting Particle Mixtures to Human Health.
ABIGAIL NASTAN, Sina Hasheminassab, Kristal Verhulst, David Diner, Feng Xu, Olga Kalashnikova, Michael Garay, Bart Ostro, *Jet Propulsion Laboratory*

2AD.4

A Comprehensive Assessment of the Spatiotemporal Variability of Oxidative Potential of Ambient PM2.5 in Midwest U.S. using a Semi-Automated Multi-Endpoint ROS-Activity Analyzer (SAMERA).
HAORAN YU, Joseph Puthussery, Yixiang Wang, Vishal Verma, *University of Illinois Urbana-Champaign*

2AD.5

New Approach for Source Apportionment of Toxicity by Atmospheric Organic Aerosols.
AKIHIRO FUSHIMI, Daisuke Nakajima, Akiko Furuyama, Go Suzuki, Tomohiro Ito, Kei Sato, Yuji Fujitani, Yoshinori Kondo, Akinori Takami, *National Institute for Environmental Studies, Japan*

2AD.6

Using a Quartz Crystal Microbalance to Measure the Mass Concentration of Combustion Particle Suspensions.
KAMALJEET KAUR, Isabel C. Jaramillo, Hamid Ghandehari, Chris Reilly, Robert Paine, Kerry Kelly, *University of Utah*

2AD.7

Characterization of Air-Liquid-Interface (ALI) in vitro Exposure Systems for E-vapor Aerosol Applications.
JINGJIE ZHANG, Michael Oldham, Russell Wolz, Pavel Kosachevsky, Utkarsh Doshi, I. Gene Gilman, Kyeonghee Lee, *Altria Client Services LLC*

2AD.8

Exposure to Portable Gasoline Generator Emissions and Its Effects on Renal Function and Lung Histology using Rat Model.
GODSON ANA, Emmanuel Obansa, *University of Ibadan*

2AE AEROSOL EXPOSURE I: POSTERS

EXHIBIT HALL A

2AE.1

Applying Mass Spectral Techniques to Identify the Chemical Composition of e-Cigarette Smoke and Its Surrogates: Implications for Source Apportionment.
YUE ZHANG, Sarah Suda Petters, Manjula Canagaratna, Jonathan Thornburg, Jason Surratt, *University of North Carolina at Chapel Hill*

2AE.2

Particle Size: A Missing Factor in Risk Exposure to Toxic Metals in Indoor Aerosols of South-East Asia.
HIMANSHI ROHRA, Ajay Taneja, *DR. B.R.A. University, Agra, India*

2AE.3

Exposure to Particulate Matter at an Outdoor Marijuana Consuming Event.
TONGKE ZHAO, Kai-Chung Cheng, Wayne Ott, Lance Wallace, Lynn M. Hildemann, *Stanford University*

2AE.4

Spatiotemporal Estimates of Surface PM2.5 Concentrations in the Western U.S. Using NASA MODIS Aerosol Retrievals and Data Assimilation Techniques.
S. MARCELA LORÍA-SALAZAR, Cesunica E. Ivey, Howard H. Chang, Jens Redemann, Heather Holmes, *University of Oklahoma*

2AE.5

Evaluation of PM2.5 Exposures for an Environmental Justice Community Using a Low-Cost PM Sensor.
Seung-Hyun Cho, Lisa Cicutto, Nalyn Siripanichgon, Michelle McCombs, Molly McCullough, Krysten Crews, Cindy Chang, Ryan Chartier, JONATHAN THORNBURG, Gregory Harshfield, Gregg Thomas, Michael Ogletree, Bradley Rink, *RTI International*

2AE.6

Evaluation of the Size Distribution and Morphology of Submicrometer Particles Generated from Electrosurgical Tools.
YUECHEN QIAO, Austin Andrews, Chase Christen, Brian MacLachlan, Samir Khariwala, Bernard Olson, Christopher Hogan Jr., *University of Minnesota*

2AE.7

Changes in Emissions Rates and Exposure of PM2.5, eBC, and UFP Attributable to the Renewal of a Bus Rapid Transit System Fleet.
DANIELA MENDEZ, Sebastian Espitia, Andres Felipe Rosero, Boris Galvis, Ricardo Morales Betancourt, *Universidad de los Andes*

2AE.8

Exposure to Inhalable Aerosols from Different Potential Factors in Building and Associated with Trace Elements.
HYEON-JU OH, Jong-Ryeul Sohn, Jongbok Kim, Rutgers, *The State University of New Jersey*

2AE.9

Inhalation Exposure Characterization for Spray Products.
KATHARINA SCHWARZ, Wolfgang Koch, *Fraunhofer ITEM, Germany*

2AE.10

Stability Testing of Large-Scale Whole-Body Inhalation Exposure Systems for Smoking Study.
ZUOCHENG WANG, Amit Gupta, Steve Behringer, Zack Novak, Jan Satola, Ed Psurny, Sam Harbo, *Battelle*

2AE.11

Indoor and Outdoor PM4 Continuous Monitoring in a Low Income Community of Highveld Priority Area of South Africa.
Joseph Adesina, Stuart Piketh, Marvin Qhekwana, Roelof Burger, Brigitte Language, Gabi Mkhatshwa, *North-West University, South Africa*

2AE.12

Organic Extracts of PM2.5 in Seoul Mediates Neutrophilic Inflammation and Aging in Lung Epithelial Cells.
JIEUN PARK, Kyoung-Hee Lee, Jongbae Heo, Chang-Hoon Lee, Seung-Muk Yi, Chul-Gyu Yoo, *Seoul National University, Seoul, Korea*

2BC SYMPOSIUM: BIOMASS COMBUSTION: EMISSIONS, CHEMISTRY, AIR QUALITY, CLIMATE, AND HUMAN HEALTH II: POSTERS

EXHIBIT HALL A

2BC.1

Effects of Fuel Moisture Content on Biomass Emissions from a Rocket-Elbow Cookstove.
Lizette Van Zyl, Jessica Tryner, Kelsey Bilsback, Nicholas Good, Arsineh Hecobian, Amy P. Sullivan, Yong Zhou, Jennifer Peel, JOHN VOLCKENS, *Colorado State University*

2BC.2

Increasing Global Lung-Cancer Risk Due to Biomass Combustion in the 21st Century.
Sijia Lou, MANISHKUMAR SHRIVASTAVA, Richard Easter, Jerome Fast, Philip Rasch, Huizhong Shen, Staci L. Simonich, Shu Tao, Alla Zelenyuk, Steven Smith, *Pacific Northwest National Laboratory*

2BC.3

The Impact of Biomass Fuel Emissions on Women's Health in Rural Punjab.
NABEELA FARAH, University of Agriculture, *Department of Rural Sociology*

2BC.4

Quantifying the Impact of Biomass Burning on Aerosol Concentrations in Bogota, Colombia: Detection of Biomass Burning Tracers and Model Simulations.
Maria Alejandra Rincón, Amy P. Sullivan, Juan Manuel Rincón, Juan Felipe Mendez, Karen Ballesteros, RICARDO MORALES BETANCOURT, *Universidad de los Andes*

2BC.5

Measurements to Determine Mixing State of Black Carbon Emitted from the 2017/2018 California Wildfires and Urban Los Angeles.
JOSEPH KO, Trevor Krasowsky, George Ban-Weiss, *University of Southern California*

2BC.6

Prediction of Organic Aerosol Precursor Emission from Wood Pyrolysis.
MARIAM FAWAZ, Tami Bond, *University of Illinois at Urbana Champaign*

2BC.7

The Sources and Evolution of Ice Nucleation Particles Emitted by Biomass Burning.
LYDIA JAHL, Leif Jahn, Michael Polen, Thomas Brubaker, Bailey Bowers, Sara Graves, Ryan Sullivan, *Carnegie Mellon University*

2BC.8

Significant Impact of Transported African Biomass Burning on Phosphorus Deposition and Biogeochemical Cycles in the Amazon and Tropical Atlantic Ocean.
Anne Barkley, Joseph M. Prospero, Natalie Mahowald, Douglas Hamilton, Kimberly Popendorf, Amanda Oehlert, Ali Pourmand, Alexandre Gatineau, Kathy Panechou-Pulcherie, Patricia Blackwelder, CASSANDRA GASTON, *University of Miami*

2BC.10

Observations of Strong Secondary Aerosol and Ozone Formation in Biomass Burning Plumes in Southern Africa.
VILLE VAKKARI, Johan Paul Beukes, Miroslav Josipovic, Pieter G. van Zyl, *Finnish Meteorological Institute, Helsinki, Finland*

2BC.11

Seasonality and Inter-site Variability in Cookstove Emissions Measured in a Multi-year Cookstove Intervention Trial in Rural India.
MOHAMMAD MAKSIMUL ISLAM, Roshan Wathore, Grishma Jain, Karthik Sethuraman, Hisham Zerriffi, Julian Marshall, Rob Bailis, Andrew Grieshop, *North Carolina State University*

2BC.12

Identifying Functional Groups and Predicting OC-EC in Cookstove Source Emissions.
EMILY LI, Michael Hays, James Jetter, Guofeng Shen, Satoshi Takahama, Ann Dillner, *U.S. EPA*

2BC.13

Black Carbon Emissions from Residential Wood Combustion and Drivers for Further Research.
REBECCA TROJANOWSKI, Arthur J. Sedlacek, Ernie R. Lewis, Vasilis Fthenakis, Thomas Butcher, *Brookhaven National Laboratory*

2BC.14

Measuring Particle Number Concentration from Woodburning Stoves.
NICOLE VITILLO, Patricia Fritz, Jake Lindberg, Thomas Wainman, Nathan Walz, Todd Crawford, Rebecca Trojanowski, Thomas Butcher, *New York State Dept. of Health*

2BC.15

In-Stack Aethalometry Measurements of Woodburning Stoves.
JAKE LINDBERG, Patricia Fritz, Nicole Vitillo, Rebecca Trojanowski, Thomas Butcher, Thomas Wainman, Nathan Walz, Todd Crawford, *New York State Dept. of Health*

2BC.16

Source Apportionment and Mass Measurement of Fine Particulate Matter Arising from Massive Southern Oregon and Northern California Fires during the Summer of 2018.
DAVID GOBELI, Jennifer Brown, George Allen, *Met One Instruments, Incorporated*

2BC.17

Smoke Aerosol Radiocarbon Measurements from Indonesian Fires Provide Evidence for Burning of Millennia-aged Peat.
ELIZABETH WIGGINS, Claudia Czimczik, Guaciara dos Santos, Xiaomei Xu, Yang Chen, Jim Randerson, Charles Harvey, Fuu Ming Kai, Liya Yu, *NASA*

2BC.19

Networks of Multi-wavelength MicroAeth Monitors Provide Tracer of Ground Level Air Pollution Impacts of Long Range Transport of Wildfire Plumes in NYC.
STEVEN CHILLRUD, Qiang Yang, Beizhan Yan, Mark Arend, Fred Moshary, Jeff Blair, Yonghua Wu, Tanja Dobovicnik, Michele Markowitz, Wade McGillis, *LDEO of Columbia University*

2BC.20

Impact of Long-Range Transport of Central America Biomass Burning Emissions on Air Quality in Texas.
QIANJIN ZHENG, David Ramirez, Min Zhong, *Texas A&M University-Kingsville*

2BC.21

Single Particle Mass Spectrometry Observations of Long Range Transported Biomass Burning Aerosols in Michigan.
JAMY LEE, Brady Anderson, Peter-Philip Booth, Jun Liu, Peng Xian, Kerri Pratt, *University of Michigan*

2BC.22

Emission and Evolution of Submicron Aerosol Composition in Wildfire Smoke in the Western United States.
LAUREN GAROFALO, Ezra Levin, Matson A. Pothier, Sonia Kreidenweis, Delphine K. Farmer, *Colorado State University*

2BC.23

Characterization of Biomass Burning Aerosols Produced in the Laboratory with a Light-Scattering Aerosol Mass Spectrometer and Ultraviolet/Visible Absorption Spectroscopy of Water-Soluble Organic Carbon.
ANN M. MIDDLEBROOK, Rebecca Washenfelder, Alessandro Franchin, Gabriela Adler, Matthew Coggon, Kara D. Lamb, Katherine M. Manfred, Joshua P. Schwarz, Vanessa Selimovic, Nick Wagner, Caroline Womack, Robert J. Yokelson, *NOAA ESRL*

2BC.24

Characterizing Aerosol Emissions from Wildfires in the Western US.
EZRA LEVIN, Kevin Barry, Kathryn Moore, John Ortega, Lauren Garofalo, Matson A. Pothier, Darin Toohey, Mike Reeves, Jakob Lindaas, Ethan Emerson, Delphine K. Farmer, Sonia Kreidenweis, Paul DeMott, Emily Fischer, *Colorado State University*

2BC.25

Estimating the Contribution of Significant Volatile Organic Compounds to Secondary Organic Aerosol from Biomass Cookstove Emissions.
ADITYA SINHA, Ingrid George, Michael Hays, Andrew Grieshop, *North Carolina State University*

2BC.26

Chemical Composition and Morphological Analysis of Internally Mixed Mineral Dust and Biomass Burning Aerosols.
JAY TOMLIN, Johannes Weis, Swarup China, Daniel Veghte, Matthew Fraund, Naama Reicher, Quanfu He, Chunlin Li, Yinon Rudich, Ryan Moffet, Mary Gilles, Alexander Laskin, *Purdue University*

2BC.27

Optical Characterization of Fresh and Photochemically-Aged Aerosols Emitted from Laboratory Siberian Peat Burning.
Michealene Iaukea-Lum, Chiranjivi Bhattarai, Deep Sengupta, Vera Samburova, Andrey Khlystov, Adam Watts, W. Patrick Arnott, HANS MOOSMULLER, *Desert Research Institute*

2BC.28

Polar Fraction of Semi-volatile Organic Compounds in Biomass Burning Emissions and Their Chemical Transformations during Aging with Oxidation Flow Reactor.
DEEP SENGUPTA, Chiranjivi Bhattarai, Vera Samburova, Adam Watts, Hans Moosmuller, Andrey Khlystov, *Desert Research Institute*

2BC.29

Physical, Chemical and Optical Properties of Wildfire Aerosols.
SWARUP CHINA, Matthew Brege, Simeon Schum, Daniel Veghte, Kaitlyn J. Suski, Gourihar Kulkarni, ManishKumar Shrivastava, Lynn Mazzoleni, Alla Zelenyuk, *Pacific Northwest National Laboratory*

2BC.30

Extreme Molecular Complexity Resulting in a Continuum of Carbonaceous Species in Biomass Burning Tar Balls.
MATTHEW BREGE, Swarup China, Alla Zelenyuk, Simeon Schum, Lynn Mazzoleni, *Michigan Technological University*

2BC.31

Brown Carbon Formation from Nighttime Chemistry of Unsaturated Heterocyclic Volatile Organic Compounds.
Huanhuan Jiang, Alexander Frie, Avi Lavi, Jin Chen, Haofei Zhang, Roya Bahreini, YING-HSUAN LIN, *University of California, Riverside*

2BC.32

Development of Furan Oxidation Mechanism from OH and NO3 Oxidation within Biomass-Burning Regimes via Chamber Experiments.
BENJAMIN BROWN-STEINER, Matthew Alvarado, Nga Lee Ng, Taekyu Joo, *AER*

2BC.33

Secondary Organic Aerosol Formation from Reaction of 3-Methylfuran with Nitrate Radicals.
TAEKYU JOO, Jean Rivera-Rios, Masayuki Takeuchi, Matthew Alvarado, Nga Lee Ng, *Georgia Institute of Technology*

2BC.34

Emissions, Transport, and Chemistry of Smoke from Western U.S. Wildfires.
MEGAN BELA, Natalie Kille, Stuart McKeen, Ravan Ahmadov, Gabriel Pereira, Chris Schmidt, R. Bradley Pierce, Susan O'Neill, Xiaoyang Zhang, Shobha Kondragunta, Christine Wiedinmyer, Rainer Volkamer, *CU CIRES and NOAA ESRL*

2BC.35

Impacts of Brown Carbon on Surface Shortwave Radiation in the California Sacramento Valley in Summer 2018.
CHELSEA CORR, Maosi Chen, Zhibin Sun, Yan'an Liu, George Janson, Becky Olson, Scott Simpson, Amy P. Sullivan, Emily Fischer, Wei Gao, *Colorado State University*

2BC.36

Functional Group Analysis of Wildfire-Influenced Free Tropospheric Organic Aerosol using Ultrahigh Resolution Tandem Mass Spectrometry.
SIMEON SCHUM, Claudio Mazzoleni, Bo Zhang, Paulo Fialho, Lynn Mazzoleni, *Michigan Technological University*

2BC.37

On the Role of NOx in Biomass Burning Plumes: A Box Model Perspective.
QIAOYUN PENG, Brett Palm, Sam Hall, Eric Apel, Rebecca Hornbrook, Alex Jarnot, Nicola Blake, Frank Flocke, Emily Fischer, Joel A. Thornton, *University of Washington, Seattle, WA*

2BC.38

Chemical Composition of Biomass Burning Particles Measured with a Soot Particle Aerosol Mass Spectrometer Downwind during the BBOP Study.
TIMOTHY ONASCH, John Shilling, Arthur J. Sedlacek, Edward Fortner, Mikhail Pekour, Shan Zhou, Sonya Collier, Qi Zhang, Andrew Freedman, Leah Williams, Lawrence Kleinman, *Aerodyne Research, Inc.*

2BC.39

TD-DFT Investigation of the UV-Vis Spectra of Organonitrogen Chromophores in Brown Carbon.
JIN CHEN, Emmy Rodriguez, Huanhuan Jiang, Alexander Frie, Haofei Zhang, Roya Bahreini, Ying-Hsuan Lin, *University of California, Riverside*

2BC.40

Assessing the Impact of Biomass Burning on Ambient Air Toxics and Ozone Concentration in the Pacific Northwest.
ODELLE HADLEY, Anthony Cutler, Ruth Schumaker, Jenna Nelson, Robin Bond, *Olympic Region Clean Air Agency*

2BC.41

The Cytotoxicity of Brown Carbon and its Dependence on Combustion Conditions and Light Absorption Properties.
KHAIRALLAH ATWI, Arnab Mondal, Jitendra Pant, Zezhen Cheng, Omar El Hajj, Hitesh Handa, Rawad Saleh, *University of Georgia*

2BC.42

Chamber Studies Investigating Secondary Organic Aerosol Formation and Properties from Daytime and Nighttime Oxidation of Oxygenated Aromatics Emitted by Wildfires.
CARLEY D. FREDRICKSON, Brett Palm, Amy P. Sullivan, Yingjie Shen, Shane Murphy, Ben H. Lee, Xuan Zhang, Joel A. Thornton, *University of Washington*

2BC.43

Comparison of Cookstove Emissions and Performance Results Using the Water Boiling Test v4 and the ISO 19867-1 Testing Protocols.
WYATT CHAMPION, Craig Williams, Larry Virtaranta, Mark Barnes, James Jetter, ORISE, *U.S. EPA*

2BC.44

Quantifying Brown Carbon in Biofuel Combustion Emission Samples Collected during Field Tests in Malawi and India.
ALYSSA SANDERSON, Mohammad Maksimul Islam, Andrew Whitesell, Andrew Grieshop, *North Carolina State University*

2CC AEROSOLS, CLOUDS, AND CLIMATE II: POSTERS

EXHIBIT HALL A

2CC.1

Aerosol Measurements Using Unmanned Aerosystems.
FAN MEI, Darielle Dexheimer, Jason Tomlinson, Mikhail Pekour, Matt Newburn, Albert Mendoza, Casey Longbottom, Lexie Goldberger, Beat Schmid, *Pacific Northwest National Laboratory*

2CC.2

Deriving CCN from High-Spectral Resolution Lidar Measurements of Aerosol Extinction and Backscatter.
RICHARD MOORE, Kyle Dawson, Sharon P. Burton, Snorre Stamnes, Richard Ferrare, Chris Hostetler, Luke Ziemba, Ewan Crosbie, Edward Winstead, Yohei Shinozuka, Kenneth Thornhill, Bruce Anderson, *NASA Langley Research Center*

2CC.3

Improving Estimates of Ground-Level PM2.5 by Application of High Spectral Resolution Lidar.
XINYI LING, Nicholas Meskhidze, Kyle Dawson, Matthew Johnson, Barron Henderson, Sharon P. Burton, Chris Hostetler, Richard Ferrare, *NC State*

2CC.4

Small Amounts of Alcohol Modify Insoluble Cloud Condensation Nuclei.
Farima Barati, QI YAO, Akua Asa-Awuku, *University of Maryland, College Park*

2CC.5

Measurements of Removal Rate of Interstitial Aerosols in a Cloudy, Turbulent Environment.
ABU SAYEED MD SHAWON, Gregory Kinney, Prasanth Prabhakaran, Jesse C. Anderson, Raymond Shaw, Will Cantrell, *Michigan Technological University*

2CC.6

Investigating Different Salt Ions Impact on Cloud Condensation Nucleus (CCN) Activity of Black Carbon Aerosol.
QI YAO, Howard Fairbrother, Alexa Wallace, Akua Asa-Awuku, *University of Maryland*

2CC.7

Air Mass Characterization for the Megacity Delhi: Impacts on Aerosol Hygroscopicity and CCN Prediction.
ZAINAB ARUB, Sahil Bhandari, Shahzad Gani, Prashant Soni, Joshua Apte, Lea Hildebrandt Ruiz, Gazala Habib, *Indian Institute of Technology Delhi*

2CC.8

Characterization of Rural Aerosol Hygroscopicity and Chemical Composition Influenced by Fog and Anthropogenic Emissions in Central Taiwan.
CHIA-LI CHEN, Ting-Yu Chen, Hui-Ming Hung, Ping-Wen Tsai, Charles C.K. Chou, Wei-Nai Chen, *National Taiwan University*

2CC.9

Simulation of Air Pollution and Its Meteorological Feedbacks in Africa.
PENGFEI WANG, Hao Guo, Yuan Wang, Peng Wang, Qi Ying, Hongliang Zhang, *Louisiana State University*

2CC.10

Contribution of Particulate Matter Components to Hydroxyl Radical Formation by Aerosols in Simulated Cloud Water and High Activity Associated with Biomass Burning Aerosol.
Xiaobi M. Kuang, David Gonzalez, J. Adlin Scott, Kennedy Vu, Tiffany Charbouillot, Alam Hasson, Lelia Hawkins, SUZANNE E. PAULSON, *UCLA*

2CC.13

Comparative Study of INP Prameterizations in Climatological Simulations With a Global Model.
JAN PERLWITZ, Daniel Knopf, Ron Miller, *Climate, Aerosol, and Pollution Research, LLC*

2CC.14

The Influences of Secondary Organic Aerosols on Cloud Condensation Nuclei: Insights from a Global Model Employing Detailed Aerosol Microphysics.
MARGUERITE COLASURDO MARKS, Peter Adams, *Carnegie Mellon University*

2CC.15

Predicting the Phase State of Secondary Organic Aerosol and Understanding its Influences on the Heterogeneous Ice Nucleation.
YUE ZHANG, Martin Wolf, Shachi Katira, Jason Injae Jung, Abigail Koss, Peyton Spencer, Xiaoli Shen, Andrew Lee, Andrew Lambe, Wen Xu, Leonid Nichman, Yuzhi Chen, Manjula Canagaratna, Zhenfa Zhang, Avram Gold, John Jayne, Douglas Worsnop, Paul Davidovits, David Chandler, Timothy Onasch, Charles Kolb, Jesse Kroll, Jason Surratt, Daniel Cziczo, *Univ. of North Carolina, Chapel Hill/Aerodyne Research, Inc.*

2HA HEALTH-RELATED AEROSOLS I: POSTERS

EXHIBIT HALL A

2HA.1

Oxidative Potential and Cytotoxicity of Ambient Fine Particulate Matter During Winter at Beijing, China and Gwangju, Korea.
MA. CRISTINE FAYE DENNA, Lucille Joanna Borlaza, Hangyul Song, Enrique Cosep, Ilhwa Seo, Hyunok Maeng, Minhan Park, Min-Suk Bae, Kihong Park, *Gwangju Institute of Science and Technology*

2HA.2

Particle Size and Concentration of Aerosols Produced by Electronic Nicotine Delivery Systems.
SHERRIE ELZEY, Andrea Tiwari, Jon Ebbert, Slobodan Macura, *TSI Incorporated*

2HA.3

Field and Laboratory Measurements of Aerosolized Blue-Green Algal Toxins in South Florida.
MICHAEL SHERIDAN, Haley Plaas, Haley Royer, Lilly Blume, Chuyan Wan, Dhruv Mitroo, Kimberly Popendorf, Larry Brand, Cassandra Gaston, *University of Miami*

2HA.5

In Vitro Study on Endocytosis and Cellular Response of Macrophage for Aerosol Particles.
INJEONG KIM, Ryo Suzuki, Hidenori Higashi, Yayoi Inomata, Takafumi Seto, *Kanazawa university*

2HA.6

The Influence of Temperature on Microcystin Concentration in Bubble-Generated Lake Spray Aerosols.
HALEY PLAAS, Kimberly Popendorf, Cassandra Gaston, Larry Brand, *University of Miami*

2HA.7

The Characterization of Emissions from Sawing and Sanding Corian®, a Solid-Surface Composite Material.
Seungkoo Kang, CHAOLONG QI, *NIOSH*

2HA.8

Quantification of OH Radicals Generated by Secondary Organic Aerosols with Fluorometric Assay and Electron Paramagnetic Resonance Spectrometry.
JINLAI WEI, Ting Fang, Manabu Shiraiwa, *University of California, Irvine*

2HA.9

Impacts of Adding Dispersant on Aerosolization of Fine and Ultrafine Particulate Matter after an Oil Spill.
NIMA AFSHAR-MOHAJER, Lakshmana Dora, Andres Lam, Ana Rule, Joseph Katz, Kirsten Koehler, Johns Hopkins *School of Public Health*

2HA.10

Aerosol Size Distribution and Aldehyde Concentration Measurements of the Sub-ohm Electronic Nicotine Delivery Systems.
VLADIMIR MIKHEEV, Stephanie S. Buehler, Alexander Ivanov, *Battelle Memorial Institute*

2HA.11

Study on the Effect of Particle Size, Seasonal Transition and Site Variability on the Toxicity of Particulate Matter in Northern India.
AJAY TANEJA, Himanshi Rohra, *DR. B.R.A. University, Agra, India*

2HA.12

Real-Time Chemical Puff Profiling of Vapor Product Aerosol with Proton Transfer Mass Spectrometry.
Adam M. Ozvald, Devon C. O'Regan, Alessandra L. Paul, NADJA HEINE, *Juul Labs, Inc.*

2HA.14

Understanding the Glottis Motion Effect on Aerosol Transport and Deposition in a Subject-Specific Human Upper Airway Configuration.
JIANAN ZHAO, Yu Feng, *Oklahoma State University*

2HA.15

Glottis Opening Effects on Inhaled Particle Deposition in Human Airways.
TED SPERRY, Yu Feng, *Oklahoma State University*

2HA.16

Quantitative Assessment of Organic Compound Deposition in the Human Respiratory System from Rechargeable E-Cigarettes.
YUAN SHAO, Kirsten Koehler, Ana Rule, Wentai Luo, Kevin McWhirter, Jim Pankow, *Johns Hopkins Bloomberg School of Public Health*

2HA.17

Characterization and Performance Evaluation of a Nose-only Inhalation (NOI) Exposure System for a 90-Day Repeated-Dose NNK Inhalation Toxicity Study.
Shu-Chieh Hu, Yunan Tang, Seonggi Min, Hyun-Ki Kang, Dong-Jin Yang, Mallikarjuna Basavarajappa, Estatira Sepehr, Raul Trbojevich, Matthew Bryant, JINGHAI YI, Susan Chemerynski, Steven Yee, Hans Rosenfeldt, R. Philip Yeager, Paul Howard, *NCTR-FDA*

2HA.18

The State of Ambient Air Quality of a Mega City in Southeast Asia (Karachi, Pakistan): An Alarming Situation.
FATIMA JABEEN, Haider Khwaja, Iftikhar I. Naqvi, Abdul Malik, Sardar A. Siddiqqui, *University of the Punjab, Lahore*

2HA.20

Development and Comparison of Complementary Methods to Study Skin and Inhalational Exposure to Simulant Pathogens During Personal Protective Equipment Doffing.
JENNIFER THERKORN, David Drewry, Jennifer Andonian, Lauren Benishek, Carrie Billman, Ellen Forsyth, Brian Garibaldi, Elaine Nowakowski, Kaitlin Rainwater-Lovett, Lauren Sauer, Maggie Schiffhauer, Lisa Maragakis, *Johns Hopkins University Applied Physics Laboratory*

2HA.21

PM2.5 Generated during Rapid Failure of Fiber-reinforced Concrete Induces TNF-alpha Response in Macrophages.
LUPITA MONTOYA, Harish Gadde, Wyatt Champion, Ning Li, Mija Hubler, *University of Colorado Boulder*

2IM INSTRUMENTATION AND METHODS II: POSTERS

EXHIBIT HALL A

2IM.1

Traffic Related Aerosols Measurement with HR-ELPI+ Using Sintered Collection Plates.
ANSSI ARFFMAN, Peter Lambaerts, Markus Nikka, Erkki Lamminen, *Dekati Ltd.*

2IM.2

Instrument Artifacts Lead to Uncertainties in Parameterizations of Cloud Condensation Nucleation.
JESSICA MIRRIELEES, Sarah Brooks, *Texas A&M University*

2IM.3

Improved Coincidence Correction in Condensational Particle Counters.
STEVEN SPIELMAN, Gregory Lewis, Susanne Hering, *Aerosol Dynamics Inc.*

2IM.5

The Caltech nano-Scanning Electrical Mobility Spectrometer (nSEMS): Design, Modeling, and Characterization for Size Distribution Measurements in the Low Nanometer Regime.
STAVROS AMANATIDIS, Weimeng Kong, Huajun Mai, Yuanlong Huang, Richard Flagan, The CLOUD Collaboration, *California Institute of Technology*

2IM.6

Development of a Respirable Virtual-Cyclone Sampler.
HONG-YANG CHEN, Chih-Wei Lin, Ting-Ju Chen, Sheng-Hsiu Huang, Yu-Mei Kuo, Chih-Chieh Chen,
National Taiwan University

2IM.8

A New Aerosol Dynamics Scanning WCPC.
GREGORY LEWIS, Arantzazu Eiguren Fernandez, Steven Spielman, Susanne Hering, *Aerosol Dynamics Inc.*

2IM.9

Laboratory Evaluation of an Engine Exhaust Particle Sizer (EEPS) Spectrometer for Fast Measurements of Particle Number Size Distributions in Aircraft Exhaust Plumes.
YOSHIKO MURASHIMA, Hiromu Sakurai, Yuji Fujitani, Nobuyuki Takegawa, *AIST*

2IM.10

Investigation of Carbon Nanotube Concentrations as Elemental Carbon.
PATRICK O'SHAUGHNESSY, Ralph Altmaier, Craig Holder, *University of Iowa*

2IM.11

Development of an Aerosol Concentrator/Diffusion Battery Tandem for Evaluating the Toxicological Properties of Concentrated Ambient Accumulation Mode Particles in Controlled Inhalation (In-vivo) Exposure Studies.
MILAD PIRHADI, Amirhosein Mousavi, Sina Taghvaee, Mohammad Sowlat, Constantinos Sioutas, *University of Southern California*

2IM.12

Light Absorption by Ammonium Sulfate with Carbon Black Inclusions: Experiments, Mie Theory and Effective Medium Approximations.
JAMES RADNEY, Christopher Zangmeister, *National Institute of Standards and Technology*

2IM.13

Assessing Respirator Protection Factor with Novel Personal Devices.
MARGARET SIETSEMA, Thomas Peters, Allison Persing, K.R. Farmer, *University of Iowa*

2IM.14

Development of an Innovative Aerosol Generation Setup for In-vivo Exposure Studies.
SINA TAGHVAEE, Amirhosein Mousavi, Mohammad Sowlat, Constantinos Sioutas, *University of Southern California*

2IM.15

Development of an EHD Induced Wind Driven Personal Exposure Monitor and In-situ Analysis for Characterization of Exposure.
RAVI SANKAR VADDI, Gaurav Mahamuni, Igor Novosselov, *University of Washington*

2IM.16

Retrieval of High Time Resolution Growth Factor Probability Density Function from a Humidity-controlled Fast Integrated Mobility Spectrometer.
YANG WANG, Guangjie Zheng, Steven Spielman, Tamara Pinterich, Susanne Hering, Jian Wang, *Washington University in St. Louis*

2IM.17

Thermal Decomposition Characterization of Filter Inlet for Gases and AEROsols (FIGAERO) Coupled with Chemical Ionization Time-of-Flight Mass Spectrometer (ToF-CIMS).
LAURA YANG, Masayuki Takeuchi, Nga Lee Ng, *Georgia Institute of Technology*

2IM.18

Effects of Fluorescence Removal on the Raman Spectra of Single Atmospheric Aerosol Particles.
DAVID DOUGHTY, Steven Hill, *CCDC Army Research Laboratory*

2IM.19

Measurement of Aircraft Engine Soot Emissions using the ESCOM – the Engine Soot Compliance Monitor.
ANDREW FREEDMAN, Zhenhong Yu, Richard Miake-Lye, Timothy Onasch, *Aerodyne Research, Inc.*

2IM.20

Theoretical and Experimental Analysis of the Core Sampling Method: Reducing Diffusional Losses in Aerosol Sampling Line.
Yueyun Fu, Mo Xue, Runlong Cai, Juha Kangasluoma, JINGKUN JIANG, *Tsinghua University*

2IM.21

New Aerosol Instruments and Applications.
TIM GORDON, Gavin McMeeking, Ping Chen, *Handix Scientific*

2IM.22

The Transfer Function of a Drift Tube Ion Mobility Spectrometer-Condensation Particle Counter Combination.
JIHYEON LEE, David Buckley, Jikku Thomas, Christopher Hogan Jr., *University of Minnesota*

2IM.23

Comparison between Dimethyl phthalate and Diethylene glycol as a Working Fluid of a Laminar Flow Particle Size Magnifier.
KENJIRO IIDA, Hiromu Sakurai, Tetsuji Koyama, Tsuyoshi Taishi, *AIST*

2IM.24

PM2.5 Concentration Prediction Using Convolutional Long Short-Term Neural Network.
KAZUSHI INOUE, Ayumi Iwata, Tomoaki Okuda, *Keio University*

2IM.25

Accelerated Size Distribution Measurements using a Scanning Aerodynamic Aerosol Classifier.
TYLER J. JOHNSON, Jonathan Symonds, Jason S. Olfert, Adam M Boies, *University of Cambridge*

2IM.26

Improvement of Cyclone Sampler and Its Performance for Chemical Composition and Toxicity Measurement.
TAKUYA KATORI, Ayumi Iwata, Daiki Shishido, Yoshihiro Terui, Tomoaki Okuda, *Keio University*

2IM.27

Comprehensive Detection of All Analytes in a Large Chromatographic Dataset of Complex Environmental Samples.
SUNGWOO KIM, Gabriel Isaacman-VanWertz, *Virginia Polytechnic Institute and State University*

2IM.28

An Aerosol Particle Monitor for Use in Micro-Gravity Cabin Exposure Studies.
NATHAN KREISBERG, Steven Spielman, Gregory Lewis, Susanne Hering, Tim Gordon, Gavin McMeeking, *Aerosol Dynamics Inc*

2IM.29

Elucidation of Electrostatic Charging Characteristics of Radioactive Cs-Bearing Particles by Kelvin Probe Force Microscopy.
KEIICHI KUROSAWA, Ayumi Iwata, Yukihiko Satou, Yoshinari Abe, Yasuhito Igarashi, Tomoaki Okuda, *Keio University*

2IM.30

Recent Developments and Improvements to a Continuous Flow Diffusion Chamber for Measuring Ice Nucleating Particles.
GAVIN MCMEEKING, Ezra Levin, Tim Gordon, Kai Bi, Russell Perkins, Ping Chen, Paul DeMott, *Handix Scientific*

2IM.31

A Variable Residence Hygroscopicity Tandem Differential Mobility Analyzer (VRHTDMA).
DEANNA MYERS, James Smith, Jonathan Abbatt, *University of California, Irvine*

2IM.32

Suggested Calibrations for Aerodyne Aerosol Mass Spectrometry to Reduce Uncertainty and to Improve Quantification.
BENJAMIN A. NAULT, Hongyu Guo, Pedro Campuzano-Jost, Douglas Day, Jose-Luis Jimenez, *CIRES, University of Colorado, Boulder*

2IM.33

Investigating Submicron Inorganic Salts Biases Collected on Filters Collected in Airborne Campaigns.
BENJAMIN A. NAULT, Pedro Campuzano-Jost, Douglas Day, Jack Dibb, Karl D. Froyd, Eric Scheuer, Jose-Luis Jimenez, *CIRES, University of Colorado, Boulder*

2IM.34

MFAssignR: Software Tools for Molecular Formula Assignment of Organic Aerosol.
SIMEON SCHUM, Lynn Mazzoleni, Laura Brown, *Michigan Technological University*

2IM.35

Measurement of Sub 3 nm Flame-generated Particles Using Boosted Butanol CPC 3776 and DEG CPC.
GIRISH SHARMA, Mengda Wang, Michel Attoui, Pratim Biswas, *Washington University in St Louis*

2IM.36

Determination of Design Rule for Differeial Mobility Analyzer.
CHIRYO TSUNODA, *FES*

2IM.37

Analysis of Organic Composition on PM2.5 Aerosols by Two-Dimensional Gas Chromatography Mass Spectrometry (GCxGC-MS).
JIA-LIN CHARLIE WANG, Neng-Huei Lin, *National Central University, Taiwan*

2IM.38

The Comprehensive Thermal Desorption Aerosol Gas Chromatograph (cTAG) for Consistent Quantification of VOCs, IVOCs and SVOCs.
REBECCA WERNIS, Nathan Kreisberg, Robert Weber, Susanne Hering, Allen Goldstein, *University of California, Berkeley*

2IM.39

A Quadrupole Electrodynamic Trap Coupled to Single Droplet Mass Spectrometry: A Tool to Study Aerosol Heterogeneous Reactivity.
MEGAN WILLIS, Grazia Rovelli, Kevin Wilson, *Lawrence Berkeley National Laboratory*

2IM.40

Ambient Measurements of Emissions from Biomass Combustion Using a Portable Measurement Backpack.
MARILYN WURTH, Brian P. Frank, Jake Lindberg, Nicole Vitillo, Patricia Fritz, Shida Tang, Gil H. LaDuke, David Guerrieri, *New York State Dept. of Environmental Conservation*

2IM.41

Application of Synchrotron Radiation for the Morphology and Internal Structure of Individual Aerosols.
Chao-Wei Lai, Yu-Han Chen, Wan-Yi Chen, Chun-Chieh Wang, Yao-Tung Lin, LI-HAO YOUNG, *China Medical University, Taiwan*

2IM.42

Ultrafine Particles – Effects of Aerosol Material on Different Nanoparticle Counters.
AXEL ZERRATH, Andrea Tiwari, Patrick Roth, *TSI Incorporated*

2IM.43

Imaging Aqueous Submicron Particles through the Development of a Flash Freeze Technique.
THERESA KUCINSKI, Miriam Freedman, *The Pennsylvania State University*

2IM.44

Transmission of Charged Nanoparticles through an Adverse Axial Electric Field and Its Improvement.
RUNLONG CAI, Jingkun Jiang, *Tsinghua University, China*

2IM.45

Lab-based Test of Palm-sized Aethalometer for Indoor Aerosol Measurement.
JEONGHOON LEE, *KOREATECH*

2IM.46

Real-Time Measurement of Airborne Carbon Nanotubes.
Lina Zheng, PRAMOD KULKARNI, *Centers for Disease Control and Prevention, NIOSH*

2IM.47

An Exhaled Breath Aerosol (EBA) Collector for High Collection Efficiency of Particles Down To 10nm.
ARANTZAZU EIGUREN FERNANDEZ, Gregory Lewis, Susanne Hering, Somayeh Youssefi, Donald Milton, *Aerosol Dynamics Inc*

2IM.48

Orthographic Imaging of Free-Flowing Aerosol Particles.
JESSE LANING, Matthew Berg, *Kansas State University*

2IM.49

Development of a New Dilution System for Continuous Measurement of Particle Concentration in the Exhaust from a Coal-fired Power Plant.
Dongho Shin, Kee-Jung Hong, Hak-Joon Kim, Bangwoo Han, YONG-JIN KIM, *Korea Institute of Machinery & Materials*

2IM.50

Development of a Novel Particle Mass Spectrometer for Online Measurements of Refractory Sulfate Aerosols.
YUYA KOBAYASHI, Yu Ide, Nobuyuki Takegawa, *Tokyo Metropolitan University*

2IM.51

A Test and Evaluation (T and E) Capability for Aerosolised Hazardous Materials.
SARAH MARCHANT, Peter Jones, Will Sellors, Maurice Walker, Andy Martin, Buckley Margaret, *Dstl, Porton Down, Salisbury, Wiltshire, SP4 0JQ, UK*

2IM.52

A Comprehensive Isomeric Identification of Particle-Phase Organic Nitrates by Gas Chromatography and Time-Of-Flight Mass Spectrometry Coupled with Electron Capture Ionization.
XIAODI SHI, Xinghua Qiu, *Peking University*

2IM.53

Development of a Direct-Reading Inhalable Particle Sizer with Elemental Composition Analysis.
JAMES SIPICH, John Volckens, Christian L'Orange, Azer Yalin, Kimberly Anderson, Christopher Limbach, *Colorado State University*

2IM.54

Assessment of Acrolein in Air Samples Using Pentaflurophenylhydrazine (PFPH) and Gas Chromatography-Mass Spectroscopy (GC-MS).
Anthony Cutler, TOKALA CHRISTENSEN, Jenna Nelson, Hansina Hill, Odelle Hadley, Robin Bond, *The Evergreen State College*

2IM.55

Experimental Studies of the Dynamics of Organic Iodide Species Adsorbed on the Surfaces of Environmentally-relevant Particles.
ALLA ZELENYUK, Robert VanGundy, Katarzyna Grubel, Thomas Autrey, Youngsoon Shin, *Pacific Northwest National Laboratory*

2IM.56

Quantifying Exposure to Second Hand Tobacco Smoke in the Presence of Black Carbon via DualSpot Corrections to MicroAeth Data: Results From Chamber Experiments.
ABDERAHIM SALHI, James Ross, Beizhan Yan, Qiang Yang, Jeanine D'Armiento, Jarrod Sonnett, Matthew Perzanowski, Steven Chillrud, *Hudson County Community College; LDEO of Columbia University*

2RA REMOTE AND REGIONAL ATMOSPHERIC AEROSOL I: POSTERS

EXHIBIT HALL A

2RA.1

Integrating Aerosol Size Distribution Measurements with a 3D Chemical Transport Model.
DANA MCGUFFIN, Peter Adams, Erik B. Ydstie, *Carnegie Mellon University*

2RA.2

Polarimetric Measurement Sensitivities for Atmospherically Processed Brown Carbon Aerosol.
CHENCHONG ZHANG, William Heinson, Benjamin Sumlin, Michael Garay, Olga Kalashnikova, Rajan K. Chakrabarty, *Washington University in St. Louis*

2RA.3

Chemical Imaging of Atmospheric Particles Sampled over Agricultural Fields in Indiana.
JAY TOMLIN, Kevin Jankowshi, Swarup China, Brian Stirm, Robert Kaeser, Paul Shepson, Alexander Laskin, *Purdue University*

2RA.4

Concentrations of Biogenic Volatile Organic Compound in an East Coast Forest, and Their Relative Importance for Ozone Chemical Loss.
DEBORAH MCGLYNN, Chenyang Bi, Graham Frazier, Sally Pusede, Gabriel Isaacman-VanWertz, *Virginia Tech*

2RA.5

Biogenic Oxidation Products in a Mixed Forest: Their Concentrations, Reactivity, and Fates.
GRAHAM FRAZIER, Chenyang Bi, Deborah McGlynn, Sally Pusede, Gabriel Isaacman-VanWertz, *Virginia Tech*

2RA.6

Ultrafine Particle Composition and Growth in the Amazon Basin: Observations from Two Surface Sites.
HAYLEY GLICKER, Sarah Batalha, Julio Tota, Alex Guenther, James Smith, *University of California, Irvine*

2RA.7

Aerosol Shape Classification by Deep Learning of Scattering Patterns.
PATRICIO PIEDRA, Yong-Le Pan, Gorden Videen, *U.S. Army Research Laboratory*

2RA.8

Comparison of Antarctic and Arctic Seasonal Cycles of Aerosol Chemical Components.
LYNN RUSSELL, Amanda Frossard, Patricia Quinn, Sangeeta Sharma, Richard Leaitch, Dan Lubin, *Scripps Institution of Oceanography*

2RA.9

Boundary Layer Characteristics and PM2.5 Concentration Diurnal Variation on Cloudless Days in Beijing Based on UHF Wind-profiler and Related Meteorological and Air Quality Observations.
YUFANG TIAN, Daren LYU, *Institute of Atmospheric Physics, Chinese Academy of Sciences*

2RA.10

Chemical and Microphysical Properties of Wind-blown Dust Near an Actively Retreating Glacier in Yukon, Canada.
PATRICK HAYES, Jill Bachelder, Malo Bernhard, Carolyn Liu-Kang, Pérrine Lambert, Alexane Filoche, Juliana Galhardi, Madjid Hadioui, Marie Cadieux, Amélie Chaput, Marie-Pierre Bastien-Thibault, Kevin Wilkinson, James King, *Université de Montréal*

2RA.11

Aerosol Vertical Distribution Climatology Over India: Dust, Smoke and Polluted Dust.
Padmavati Kulkarni, SREEKANTH VAKACHERLA, *CSTEP, India*

2RA.12

Characterizing Primary Ultrafine Particle Sources in the United States with CMAQ-UF.
BENJAMIN MURPHY, Francis Binkowski, Ekbordin Winijkul, Matthew Alvarado, *United States Environmental Protection Agency*

2RA.13

Modeling Multi-Decadal Trends in Concentrations of PM2.5 and Its Precursors.
MARGUERITE COLASURDO MARKS, Peter Adams, *Carnegie Mellon University*

2SA SOURCE APPORTIONMENT I: POSTERS

EXHIBIT HALL A

2SA.1

Impacts of Household Sources on Air Pollution at Village and Regional Scales in India.
BRIGITTE ROONEY, Ran Zhao, Yuan Wang, Kelvin Bates, Ajay Pillarisetti, Sumit Sharma, Seema Kundu, Tami Bond, Nicholas Lam, Bora Ozaltun, Li Xu, Varun Goel, Lauren Fleming, Robert Weltman, Simone Meinardi, Donald Blake, Sergey Nizkorodov, Rufus Edwards, Ankit Yadav, Narendra Arora, Kirk Smith, John Seinfeld, *California Institute of Technology*

2SA.2

Source Attribution Using Fourier Transform Infrared Spectroscopy in the Interagency Monitoring of Protected Visual Environments (IMPROVE) Network.
ANDREW WEAKLEY, Alexandra Boris, Bruno Debus, Satoshi Takahama, Ann Dillner, *University of California, Davis*

2SA.3

Elucidating Sources and Human Health Risk of Inhalation Exposure to VOCs and PM2.5 at Albany, New York.
MD. AYNUL BARI, Sanchita Paul, *University at Albany, SUNY*

2SA.4

Using Highly Time-resolved Data to Improve the Lake Michigan Ozone Study: Particle Size Distributions and VOCs at a Coastal Site.
MEGAN CHRISTIANSEN, Austin Doak, Dagen Hughes, Charles Stanier, Elizabeth Stone, Dylan Millet, Hariprasad Alwe, *University of Iowa*

2SA.5

Source Apportionment and Temporal Trends of Coarse Particulate Matter (PM): A Case Study in Central Tehran, Iran.
EHSAN SOLEIMANIAN, Sina Taghvaee, Amirhosein Mousavi, Mohammad Sowlat, Mohammad Sadegh Hassanvand, Masud Yunesian, Kazem Naddafi, Constantinos Sioutas, *University of Southern California*

2SA.6

Application of Advanced Factorization Techniques for Deconvolution of Cooking and Biomass Burning Source Contributions in a Polluted Megacity.
SAHIL BHANDARI, Kanan Patel, Shahzad Gani, Gazala Habib, Joshua Apte, Lea Hildebrandt Ruiz, *University of Texas at Austin*

2SA.7

Spatial Variation of Wintertime Aerosol Composition and Source Contribution across the Kathmandu Valley, Nepal.
BENJAMIN WERDEN, Michael Giordano, Khadak Mahata, Siva Praveen Puppala, Arnico Panday, Robert J. Yokelson, Elizabeth Stone, Peter DeCarlo, *Drexel University*

2SA.8

Source Apportionment of Multiple Metals in PM2.5 in Beijing, China.
MEI ZHENG, Xi Yang, Junyi Liu, *Peking University*

2SA.9

Insights into PM2.5 Chemical Composition and Sources in Beijing Using an Extractive Electrospray Ionisation Long-Time-Of-Flight Mass Spectrometer (EESI-LTOF).
YANDONG TONG, Veronika Pospisilova, Lu Qi, Giulia Stefenelli, Varun Kumar, Urs Baltensperger, Junji Cao, Rujin Huang, Andre S.H. Prévôt, Jay G. Slowik, *Paul Scherrer Institute*

2SA.10

Source Apportionment of Submicron Aerosol Particles in a Mediterranean Harbour by Using a Rolling Window Approach.
BENJAMIN CHAZEAU, Grégory Gille, Boualem Mesbah, Brice Temime-Roussel, Francesco Canonaco, Andre S.H. Prévôt, Barbara D'Anna, Henri Wortham, Nicolas Marchand, *Aix-Marseille Université, CNRS, LCE FRE 3416*

2SA.11

High Time Resolution Observation and Its Source Apportionment of Brown Carbon during Winter and Summer in Urban Xi'an, Northwestern China.
YALI LEI, Zhenxing Shen, Tian Zhang, DI LU, Yaling Zeng, Qian Zhang, Hongmei Xu, Jianhuai Ye, Yiming Qin, Xin Wang, Junji Cao, *Xi'an Jiaotong University*

2SA.12

High Time-Resolution Measurements of Ambient Metals and Elements in Los Angeles: Source Apportionment and Temporal Variations.
SINA HASHEMINASSAB, Payam Pakbin, Andrea Polidori, Aaron Katzenstein, Jason Low, *South Coast Air Quality Management District*

2UA URBAN AEROSOLS II: POSTERS

EXHIBIT HALL A

2UA.1

Integration of Ground-Based Particulate Matter Measurements with Satellite Observations in the Multi-Angle Imager for Aerosols (MAIA) Investigation.
SINA HASHEMINASSAB, Kristal Verhulst, Michael Garay, Abigail Nastan, Randall V. Martin, Yang Liu, David Diner, *Jet Propulsion Laboratory*

2UA.2

Detecting Biomass Burning Using Intensive Aerosol Optical Properties in El Paso, Texas - (BC)2 El Paso Field Campaign.
SUJAN SHRESTHA, Meghan C. Guagenti, James Flynn, Sergio Alvarez, Sascha Usenko, Rebecca J. Sheesley, *Baylor University*

2UA.3

Identification of the Major Sources of the Particulate Nitrosamines and Nitramines in the Ambient Atmosphere at Seoul, South Korea.
NA RAE CHOI, Yun Gyong Ahn, Ji Yi Lee, Yong Pyo Kim, *Ewha Womans University*

2UA.4

Effects of Climate and Emission Changes on Air Pollution in India.
HAO GUO, Kaiyu Chen, Sri Kota, Hongliang Zhang, *Louisiana State University*

2UA.5

Investigation of the Driving Forces for the Recent Trends in Surface Fine Particulate Matter Concentrations in Nanjing, China.
JIANLIN HU, Zhihao Shi, Jingyi Li, Hongliang Zhang, Qi Ying, *Nanjing University of Information Science & Technology*

2UA.6

Simulation of Heterogeneous Chemistry of SO2 and NOx on Mineral Dust Particles in Ambient Environments Using CAMx.
ZECHEN YU, Myoseon Jang, *University of Florida*

2UA.7

Simulation of Evolving Gas- and Aerosol-Phase Air Quality over Los Angeles.
ELYSE PENNINGTON, Melissa Venecek, Yuan Wang, John Seinfeld, *California Institute of Technology*

2UA.8

Local and Cross-Regional Contributions of Air Quality Policy in Central Taiwan.
MIN-CHUAN HSIAO, Hsin-Chih Lai, Wen-Yinn Lin, Joshua S. Fu, Lei-Wei Lai, *National Taipei University of Technology*

2UA.9

Comparison of Chemical Characteristics of PM2.5 during Winter Haze Events in Beijing, China and Gwangju, Korea.
MINHAN PARK, Jihyo Chong, Haebum Lee, Nohhyeon Kwak, Hyunok Maeng, Kyungjoo Kim, Eunbi Lee, Enrique Cosep, A Young Choi, Hangyul Song, Ma. Cristine Faye Denna, Dahye Oh, Min-Suk Bae, Kyoung-Soon Jang, Min Hu, Xiaoyang Yang, Kihong Park, *Gwangju Institute of Science and Technology*

2UA.10

Characterization of Submicron Aerosols in a High Polluted City Nearby the Gorge of the Yellow River in Central China.
QINGQING WANG, Yele Sun, Jie Li, Yong Chen, Yanyu Li, *Institute of Atmospheric Physics Chinese Academy of Sciences*

2UA.11

Micro-environmental Impact of a Proposed "Tri-gen" Facility in a Large Food Distribution Center.
BO YANG, Murari Iyengar, Jeffrey Sward, K. Max Zhang, *Cornell University*

2UA.12

Mobile Measurements to Identify Spatial and Temporal Variability of Aerosol Composition during the NAMaSTE Campaign.
Benjamin Werden, Erin Katz, Michael Giordano, Siva Praveen Puppala, Elizabeth Stone, Robert J. Yokelson, Donald Blake, Arnico Panday, PETER DECARLO, *Drexel University*

2UA.13

Characterization of Particulate Bound Polycyclic Aromatic Compounds (PACs) and Their Oxidations in Heavy Polluted Atmosphere: A Case Study in Urban Beijing, China during Haze Events.
LIJUAN LI, Steven Sai Hang Ho, Junji Cao, *Chinese Academy of Sciences*

2UA.14

High Resolution Chemical Transport Modeling of Ultrafine Particles over Pittsburgh.
SHAYAK SENGUPTA, Pablo Garcia, David Patoulias, Provat Saha, Wei Ma, Christopher Tessum, Iannis Kioutsioukis, Sean Qian, Spyros Pandis, Inês Azevedo, Peter Adams, *Carnegie Mellon University*

2UA.15

Elevated Number and Mass Concentrations of Fine Particles during Winter in 2018 and 2019 in Urban Gwangju, Korea.
JIHO JANG, Haebum Lee, Nohhyeon Kwak, Minhan Park, Jihyo Chong, Ma. Cristine Faye Denna, Kihong Park, *Gwangju Institute of Science and Technology*

2UA.16

Contribution of Hydroxymethanesulfonate (HMS) to Severe Winter Haze in the North China Plain.
TAO MA, Hiroshi Furutani, Fengkui Duan, Takashi Kimoto, Jingkun Jiang, Yongliang Ma, Lidan Zhu, Tao Huang, Michisato Toyoda, Kebin He, *Tsinghua University*

2UA.17

Spatial Variation of Air Pollutants Using Machine Learning Models.
JIAJUN GU, Gaurav Bang, Abhijeet Guha Roy, Michael Brauer, Benjamin Barratt, Martha Lee, K. Max Zhang, *Cornell University*

2UA.18

Characterizing the Spatial Variation of PM2.5 Concentrations in Pittsburgh Using Network of Low-Cost Monitors.
ROSE EILENBERG, Rebecca Tanzer, Carl Malings, R. Subramanian, Albert Presto, Allen Robinson, *Carnegie Mellon University*

2UA.19

Ambient Air Quality in Urban Areas of Indonesia.
Muhayatun Santoso, Diah Lestiani, Syukria Kurniawati, ENDAH DAMASTUTI, Djoko Prakoso, Indah Kusmartini, Rita Mukhtar, Philip K. Hopke, *Center for Applied Nuclear Science and Technology, BATAN*

2UA.20

Chemical Composition, Sources and Formation Process of Submicron Aerosols in Seoul Metropolitan Area during Summer: Comparison to Winter.
HWAJIN KIM, Qi Zhang, *Korea Institute of Science and Technology*

2UA.21

Comprehensive Mobile Measurements of Aerosols from Residential Heating in Small Settlements for Temporal/ Spatial Variability and Hot-Spots Identification: Cross-Border Study.
JAN BENDL, Jan Hovorka, Jürgen Schnelle-Kreis, Gert Jakobi, Mohamed Khedr, Xiansheng Liu, *Charles University*

2UA.22

Efficacy of an Engineered Vegetative Buffer on Near-Road Air Quality.
PRADEEP S. PRATHIBHA, Ray Yeager, Aruni Bhatnagar, Daniel Fleischer, Brent Bucknum, Eben Cross, Jay R. Turner, *Washington University in St. Louis*

2UA.24

A Topic Model Approach and Its Implication on Particulate Matter Related Research: A Case for South Korea.
KAYOUNG KIM, *KISTEP*

2UA.25

Can Nucleation in the Residual Layer Explain "Class-B" New Particle Formation Events?
NICHOLAS MESKHIDZE, Juan Jaimes-Correa, Markus Petters, Taylor Royalty, Brittany Phillips, Alyssa Zimmerman, Robert Reed, *NC State*

2UA.26

Exploring the Spatiotemporal Variability of the Ground Level Ultrafine Particle Number Concentration in the Raleigh Area.
Nicholas Meskhidze, Juan Jaimes-Correa, Markus Petters, Taylor Royalty, Brittany Phillips, ALYSSA ZIMMERMAN, Robert Reed, *North Carolina State University*

2UA.27

Comparison of Organic Compounds in PM2.5 High-Concentration Events from Seoul and Beijing.
HYEWON KIM, Soyoung Jung, Jieun Park, Youngkwon Kim, Seung-Muk Yi, Kwang-Jo Moon, Kwon Ho Jeon, *Seoul National University, Seoul, Korea*

2UA.28

Air Quality and Health Co-benefits of Different Deep Decarbonization Pathways in California.
BIN ZHAO, Tianyang Wang, Zhe Jiang, Yu Gu, Kuo-Nan Liou, Yifang Zhu, *University of California Los Angeles*

2UA.29

Validating the Intervention Model for Air Pollution for Environmental Health and Justice Analysis in Canada.
RIVKAH GARDNER-FROLICK, Christopher Tessum, Julian Marshall, Amanda Giang, *University of British Columbia*

2UA.30

Spatiotemporal Profiles of Ultrafine Particles Differ from Other Traffic-Related Air Pollutants: Lessons from Long-Term Measurements at Fixed Sites and Mobile Monitoring.
SHAHZAD GANI, Sarah Chambliss, Kyle Messier, Melissa M. Lunden, Joshua Apte, *University of Texas at Austin*

2UA.31

Ten-year Trends (2008–2017) in Ambient Fine Particulate Matter and Its Chemical Components in the Capital Region of New York State.
SANCHITA PAUL, Md. Aynul Bari, *University at Albany, SUNY*

2UA.32

Onshore Measurements of Emissions from In-Use Tugboats in Southern California.
HANNAH SCHLAERTH, Joseph Ko, Rebecca Sugrue, Chelsea V. Preble, Thomas W. Kirchstetter, George Ban-Weiss, *University of Southern California*

Tuesday 3:00 PM - 3:30 PM
Coffee Break

Tuesday 3:30 PM - 5:00 PM
Session 3: Platform

3AC AEROSOL CHEMISTRY III: MODEL DEVELOPMENT

OREGON BALLROOM

Benjamin Nault and **Kerrigan Cain,** chairs

3AC.1 | 3:30

Application of a Reactive Uptake Parameterization Considering Non-Ideal Effects and Phase State in Simulating Secondary Organic Aerosols from Isoprene Expoxydiols Under Controlled Laboratory Measurements.

YUZHI CHEN, Yue Zhang, Matthieu Riva, Theran P. Riedel, Havala Pye, Nicole Olson, Ziying Lei, Zhenfa Zhang, Avram Gold, Barbara Turpin, Andrew Ault, Jason Surratt, *University of North Carolina at Chapel Hill*

3AC.2 | 3:45

Modeling the Effects of an Updated Isoprene Oxidation Mechanism on Organic Aerosol, Reactive Nitrogen, and Sulfate Budgets.

KELVIN BATES, Eleni Dovrou, Vasquez Krystal, Frank Keutsch, Paul Wennberg, Daniel Jacob, *Harvard University*

3AC.3 | 4:00

Predicting the Phase State of Atmospherically Relevant Aerosols and Its Impact on Multiphase Chemistry in a Regional-scale Atmospheric Model.

QUAZI RASOOL, Ryan Schmedding, Yue Zhang, Havala Pye, Haofei Zhang, Yuzhi Chen, Jason Surratt, William Vizuete, *University of North Carolina at Chapel Hill*

3AC.4 | 4:15

The Dependence of SOA Formation on NOx Conditions: Effects of Branching Ratio of RO2 +NO Pathway.

WEIHAN PENG, William Porter, David R. Cocker III, *University of California, Riverside*

3AC.5 | 4:30

Translating Environmental Chamber Data for Secondary Organic Aerosol For Use in Atmospheric Models.

CHARLES HE, Ali Akherati, Christopher Cappa, Jeffrey R. Pierce, ManishKumar Shrivastava, Benjamin Murphy, Shantanu Jathar, *Colorado State University*

3AC.6 | 4:45

Constraining the Impact of Microorganisms on Atmospheric Aerosol and Cloud Chemistry.

ALISON FANKHAUSER, Dexter D. Antonio, Asher M. Krell, Simone J. Alston, Scott Banta, V. Faye McNeill, *Columbia University*

3AD SYMPOSIUM: FROM AEROSOL DOSIMETRY AND TOXICOLOGY TO HEALTH III

ROOM A 106

Otmar Schmid and **Huanhuan Jiang,** chairs

3AD.1 | 3:30

Computational Modeling of Multispecies Evolving Aerosol Delivery in the Human Respiratory Tract.

FRANCESCO LUCCI, Mahdi Asgari, Edo Frederix, Arkadiusz Kuczaj, *Philip Morris International R&D*

3AD.2 | 3:45

Profiling Sources and Chemical Aging Effects on the Oxidative Potential of Organic Aerosol.

SHUNYAO WANG, Karl Demmans, Jianjun Han, Manpreet Takhar, Zeng Rui, Peng Hui, Arthur W. H. Chan, *University of Toronto*

3AD.3 | 4:00

Oxidative Potential of PM2.5 Semi-volatile Species in an Urban Atmosphere.

MILAD PIRHADI, Amirhosein Mousavi, Sina Taghvaee, Mohammad Sowlat, Constantinos Sioutas, *University of Southern California*

3AD.4 | 4:15

The Impact of Cooking Aerosol on Human Brain and Heart.

MEHDI AMOUEI TORKMAHALLEH, Motahareh Naser, Zhibek Bekezhankyzy, Aidana Gimnkhan, Nurzhan Sholpan, Raikhangul Gabdrashova, Milad Malekipirbazari, Mojtaba Jozizade, Mahsa Tabesh, Hamta Farrokhi, Reza Khanbabaie, Hossein Mehri-Dehnavi, *Chemical and Aerosol Research Team, Nazarbayev University*

3AD.5 | 4:30

Chronic Exposure to Real-time Traffic Related Air Pollution Increases Neuroinflammation and Exacerbates Plaque Burden in TgF344-AD Rats.

Kelley Patten, Anthony Valenzuela, Ameer Taha, Keith Bein, ANTHONY S. WEXLER, Pamela Lein, *University of California, Davis*

3AD.6 | 4:45

Temporal Changes in the Per Unit Mass Toxicity of Ambient PM2.5 in New York State.

PHILIP K. HOPKE, Daniel Croft, Wangjian Zhang, Shao Lin, Mauro Masiol, Stefania Squizzato, Sally Thurston, Edwin van Wijngaaten, Mark Utell, David Q. Rich, *University of Rochester Medical Center*

3BC SYMPOSIUM: BIOMASS COMBUSTION: EMISSIONS, CHEMISTRY, AIR QUALITY, CLIMATE, AND HUMAN HEALTH III: TOWARDS UNDERSTANDING THE HEALTH-RELATED IMPACTS OF BIOMASS BURNING

ROOM B 113-114

Amara Holder and **Aditya Sinha,** chairs

3BC.1 | 3:30

Pregnant Women's Exposure to Household Air Pollution during a LPG Cookstove Intervention in Rural Bangladesh: The Value of Real-Time Data.

Maggie Abbott, JONATHAN THORNBURG, Sajia Islam, Masum Billah, Fariha Tasnim, Seung-Hyun Cho, Ashraful Alam, Camille Raynes-Greenow, *RTI International*

3BC.2 | 3:45

Linking Cookstove Emissions to Indoor Air Quality: Outcome of a Multi-year Cookstove Intervention Trial in Rural India.

MOHAMMAD MAKSIMUL ISLAM, Roshan Wathore, Grishma Jain, Karthik Sethuraman, Hisham Zerriffi, Julian Marshall, Rob Bailis, Andrew Grieshop, *North Carolina State University*

3BC.3 | 4:00

Initial Evaluation of a Heating Stove Changeout Program in the Navajo Nation Featuring a Culturally-Appropriate Wood/Coal Stove.

Naomi Chang, Tennille Denetdeel, Jeri Garfield, Sky Izzo, Michael King, Chris Yazzie, Mark Bauer, Paul Solomon, Kathleen Stewart, LUPITA MONTOYA, *University of Colorado Boulder*

3BC.4 | 4:15

Improving Smoke Exposure Assessment for Surveillance and Epidemiology in British Columbia, Canada.

SARAH HENDERSON, *British Columbia Centre for Disease Control.* INVITED.

3BC.5 | 4:45

Implications of Photochemical Ageing for Toxicity and Source Apportionment of Wood Combustion Aerosols: A Combined Biological and Chemical Study.

Hendryk Czech, Toni Miersch, Anni Hartikainen, Mika Ihalainen, Sebastiano di Bucchianico, Jürgen Orasche, Sebastian Oeder, Jarkko Tissari, Thorsten Streibel, Jürgen Schnelle-Kreis, Pasi Javala, Maija-Riitta Hirvonen, Olli Sippula, Jorma Jokiniemi, RALF ZIMMERMANN, and further members of the HICE consortium, *University of Rostock and Helmholtz Zentrum Munich, Germany*

3CC AEROSOLS, CLOUDS, AND CLIMATE III

ROOM B 110-112

Richard Moore and **Weimeng (Stephanie) Kong,** chairs

3CC.1 | 3:30

Measuring and Modeling the Water-Solubility Distribution of Organic Aerosol.

SHUNSUKE NAKAO, Vikram Pratap, Aditya Kiran Srikakulapu, *Clarkson University*

3CC.2 | 3:45

Impact of Improved Representation of Aerosol Mixing State on Air-Quality-Weather Interactions.

ROBIN STEVENS, Ashu Dastoor, *Environment and Climate Change Canada*

3CC.3 | 4:00

Evaluating the Impacts of In-Cloud Chemistry on Resuspended Aerosol Particles after Cloud Evaporation using a Particle Resolved Model.

YU YAO, Nicole Riemer, Matt Dawson, *University of Illinois at Urbana-Champaign*

3CC.4 | 4:15

Effects of GHG Mitigation Strategies in Future Climate over California.

ANIKENDER KUMAR, Michael Kleeman, Christina Zapata, *University of California, Davis*

3CC.5 | 4:30

Stratocumulus Cloud-top Inhomogeneous Entrainment Parcel Model Parameterization.

KEVIN SANCHEZ, Greg Roberts, Minghui Diao, Lynn Russell, *Scripps Institution of Oceanography*

3CC.6 | 4:45

Surface Aerosol Bimodality Due to Continental Cloud Processing and Photochemical Particle Production.

JAMES HUDSON, Stephen Noble, *Desert Research Institute*

3IM INSTRUMENTATION AND METHODS III: SINGLE PARTICLES AND DROPLETS

ROOM B 115-116

Cari Dutcher and **Sarah Suda Petters,** chairs

3IM.1 | 3:30

Temperature Dependent Phase Study of Aerosols Using Droplet Microfluidics.

PRIYATANU ROY, Cari Dutcher, *University of Minnesota*

3IM.2 | 3:45

A New Approach for in Situ Picolitre Sampling of Aerosol Using Optically Trapped Droplets.

MALCOLM KITTLE, Rachael E.H. Miles, Jason Murrell, Rebecca Hopkins, Jonathan P. Reid, *University of Bristol*

3IM.3 | 4:00

Laser-induced Incandescence: Need to Revisit.

IGOR ALTMAN, Fengshan Liu, *Naval Air Warfare Center Weapons Division, USA*

3IM.4 | 4:15

Aerosol Mass Spectrometer for On-Line Detection of Polycyclic Hydrocarbons as Well as Inorganic Cations and Anions from Single Particles.

RALF ZIMMERMANN, Julian Schade, Robert Irsig, Martin Sklorz, Johannes Passig, *Helmholtz Zentrum München and University of Rostock*

3IM.5 | 4:30

Chemical Reactions on Optically Trapped Single Particles.

CHUJI WANG, Zhiyong Gong, Gorden Videen, Yong-Le Pan, *Mississippi State University*

3IM.6 | 4:45

A Single Particle Approach for Exploring Aerosol Photochemistry and Optical Properties.

JAMES F. DAVIES, Chelsea Price, Alison Bain, Thomas Preston, *University of California, Riverside*

3UA URBAN AEROSOLS III: CHEMICAL CHARACTERIZATION OF URBAN AEROSOLS AROUND THE GLOBE

ROOM B 117-119

Sahil Bhandari and **Alex Johnson,** chairs

3UA.1 | 3:30

An Enhanced Submicron Aerosol Event over Long Island and the NYC Metro Area during LISTOS 2018: Influence of a Heat Wave and Marine Air Masses.

Jie Zhang, John Mak, Ziran Wei, JAMES SCHWAB, *University at Albany, SUNY*

3UA.2 | 3:45

Submicron Aerosol during Autumn 2018 in the Most Polluted Megacity: The Delhi Aerosol Supersite Study (DAS).

KANAN PATEL, Sahil Bhandari, Shahzad Gani, Purushottam Kumar, Gazala Habib, Joshua Apte, Lea Hildebrandt Ruiz, *University of Texas at Austin*

3UA.3 | 4:00

Spatial and Seasonal Trends in Polycyclic Aromatic Hydrocarbon Particulate Measurements in Ulaanbaatar, Mongolia.

Skyler Simon, AUDREY DANG, Jay R. Turner, Rufus Edwards, Brent Williams, *Washington University in St. Louis*

3UA.4 | 4:15

Possible Heterogeneous Chemistry of Hydroxymethanesulfonate (HMS) in Northern China Winter Haze.

SHAOJIE SONG, *Harvard University*

3UA.5 | 4:30

Assessment of Airborne Toxic Metals at an Environmental Justice Community in Wilmington, Delaware.

Olivia Ryder, Jennifer DeWinter, STEVEN G. BROWN, Elizabeth Frey, Keith Hoffman, *Sonoma Technology, Inc*

3UA.6 | 4:45

Characterization of Particulate Matter in Summer Using High-Resolution Aerosol Mass Spectrometry in San Antonio.

FANGZHOU GUO, Alexander Bui, Edward Fortner, Benjamin Schulze, Sujan Shrestha, Subin Yoon, Rebecca J. Sheesley, Sascha Usenko, Tara Yacovitch, James Flynn, Robert Griffin, *Rice University*

Tuesday 5:00 PM - 6:00 PM

Working Group Meetings 1: Aerosol Chemistry, Combustion and Materials Synthesis, Health Related Aerosols, History of Aerosol Science, Instrumentation and Methods

Tuesday 6:00 PM - 8:00 PM

Welcome Reception

Tuesday 6:00 PM - 8:00 PM

Session 4: Meet the Job Seekers Poster Session

4JS MEET THE JOB SEEKERS: POSTERS

EXHIBIT HALL A

4JS.1

Sahil Bhandari, Ph.D. Candidate in ChemE (UT Austin), Looking for Post-Doc Positions (Agency/National Labs/ Industry), Prefer California and Massachusetts.
SAHIL BHANDARI, *University of Texas at Austin*

4JS.2

Meet the job seeker: Shahzad Gani.
SHAHZAD GANI, *University of Texas at Austin*

4JS.3

Kaisen Lin, PhD Student at Virginia Tech Looking for Post-doc Positions.
KAISEN LIN, *Virginia Tech*

4JS.4

Raj M. Lal, Graduate Student Georgia Tech/PhD, Post-Doc/ Air Quality, Sustainability.
RAJ LAL, *Georgia Institute of Technology*

4JS.5

Nirmala Thomas, Ph.D. Candidate, Postdoc.
NIRMALA THOMAS, *Rutgers University, New Brunswick, New Jersey*

4JS.6

Dana McGuffin, Current PhD Candidate seeking Postdoc in Atmospheric Inverse Modelling.
DANA MCGUFFIN, *Carnegie Mellon University*

4JS.8

Job Seeker Abstract for Jessica Mirrielees.
JESSICA MIRRIELEES, *Texas A&M University*

4JS.9

Anna Hodshire, PhD candidate, Postdoctoral Position.
ANNA HODSHIRE, *Colorado State University*

4JS.10

Jenna Ditto, PhD Student, Postdoctoral Fellowship.
JENNA DITTO, *Yale University*

4JS.11

I'm Looking for a Post Doc Position.
GREGOR KOTALCZYK, *University Duisburg-Essen*

4JS.12

Zezhen, Ph.D. of Engineering, Postdoc or Research Scientist Position.
ZEZHEN CHENG, *University of Georgia*

4JS.13

Yunle Chen, Ph.D. Student Seeking Postdoc Positions in Academia or Industry.
YUNLE CHEN, *Georgia Institute of Technology*

4JS.14

Fangzhou Guo, PhD Candidate at Rice University (Current), Looking for Postdoc Position in Aerosol Chemistry (AMS Related).
FANGZHOU GUO, *Rice University*

4JS.15

Nisar Ali Baig, Research Associate, MS Thesis.
NISAR ALI BAIG, *IIT-DELHI*

4JS.16

AAAR job seeking: Zechen Yu is Looking for PostDoc Position in Air Quality Modeling.
ZECHEN YU, *University of Florida*

4JS.17

Julia Bakker-Arkema, Ph.D. Candidate in Analytical, Environmental, and Atmospheric Chemistry, Seeking Government or Academic Postdoctoral Position.
JULIA BAKKER-ARKEMA, *University of Colorado*

4JS.19

Tianren Wu, Ph.D. Student, Seeking Postdoctoral Position.
TIANREN WU, *Purdue University*

4JS.20

Seeking a Faculty Position in Environmental Science and Engineering.
YUANLONG HUANG, *California Institute of Technology*

4JS.21

Meet the Job Seekers: Danielle C. Draper.
DANIELLE C. DRAPER, *University of California, Irvine*

4JS.22

Jai Prakash; Visiting Research Scientist, PhD, Faculty Position/Research Scientist.
JAI PRAKASH, *Washington University in St. Louis*

4JS.23

Matthew Brege, PhD Candidate, Postdoc and Faculty, United States.
MATTHEW BREGE, *Michigan Technological University*

4JS.24

Marwa El-Sayed, Ph.D., Postdoctoral Fellow and Seeking a Position in Academia.
MARWA EL-SAYED, *Colorado State University*

4JS.25

Yue Zhang, NSF/NIH Postdoc at the University of North Carolina, Chapel Hill/Ph.D., Looking for a Faculty or Scientist Position.
YUE ZHANG, *Univ. of North Carolina, Chapel Hill/Aerodyne Research, Inc.*

4JS.26

Lucy Nandy, Visiting Postdoctoral Scholar, Assistant Professor in Chemical/Mechanical/Civil and Environmental Engineering, and Atmospheric Sciences.
LUCY NANDY, *University of Illinois at Urbana-Champaign*

4JS.27

Guangjie Zheng, Postdoc, Faculty Position.
GUANGJIE ZHENG, *Washington University in St. Louis*

4JS.28

Sarah Petters, Postdoctoral Fellow: Seeking Tenure Track Position.
SARAH SUDA PETTERS, *University of North Carolina at Chapel Hill*

4JS.29

Alexander J. Johnson, PhD Graduate Research Assistant, and Seeking Positions in Academia or Government.
ALEXANDER JOHNSON, *Syracuse University*

4JS.30

Quazi Ziaur Rasool, Postdoctoral Research Associate at University of North Carolina at Chapel Hill, PhD in Environmental Engineering from Rice University, Houston, TX.
QUAZI RASOOL, *University of North Carolina at Chapel Hill*

4JS.31

Dr. Kelsey Bilsback: Seeking a Faculty or National Lab Position in Air Pollution Research in the US or Europe.
KELSEY BILSBACK, *Colorado State University*

4JS.32

Theresa M. Kucinski, PhD Candidate, Postdoctoral/ Government.
THERESA KUCINSKI, *The Pennsylvania State University*

4JS.33

Qi Yao, Post-doctoral Researcher, Academia/Government.
QI YAO, *University of Maryland*

4JS.34

Julia Montoya-Aguilera, PhD Graduate Student, Government - Formation and Properties of Nitrogen-Containing Organic Compounds in Secondary Organic Aerosol (SOA).
JULIA MONTOYA-AGUILERA, *University of California, Irvine*

4JS.37

Hema Ravindran, Post-doc, Desired Position – Government and Industry.
HEMA RAVINDRAN, *Clarkson University*

4JS.38

Ali Akherati, Graduate Research Assistant, Mechanical Eng. Dept., Colorado State University, Air Quality Modeling/ Measurements/Consultant/Policy-related Positions.
ALI AKHERATI, *Colorado State University*

4JS.39

Shawna Vreeke, Candidate for PhD. in Chemistry, Desired Position in Industry or Government.
SHAWNA VREEKE, *Portland State University*

4JS.40

Aditya Sinha, Graduate Student Researcher, Industry.
ADITYA SINHA, *North Carolina State University*

4JS.41

Bo Yang, Ph. D. Candidate, Academia/Industry opportunities in Environmental/Mechanical Engineering.
BO YANG, *Cornell University*

4JS.42

Alison Fankhauser, Ph.D. Student and Desired Post Doc or Industry Research Position.
ALISON FANKHAUSER, *Columbia University*

4JS.43

Huang Zhang, Postdoctoral Scholar(Ph.D), Faculty & Industry, CA & OR & WA.
HUANG ZHANG, *Washington University in St Louis*

4JS.44

Yangyang Zou, PhD candidate in the Ohio State University / Civil Engineering (Environmental Engineering) / Industry, Postdoc and Faculty Position.
YANGYANG ZOU, *The Ohio State University*

4JS.45

Mara Otero-Fernández, PhD Student, Bio Science Area.
MARA OTERO-FERNANDEZ, *University of Bristol*

4JS.46

Maksim Islam, 3rd Year PhD student at NC State University, Research & Development (R & D).
MOHAMMAD MAKSIMUL ISLAM,
North Carolina State University

4JS.47

Tofigh Sayahi, Chemical Engineering PhD Student, Chemical Engineering.
TOFIGH SAYAHI, *University of Utah*

4JS.48

Meet Hanyang Li, Ph.D. Candidate Who is Seeking a Research Job in Atmospheric Science.
HANYANG LI, *The Ohio State University*

4JS.49

Jiayu Li, PhD/Postdoc/Low-cost Sensor and Aerosol Engineering.
JIAYU LI, *Washington University in St Louis*

4JS.50

Collisional Growth, Charging and Measurement of Molecular Clusters to Sub-10 nm Particles in High Temperature Flame Environment.
GIRISH SHARMA, Rajan K. Chakrabarty, Pratim Biswas, *Washington University in St Louis*

4JS.51

Meet the Job Seekers Poster Session Qing Ye.
QING YE, *Massachusetts Institute of Technology*

4JS.52

Meet the Job Seeker: Vikram Pratap.
VIKRAM PRATAP, *University of Maryland, Baltimore County*

4JS.53

Patricio Piedra, Postdoctoral Physicist Seeking Permanent or Permanent-prospective Job as Researcher/Data-Analyst.
PATRICIO PIEDRA, *U.S. Army Research Laboratory*

4JS.54

Use of Breath-Borne Biomarkers for in Vivo Monitoring Air Toxicity.
HAOXUAN CHEN, Xinyue Li, Maosheng Yao, *Peking University*

4JS.55

Chih-Hsiang Chien, PhD, PostDoc/Faculty/Engineer, Academic/National Lab/Industry.
CHIH-HSIANG CHIEN, *University of Florida*

4JS.56

Time-resolved Spread of Antibiotic Resistance Genes in Highly Polluted Air.
TING ZHANG, Maosheng Yao, *Peking University*

4JS.57

Dishant Khatri, Final Year PhD Student, Combustion and Aerosols, Looking for Industry Job.
DISHANT KHATRI, *Washington University in St. Louis*

4JS.58

Mehdi A. Torkmahalleh, Assistant Professor at Nazarbayev University, Seeking a Faculty Position at the Rank of Assistant/ Associate Professor.
MEHDI AMOUEI TORKMAHALLEH, *Chemical and Aerosol Research Team, Nazarbayev University*

4JS.59

Bohan YIN, Ph.D. Candidate and Desired Post Doc Research Position.
BOHAN YIN, *The Chinese University of Hong Kong*

4JS.60

Nethmi Kasthuriarachchi, PhD candidate, Postdoctoral Researcher, Europe.
NETHMI KASTHURIARACHCHI,
National University of Singapore

4JS.61

Wajih Ur Rehman, PhD Student, Post-Doc/Industry/Academia.
WAJIH UR REHMAN, *Gwangju Institute of Science and Technology*

4JS.62

William G. Tsui, Ph.D. Candidate and Desired Area: Government or Industry.
WILLIAM TSUI, *Columbia University*

4JS.63

Sukrant Dhawan, Graduate Student Researcher, Seeking Internship Position in Industry.
SUKRANT DHAWAN, *Washington University in St Louis*

4JS.64

Weihan Peng, Ph.D. Candidate in Chemical and Environmental Engineering at University of California, Riverside, Seeking for Industry/ Consulting/ Government Opportunities in Air Quality Field.
WEIHAN PENG, *University of California, Riverside*

4JS.65

Amirhosein Mousavi, 4th-Year PhD Candidate, Post Doc/ Industry Research Position.
AMIRHOSEIN MOUSAVI, *University of Southern California*

Tuesday 8:30 PM - 10:30 PM

Celebrating Diversity and Inclusivity within AAAR

Wednesday 8:00 AM - 9:15 AM

OCTOBER 16, 2019

Plenary II

8:00

What to do about the Toll Biomass Burning is taking on our Health, Indoor Environments, and Climate

Shelly Miller, *University of Colorado Boulder*
Moderator **Andrea Ferro,** *Clarkson University*

9:00

Whitby Award Presentation, Liu Award Presentation

Timothy Raymond, *Bucknell University*

AS&T Outstanding Paper Award Presentation and Outstanding Reviewer Awards Presentation

Warren Finlay, *University of Alberta*

Wednesday 9:00 AM - 5:00 PM

Exhibits Open

Wednesday 9:15 AM - 9:45 AM

Coffee Break

Wednesday 9:45 AM - 11:30 AM

Session 5: Platform

5AC AEROSOL CHEMISTRY IV: MULTIPHASE REACTIONS

OREGON BALLROOM

Thomas Berkemeier and **Kelvin Bates,** chairs

5AC.1 | 9:45

Hydroxyl Radicals from Isoprene Hydroxy Hydroperoxide (ISOPOOH) Decomposition Induced by Irons in Water.

TING FANG, Pascale Lakey, Jean Rivera-Rios, Frank Keutsch, Manabu Shiraiwa, *University of California, Irvine*

5AC.2 | 10:00

Unambiguous Elucidation of the Structure and Formation Mechanism of Dimer Esters in Monoterpene Secondary Organic Aerosol.

CHRISTOPHER KENSETH, Yuanlong Huang, Nicholas Hafeman, Nathan Dalleska, Brian Stoltz, John Seinfeld, *California Institute of Technology*

5AC.3 | 10:15

Kinetics and Equilibria for the Multiphase Formation of Hemiacetals and Peroxyhemiacetals.

JULIA BAKKER-ARKEMA, Megan Claflin, Paul Ziemann, *University of Colorado*

5AC.4 | 10:30

The Effects of Aerosol-Phase State and Chemical Composition on Multiphase Chemistry Leading to Isoprene-Derived Secondary Organic Aerosol Formation.

YUE ZHANG, Yuzhi Chen, Andrew Lambe, Nicole Olson, Ziying Lei, Manjula Canagaratna, Jordan Krechmer, Rebecca Craig, Zhenfa Zhang, Avram Gold, John Jayne, Douglas Worsnop, Timothy Onasch, Cassandra Gaston, Joel A. Thornton, William Vizuete, Andrew Ault, Jason Surratt, *Univ. of North Carolina, Chapel Hill/Aerodyne Research, Inc.*

5AC.5 | 10:45

Modification of Aerosol Phase, Acidity, and Structure by Heterogeneous and Multiphase Chemistry.

ANDREW AULT, Ziying Lei, Nicole Olson, Yuzhi Chen, Yue Zhang, Andrew Lambe, Jason Surratt, *University of Michigan*

5AC.6 | 11:00

Kinetics and Products of Multiphase Ozonolysis of Unsaturated Lipids.

ZILIN ZHOU, Shouming Zhou, Jonathan Abbatt, *University of Toronto, Canada*

5AC.7 | 11:15

Laboratory Studies of ClNO2 Production from N2O5 Uptake on Saline Playa Dusts.

CASSANDRA GASTON, Dhruv Mitroo, Thomas Gill, Savannah Haas, Kerri Pratt, Haley Royer, *University of Miami*

5AE AEROSOL EXPOSURE II

ROOM A 106

Jeffrey Siegel and **Fobang Liu,** chairs

5AE.1 | 9:45

Modeling Ambient Air Quality at Exposure Relevant Scales using the Community Earth System Model.

FORREST LACEY, Rebecca Schwantes, Simone Tilmes, Colin Zarzycki, Louisa Emmons, Marsh Daniel, Walters Stacy, Francis Vitt, Gabriele Pfister, Peter Lauritzen, Alma Hodzic, *National Center for Atmospheric Research*

5AE.2 | 10:00

Improving Daily Surface Particulate Matter Estimates during Extreme Fire Events using a Novel NASA Satellite Plume Injection Height Algorithm.

S. MARCELA LORÍA-SALAZAR, Jingting Huang, Jaehwa Lee, Andrew Sayer, Neil Lareau, Heather Holmes, Jens Redemann, *University of Oklahoma*

5AE.3 | 10:15

Environmental Justice and Fine Particulate Matter Exposure in California.

SARAH CHAMBLISS, David Paolella, Christopher Tessum, Joshua Apte, Julian Marshall, *University of Texas at Austin*

5AE.4 | 10:30

Near-Source Spatial Extents and Socio-Economic Disparity in Urban Air Pollution Exposure.

RISHABH SHAH, Ellis Shipley Robinson, Peishi Gu, Joshua Apte, Allen Robinson, Albert A. Presto, *Carnegie Mellon University*

5AE.5 | 10:45

Spatial Correlation of Ultrafine Particle Number and PM2.5 Mass Concentrations: Implications for Health Assessment.

PROVAT SAHA, Shayak Sengupta, Joshua Apte, Peter Adams, Allen Robinson, Albert Presto, *Carnegie Mellon University*

5AE.6 | 11:00

Land Use Regression Models of Traffic-Related Semi-Volatile Organic Pollutants in an Urban Area with Elevated Prevalence of Pediatric Asthma.

Sarah Esenther, Elizabeth Lin, Laura Minet, Marianne Hatzopoulou, KRYSTAL GODRI POLLITT, *Yale University*

5AE.7 | 11:15

Children's Particulate Matter Exposures Characterization as Part of the New Hampshire Birth Cohort Study.

Michelle McCombs, JONATHAN THORNBURG, Seung-Hyun Cho, Nalyn Siripanichgon, Erin Butler, Margaret Karagas, *RTI International*

5BC SYMPOSIUM: BIOMASS COMBUSTION: EMISSIONS, CHEMISTRY, AIR QUALITY, CLIMATE, AND HUMAN HEALTH IV: AIR QUALITY IMPACTS OF SMOKE AT THE URBAN-WILDLAND INTERFACE

ROOM B 113-114

Andy May and **Amy Sullivan,** chairs

5BC.1 | 9:45

New Insights into the Health and Climate Impacts of Boreal Wildfires.

SARAH STYLER, Ming Lyu, Iris Chan, Nianci Zhang, Matthew S Ross, Cora J. Young, Daniel K Thompson, *University of Alberta*

5BC.2 | 10:00

Regional Transport of Biomass Burning Aerosols in Northern South America and its Contribution to POA and SOA in Colombian Cities.

KAREN BALLESTEROS, Maria Alejandra Rincón, Juan Manuel Rincón, Amy P. Sullivan, Ricardo Morales Betancourt, *Universidad de los Andes*

5BC.3 | 10:15

Airborne Characterization of Wildfire Influence on Local Air Quality in California.

Nilima Sarwar, Walt Williams, Armin Sorooshian, Haflidi Jonsson, Richard Flagan, John Seinfeld, ANDREW METCALF, *Clemson University*

5BC.4 | 10:30

Chemical and Physical Properties of Smoke Plumes in the Western and Southeastern US Using Hazard Mapping System (HMS) and AERONET/IMPROVE Data.

QIJING BIAN, Bonne Ford, Jeffrey R. Pierce, Sonia Kreidenweis, *Colorado State University*

5BC.5 | 10:45

Smoke Forecasting for Wildfires – Interdisciplinary Tools and Operational Applications.

SUSAN O'NEILL, Narasimhan Larkin, Yufei Zou, Sean Raffuse, Peter Lahm, Mark Fitch, *USDA Forest Service.* INVITED.

5BC.6 | 11:15

Next Generation Wildfires: Firestorms at the Urban-Wildland Interface.

KEITH BEIN, Irva Hertz-Picciotto, Anthony S. Wexler, *University of California, Davis*

5IA INDOOR AEROSOLS I

ROOM B 110-112

Marina Vance and **Brandon Boor,** chairs

5IA.1 | 9:45

Response of Eight Low-Cost Particle Sensors and Consumer Device to Typical Indoor Emission Events.

YANGYANG ZOU, Matthew Young, Andrew May, Jordan Clark, *The Ohio State University*

5IA.2 | 10:00

Ultrafine Particle Dynamics in a Net-Zero Energy House: Application of a Building Energy Management System for Evaluating Source and Loss Processes.

JINGLIN JIANG, Brandon E. Boor, *Purdue University*

5IA.3 | 10:15

Measurements of Fine and Ultrafine Particles Emitted by Marijuana Sources Indoors in a Residence.

Wayne Ott, Kai-Chung Cheng, TONGKE ZHAO, Lance Wallace, Lynn M. Hildemann, *Stanford University*

5IA.4 | 10:30

Criegee Intermediate Driven Autooxidation of Lipid Aerosol Surfaces.

MEIRONG ZENG, Nadja Heine, Kevin Wilson, *Lawrence Berkeley National Laboratory*

5IA.5 | 10:45

Indoor Black and Brown Carbon from Cooking Activities and Outdoor Penetration.

SUMIT SANKHYAN, Sameer Patel, Delphine K. Farmer, Marina Vance, *University of Colorado Boulder*

5IA.6 | 11:00

Impacts of Rooftop Vegetation on HVAC Filter Loadings and Indoor Air Quality.

PRADEEP RAMASUBRAMANIAN, Irvan Luhung, Elliott Gall, *Portland State University*

5IA.7 | 11:15

Database for Aerosols on the International Space Station.

MARIT MEYER, Meytar Sorek-Hamer, *NASA Glenn Research Center*

5IM INSTRUMENTATION AND METHODS IV: IONIZATION AND CHEMICAL METHODS

ROOM B 115-116

Ann Middlebrook and **Lynn Mazzoleni,** chairs

5IM.1 | 9:45

Intercomparison of an EESI-TOF with VOCUS-PTR for Quantitative Aerosol Analysis.

DONGYU S. WANG, Chuan Ping Lee, Jordan Krechmer, Manjula Canagaratna, Francesca Majluf, Yandong Tong, Josef Dommen, Andre S.H. Prévôt, Imad El Haddad, David Bell, Jay G. Slowik, Urs Baltensperger, *Paul Scherrer Institute*

5IM.2 | 10:00

Laboratory Evaluation of Organic Aerosol Chemical Composition and Partitioning Measurements Obtained from High-Resolution Mass Spectrometers with Different Soft Ionization Schemes.

MANJULA CANAGARATNA, Jordan Krechmer, Melissa Morris, Andrew Lambe, Francesca Majluf, Harald Stark, Kaspar Daellenbach, Megan Claflin, Archit Mehra, Chenyang Bi, Brian Lerner, Felipe Lopez-Hilfiker, Gabriel Isaacman-VanWertz, John Jayne, Douglas Worsnop, *Aerodyne Research, Inc.*

5IM.3 | 10:15

Ionization Efficiency of Evolved Gas Molecules from Aerosol Particles in a Thermal Desorption Aerosol Mass Spectrometer.

YU IDE, Kento Uchida, Nobuyuki Takegawa, *Tokyo Metropolitan University*

5IM.4 | 10:30

Online Molecular Analysis of Secondary Organic Aerosol Using Droplet Assisted Ionization.

DEVAN E. KERECMAN, Michael J. Apsokardu, Yao Zhang, Murray Johnston, *University of Delaware*

5IM.5 | 10:45

Mechanism of Ion Formation by Droplet Assisted Ionization.

MICHAEL J. APSOKARDU, Justin Krasnomowitz, Devan E. Kerecman, Yao Zhang, Shuai Jiang, Murray Johnston, *University of Delaware*

5IM.6 | 11:00

Comprehensive Two-Dimensional Gas Chromatography Mass Spectrometry with Solid-state Thermal Modulator for In-situ Speciated Measurement of Organic Aerosols.

ZHAOJIN AN, Haixia Ren, Mo Xue, Xiaosheng Guan, Jingkun Jiang, *Tsinghua University, China*

5IM.7 | 11:15

Isomer-resolved Chemical Characterization of the Particle-phase Oxidation Products of Indoor Emissions Using Gas Chromatography-Chemical Ionization Mass Spectrometry.

CHENYANG BI, Graham Frazier, Jordan Krechmer, Wen Xu, Andrew Lambe, Megan Claflin, Brian Lerner, Manjula Canagaratna, John Jayne, Douglas Worsnop, Gabriel Isaacman-VanWertz, *Virginia Tech*

5UA URBAN AEROSOLS IV: WHAT HAVE WE LEARNED? TRENDS IN AIR MONITORING NETWORKS, EFFECTS OF POLICY CHANGES, AND SYNTHESES OF INTENSIVE FIELD CAMPAIGNS

ROOM B 117-119

Scott Epstein and **Qing Ye,** chairs

5UA.1 | 9:45

Variable Urban SOA Production Explained by Emissions and Photochemistry to Quantify its Impact on Mortality.

BENJAMIN A. NAULT, Duseong Jo, Pedro Campuzano-Jost, Douglas Day, Weiwei Hu, Jason Schroder, James Allan, Manjula Canagaratna, Hugh Coe, Peter DeCarlo, Jessica Gilman, Patrick Hayes, Daven Henze, B. Thomas Jobson, Bill Kuster, Bernhard Rappenglueck, James Roberts, Jochen Stutz, Ezra Wood, Dominique Young, Bin Yuan, Brian McDonald, Joost de Gouw, Jose-Luis Jimenez, et al., *CIRES, University of Colorado, Boulder*

5UA.2 | 10:00

Impact of Fireworks, Residential Wood Burning, and Wildfire on PM2.5 Concentrations in Southern California.

XIANG LI, Melissa Sheffer, Mark Bassett, Scott A. Epstein, *South Coast Air Quality Management District*

5UA.3 | 10:15

Rethinking Near-road PM2.5 in US Cities.

RAJ LAL, Anu Ramaswami, Armistead G. Russell, *Georgia Institute of Technology*

5UA.4 | 10:30

Urban Atmospheric Aerosol Size Distributions: A Global Perspective.

Tianren Wu, BRANDON E. BOOR, *Purdue University*

5UA.5 | 10:45

Air Quality in Canadian Port Cities: Regulation of Large Vessels to Low-Sulfur Marine Fuel in the North American Emissions Control Area (NA ECA).

Angelos Anastasopolos, Uwayemi Sofowote, PHILIP K. HOPKE, Mathieu Rouleau, Tim Shin, Ryan Kulka, Paul-Michael Farrah, Mark Gibson, *Health Canada*

5UA.6 | 11:00

Trends in PM2.5 Transition Metals in Urban Areas across the United States.

CHRISTOPHER HENNIGAN, Aidan Mucci, Brian Reed, *University of Maryland, Baltimore County*

5UA.7 | 11:15

Air Quality Management in Chile: Effectiveness and Environmental Justice Issues.

HECTOR JORQUERA, Yasna Llanos, Ana Villalobos, Javier Ustariz, *Pontificia Universidad Catolica de Chile*

Wednesday 11:30 AM - 1:00 PM

Early Career Event

Wednesday 1:00 PM - 3:00 PM

Session 6: Platform

6AC AEROSOL CHEMISTRY V: AEROSOL PHYSICAL PROPERTIES

OREGON BALLROOM

Roya Bahreini and **Manishkumar Shrivastava,** chairs

6AC.1 | 1:00

Raoult was Right: A Fresh Old Look at Solution Thermodynamics.

ANTHONY S. WEXLER, Ahmad Ikram, Simon Clegg, Devis Di Tommaso, Xiangwen Wang, *University of California, Davis*

6AC.2 | 1:15

Exploring Gelation in Model Marine Aerosol Particles: Micro-Rheological Observations of Ternary Water-Monosaccharide-Calcium Ion Microdroplets.

RYAN DAVIS, David Richards, Kristin Trobaugh, *Trinity University*

6AC.3 | 1:30

The Effect of Molecular Weight on the Phase Separation of Polymer-Polymer Aerosol Particles.

EMILY-JEAN OTT, Miriam Freedman, *The Pennsylvania State University*

6AC.4 | 1:45

Spreading Ratio and Morphology of Size-dependent Secondary Organic Aerosols.

ZIYING LEI, Nicole Olson, Yue Zhang, Yuzhi Chen, Andrew Lambe, Natalie White, Joanna Atkin, Jason Surratt, Andrew Ault, *University of Michigan*

6AC.5 | 2:00

Dynamic Nature of the Particle Phase for SOA Derived from Select Green Leaf Volatiles.

KEVIN FISCHER, Giuseppe Petrucci, *University of Vermont*

6AC.6 | 2:15

Effects of Water-soluble Organic Carbon on Aerosol pH.

MICHAEL BATTAGLIA JR., Rodney J. Weber, Athanasios Nenes, Christopher Hennigan, *University of Maryland, Baltimore County*

6AC.7 | 2:30

Using Nitric Acid- Nitrate Partitioning and Aerosol Composition Data to Constrain Gas-phase Ammonia Levels and Aerosol pH.

IFAYOYINSOLA IBIKUNLE, Rodney J. Weber, Athanasios Nenes, *Georgia Institute of Technology*

6AC.8 | 2:45

Global Observations of Ammonium Balance and pH Indicate More Liquid Aerosol and Acidic Conditions than Current Models Predict.

BENJAMIN A. NAULT, Pedro Campuzano-Jost, Douglas Day, Jason Schroder, Roya Bahreini, Huisheng Bian, Mian Chin, Simon Clegg, Peter Colarco, John Crounse, Jack Dibb, Michelle Kim, Jack Kodros, Felipe Lopez-Hilfiker, Eloise Marais, Ann M. Middlebrook, J. Andrew Neuman, John Nowak, Jeffrey R. Pierce, Eric Scheuer, Joel A. Thornton, Kostas Tsigaridis, Patrick Veres, Paul Wennberg, Jose-Luis Jimenez, *CIRES, University of Colorado, Boulder*

6BC SYMPOSIUM: BIOMASS COMBUSTION: EMISSIONS, CHEMISTRY, AIR QUALITY, CLIMATE, AND HUMAN HEALTH V: CHARACTERIZING EMISSIONS AND TRANSPORT FROM OPEN BIOMASS BURNING

ROOM B 113-114

Vera Samburova and **Hanyang Li,** chairs

6BC.1 | 1:00

A Meta-Analysis of Black Carbon Emissions from Fire-Prone Ecosystems in the United States.

ANDREW MAY, Hanyang Li, Robert J. Yokelson, Gavin McMeeking, *The Ohio State University*

6BC.2 | 1:15

Chemical Fingerprinting of Particulate Organic Compounds in Fresh Smoke Produced from Burning Individual Western U.S. Wildland Fuels.

COTY JEN, Lindsay Hatch, Nathan Kreisberg, Christos Stamatis, Yutong Liang, Robert Weber, John Battles, Scott Stephens, Robert York, Kelley Barsanti, Allen Goldstein, *Carnegie Mellon University*

6BC.3 | 1:30

Impact of Fuel Type and Combustion Phase on the Chemical Composition of Particulate Matter Emissions from Wildland Fires.

AMARA HOLDER, Johanna Aurell, Ingrid George, Brian Gullett, Venkatesh Rao, *U.S. EPA*

6BC.4 | 1:45

Investigation into Airborne-Based Smoke Marker Ratios and Brown Carbon from Wildfires in the Western U.S. during the WE-CAN Study.

AMY P. SULLIVAN, Jakob Lindaas, Emily Fischer, Lauren Garofalo, Delphine K. Farmer, Sonia Kreidenweis, Teresa Campos, Jeffrey Collett, *Colorado State University*

6BC.5 | 2:00

Chemical Composition of Brown Carbon in Tar Ball Aerosols from Biomass Burning.

Anusha P.S. Hettiyadura, Chunlin Li, Quanfu He, Yinon Rudich, ALEXANDER LASKIN, *Purdue University*

6BC.6 | 2:15

Optical, Physical, and Chemical Properties of Emissions from Open Combustion of Cheatgrass (Bromus Tectorum).

MEGAN RENNIE, Vera Samburova, Deep Sengupta, Andrey Khlystov, Hans Moosmuller, *Desert Research Institute*

6BC.7 | 2:30

Chemically Distinct Emissions from Highly Controlled Pyrolysis of Three Wood Types.

ANITA AVERY, Mariam Fawaz, Leah Williams, Tami Bond, Timothy Onasch, *Aerodyne Research, Inc.*

6BC.8 | 2:45

The Ubiquity of Biomass Burning Particles in the Global Remote Troposphere.

GREGORY SCHILL, Karl D. Froyd, Daniel Murphy, Christina Williamson, Agnieszka Kupc, Charles Brock, Huisheng Bian, Mian Chin, Peter Colarco, Eric Ray, Alan Hills, Rebecca Hornbrook, Eric Apel, NOAA ESRL and *CIRES, University of Colorado Boulder*

6HA HEALTH-RELATED AEROSOLS II

ROOM B 110-112

Kerry Kelly and **Krystal Godri-Pollit,** chairs

6HA.1 | 1:00

Particulate Matter Sources and Their Impact on Oxidative Potential in Europe.

KASPAR DAELLENBACH, Gaëlle Uzu, Jianhui Jiang, Laure-Estelle Cassagnes, Athanasia Vlachou, Giulia Stefenelli, Francesco Canonaco, Ivan Kourtchev, Arjo Segers, Martijn Schaap, Markus Kalberer, Alexandre Albinet, Sebnem Aksoyoglu, Josef Dommen, Urs Baltensperger, Imad El Haddad, Jean-Luc Jaffrezo, Andre S.H. Prévôt, *Paul Scherrer Institute*

6HA.2 | 1:15

Oxidative Potential of Particulate Matter and Generation of Reactive Oxygen Species in the Epithelial Lining Fluid.

TING FANG, Pascale Lakey, Rodney J. Weber, Manabu Shiraiwa, *University of California, Irvine*

6HA.3 | 1:30

Time-Resolved Single Cell Response of Intracellular Reactive Oxygen Species to Aerosol Particles.

FOBANG LIU, Josh Whitley, Nga Lee Ng, Hang Lu, *Georgia Institute of Technology*

6HA.4 | 1:45

Formation of Metal-Ligand Complexes in Atmospheric Aerosol and Their Effects on ROS Production in a Surrogate Lung Fluid.

CHIARA GIORIO, Sara D'Aronco, Alessandro Negro, Valerio Di Marco, Andrea Tapparo, *Università degli Studi di Padova, Italy*

6HA.5 | 2:00

Aerosol-mediated ROS Production: Roles of Functional Groups and Reaction Kinetics.

HUANHUAN JIANG, Jin Chen, C.M. Sabbir Ahmed, Zixu Zhao, Haofei Zhang, Ying-Hsuan Lin, *University of California, Riverside*

6HA.6 | 2:15

The Toxicity of Gasoline Automobile Engine Emissions Depends on Fuel Type (Gasoline and Ethanol) and Driving Cycle: A Combined Biological and Aerosol Composition Study.

Sebastian Oeder, J. Candeias, Tamara Kanashova, Benjamin Stengel, M. Dilger, S. Murugadoss, Olli Sippula, Sebastiano di Bucchianico, S. Bauer, Thorsten Streibel, Martin Sklorz, Jürgen Orasche, Toni Miersch, Hendryk Czech, C. Rüger, Bert Buchholz, C. Weiss, Jorma Jokiniemi, Maija-Riitta Hirvonen, Gunnar Dittmar, C. Schmidt-Weber, Jeroen Buters, RALF ZIMMERMANN, *HICE consortium, University of Rostock and Helmholtz Zentrum Munich, Germany*

6HA.7 | 2:30

Collection Methods Affect the Physicochemical Properties of Combustion Particles and Their Cellular Response in a Human Macrophage-Like Cell Line.

KAMALJEET KAUR, Isabel C. Jaramillo, Raziye Mohammadpour, Anne Sturrock, Hamid Ghandehari, Chris Reilly, Robert Paine, Kerry Kelly, *University of Utah*

6HA.8 | 2:45

Impact of Chemical Aging on the Toxicity of Biogenic and Anthropogenic Organic Aerosols Using Model Cells.

Sophie Tomaz, Alain Geloen, Dandan Li, Yohann Clément, Pierre Lantéri, Sebastien Perrier, MATTHIEU RIVA, Chrisitan George, *CNRS-IRCELYON*

6IM INSTRUMENTATION AND METHODS V: MOBILITY AND OTHER SIZING METHODS

ROOM B 115-116

Don Collins and **Ezra Levin,** chairs

6IM.1 | 1:00

Extending the Stolzenburg DMA Transfer Function to the Scanning Electrical Mobility Spectrometer (SEMS).

YUANLONG HUANG, John Seinfeld, Richard Flagan, *California Institute of Technology*

6IM.2 | 1:15

The Role of Size Distribution Representation in Aerosol Data Inversion.

RICHARD FLAGAN, Amanda Grantz, Yuanlong Huang, *California Institute of Technology*

6IM.3 | 1:30

Asynchronous Functional Reactive Programming for Data Acquisition and Instrument Control: Example of a Free Software Implementation for Operating Scanning Mobility Particle Sizers.

MARKUS PETTERS, *North Carolina State University*

6IM.4 | 1:45

MAGIC Spider: A Fast, Compact Scanning Electrical Mobility Spectrometer for UAV Deployment.

STAVROS AMANATIDIS, Steven Spielman, Gregory Lewis, Susanne Hering, Richard Flagan, *California Institute of Technology*

6IM.5 | 2:00

On Passive Temperature Control and the Internal DMA Temperature in Hygroscopicity Tandem Differential Mobility Analyzers.

CHRISTOPHER OXFORD, Brent Williams, *Washington University in St. Louis*

6IM.6 | 2:15

Multi-Electrometer Detector for Real–Time High-Resolution Measurements in Planar Differential Mobility Analyzers.

LUIS-JAVIER PEREZ-LORENZO, Mario Amo-Gonzalez, Juan Fernandez de la Mora, *Yale University*

6IM.7 | 2:30

Finding the Right Mass: Comparing Measurements from a Differential Mobility Analyzer, Aerodynamic Aerosol Classifier and Aerosol Particle Mass Analyzer.

QI YAO, James Radney, Akua Asa-Awuku, Christopher Zangmeister, *National Institute of Standards and Technology*

6IM.8 | 2:45

Novel Approaches to DMA, CPMA, and APM Transfer Function Evaluation and Inversion to Determine Two-Dimensional Aerosol Mass-Mobility Distributions.

TIMOTHY SIPKENS, Jason S. Olfert, Steven Rogak, *University of British Columbia*

6RA REMOTE AND REGIONAL ATMOSPHERIC AEROSOL II

ROOM A 106

Deborah McGlynn and **Dana McGuffin,** chairs

6RA.1 | 1:00

Revisiting Particle Dry Deposition: Observational Constraints of Submicron Aerosol and Black Carbon Fluxes.

DELPHINE K. FARMER, Ethan Emerson, Holly DeBolt, Gavin McMeeking, Joshua P. Schwarz, Joseph Katich, *Colorado State University*

6RA.2 | 1:15

Contribution of Volcanic Dust Resuspended from Surface Soil of Iceland to PM of Central Balkan.

DRAGANA ĐORĐEVIĆ, Ivana Tošić, Sanja Sakan, Srđan Petrović, Jelena Đuričić-Milanković, David C. Finger, Pavla Dagsson-Waldhauserová, *Centre of Excellence in Environmental Chemistry and Engr*

6RA.3 | 1:30

Adsorption of VOCs by Airborne Dust Particles in the Semi-Arid Forest Canopy.

BORIS KRASOVITOV, Andrew Fominykh, Itzhak Katra, Avi Levy, Andrey Khlystov, *Ben-Gurion University of the Negev, Israel*

6RA.4 | 1:45

Chemical Composition of Individual Particles at a High-Altitude Mountain Station.

KUO-PIN TSENG, Tyler Capek, Noopur Sharma, Angela Marinoni, Douglas Orsini, Claudio Mazzoleni, Swarup China, *Pacific Northwest National Laboratory*

6RA.5 | 2:00

Impact of Seasonal Variabilities and Synoptic Conditions on Vertical Profiles of Trace Gas and Aerosol Properties over the Eastern North Atlantic.

YANG WANG, Guangjie Zheng, Swarup China, Michel Jensen, Daniel Knopf, Alexander Laskin, Alyssa Matthews, David Mechem, Fan Mei, Ryan Moffet, Tamara Pinterich, Arthur J. Sedlacek, John Shilling, Stephen Springston, Jason Tomlinson, Daniel Veghte, Rob Wood, Maria Zawadowicz, Jian Wang, *Washington University in St. Louis*

6RA.6 | 2:15

Rapid Chlorine Depletion in Nascent Sea Spray Aerosol by Condensed-Phase Aging Mechanisms.

NOOPUR SHARMA, Swarup China, Kuo-Pin Tseng, Daniel Knopf, Josephine Aller, *Pacific Northwest National Laboratory*

6RA.7 | 2:30

Ammonium and Ammonia: Concentration Trends in the Northeast United States.

JAMES SCHWAB, Hesham Hassan, Matthew Ninneman, Joseph P. Marto, Jie Zhang, Sara Lance, Christopher Lawrence, Fangqun Yu, Gan Luo, Arshad Nair, Kevin Civerolo, Oliver Rattigan, *University at Albany, SUNY*

6RA.8 | 2:45

Influence of Agricultural Emissions and the Chesapeake Bay on Urban Aerosol Chemistry in Baltimore, Maryland.

MICHAEL BATTAGLIA JR., Nicholas Balasus, Kat Ball, Ruben Delgado, Christopher Hennigan, *University of Maryland, Baltimore County*

6SA SOURCE APPORTIONMENT II

ROOM B 117-119

Vikram Pratap and **Jai Prakash,** chairs

6SA.1 | 1:00

A Global Modeling Source Apportionment of PM2.5: Identifying Major Sources and Quantifying Sensitivities to Policy Relevant Reductions.

ERIN MCDUFFIE, Melanie Hammer, Michael Brauer, Steven Smith, Randall V. Martin, *Dalhousie University, Halifax, Canada*

6SA.2 | 1:15

Extensive Source Apportionment of PM2.5 Organic Aerosols in New Delhi.

ANNA K. TOBLER, Deepika Bhattu, Francesco Canonaco, Sachchida N. Tripathi, Suresh Tiwari, Jay G. Slowik, Urs Baltensperger, Andre S.H. Prévôt, *Paul Scherrer Institute*

6SA.3 | 1:30

Wintertime PM2.5 in the Kathmandu Valley and Terai Region of Nepal.

MD. ROBIUL ISLAM, Nita Khanal, Khadak Mahata, Siva Praveen Puppala, Narayan Babu Dhital, Michael Giordano, Benjamin Werden, Anobha Gurung, Arnico Panday, Robert J. Yokelson, Peter DeCarlo, Elizabeth Stone, *University of Iowa*

6SA.4 | 1:45

Characterization of Black Carbon and Trace Metals Using Soot-Particle Aerosol Mass Spectrometer: Insight into Organic Aerosol Sources in a Complex Urban Environment.

LAURA-HELENA RIVELLINI, Max Adam, Nethmi Kasthuriarachchi, Alex Lee, *National University of Singapore*

6SA.5 | 2:00

Developing a Four-dimensional Variational Assimilation Framework for Refining U.S. Ammonia Emissions with Size-Resolved Aerosol.

SHANNON CAPPS, Mahmoudreza Momeni, Matthew Lombardo, Amir Hakami, Daven Henze, Steven Thomas, Jeremy Silver, Peter Rayner, *CMAQ Adjoint Development Team, Drexel University*

6SA.6 | 2:15

Excitation-Emission Matrix Fluorescence Spectroscopy for Source Apportionment of Combustion Sources: Comparison to Positive Matrix Factorization Results from an Exposure Assessment Panel Study.

JAY RUTHERFORD, Timothy Larson, Edmund Seto, Igor Novosselov, Jonathan Posner, *University of Washington*

6SA.7 | 2:30

Emissions from Rural and Urban Open Waste Burning in Ghana.

DAVID PFOTENHAUER, Evan Coffey, Ali Moro, Maxwell Dalaba, Abraham Oduro, Jerimiah Asumbere, John Nyante, Maxwell Sunu, Emmanuel Appoh, Michael Hannigan, *University of Colorado, Boulder*

6SA.8 | 2:45

Impact of Emissions from Incomplete Combustion Sources, Biomass Burning and Fossil Fuel, on Ambient Concentrations of Black Carbon (BC) in the Milan Metropolitan Area.

AMIRHOSEIN MOUSAVI, Mohammad Sowlat, Christopher Lovett, Martin Rauber, Soenke Szidat, Roberto Boffi, Alessandro Borgini, Cinzia De Marco, Ario Ruprecht, Constantinos Sioutas, *University of Southern California*

Wednesday 3:00 PM - 3:30 PM
Coffee Break

Wednesday 3:30 PM - 5:00 PM
Session 7: Platform

7AC AEROSOL CHEMISTRY VI: SOA AGING

OREGON BALLROOM

Jean Rivera-Rios and **Julia Bakker-Arkema,** chairs

7AC.1 | 3:30

Condensed Phase Photochemical Reactions of Secondary Organic Aerosols: Photodegradation & Photosensitized Reactions.

VAHE BABOOMIAN, Xinke Wang, Rachel Gemayel, Yiran Gu, Lisa Wingen, Chrisitan George, Dmitry Fishman, Sergey Nizkorodov, *University of California, Irvine*

7AC.2 | 3:45

Impact of Photochemical Aging on SOA Yield and Equilibrium Partitioning Predictions.

JOHN SHILLING, Maria Zawadowicz, Jiumeng Liu, Rahul Zaveri, Alla Zelenyuk, *Pacific Northwest National Laboratory*

7AC.3 | 4:00

Photodegradation of Alpha-pinene Secondary Organic Aerosol.

Veronika Pospisilova, DAVID BELL, Imad El Haddad, Lamkaddam Houssni, Amelie Bertrand, Josef Dommen, Andre S.H. Prévôt, Urs Baltensperger, Jay G. Slowik, *Paul Scherrer Institute*

7AC.4 | 4:15

Ozonolysis of Polycyclic Aromatic Hydrocarbons on the Surfaces of Secondary Organic Aerosol Particles.

ALLA ZELENYUK, Kaitlyn J. Suski, David Bell, Dan Imre, Simeon Schum, Lynn Mazzoleni, ManishKumar Shrivastava, Amber Kramer, Staci L. Simonich, P*acific Northwest National Laboratory*

7AC.5 | 4:30

Compositional Evolution of Secondary Organic Aerosol as Temperature Cycles in Atmospherically Relevant Ranges.

Zixu Zhao, Chen Le, Qi Xu, Weihan Peng, Huanhuan Jiang, Ying-Hsuan Lin, David R. Cocker III, HAOFEI ZHANG, *University of California, Riverside*

7AC.6 | 4:45

Chemical Transformation of Isoprene Epoxydiol-Derived Organosulfates through Heterogeneous OH Oxidation: A Source of Inorganic Sulfate?

Hoi Ki Lam, Kai Chung Kwong, Hon Yin Poon, James F. Davies, Zhenfa Zhang, Avram Gold, Jason Surratt, MAN NIN CHAN, *The Chinese University of Hong Kong*

7BC SYMPOSIUM: BIOMASS COMBUSTION: EMISSIONS, CHEMISTRY, AIR QUALITY, CLIMATE, AND HUMAN HEALTH VI: IMPROVING OUR UNDERSTANDING OF SMOKE IMPACTS ON THE CLIMATE SYSTEM

ROOM B 113-114

Amy Sullivan and **Jamy Lee,** chairs

7BC.1 | 3:30

Long-range Transported North American Wildfire Aerosols Observed in Marine Boundary Layer of Eastern North Atlantic.

Guangjie Zheng, Arthur J. Sedlacek, Allison Aiken, Yan Feng, Thomas Watson, Shira Raveh-Rubin, Janek Uin, Ernie R. Lewis, JIAN WANG, *Washington University in St. Louis*

7BC.2 | 3:45

Western US Wildfire Emissions of Ice Nucleating Particles.

PAUL DEMOTT, Kevin Barry, Ezra Levin, Kathryn Moore, Thomas Hill, Cynthia Twohy, Darin Toohey, Amy P. Sullivan, Sonia Kreidenweis, Emily Fischer, *Colorado State University*

7BC.3 | 4:00

Latitudinal Shifts in Wildfire Activity and Smoke Concentrations in Response to 21st Century Climate and Land Cover Change over the Western US.

YANG LI, Loretta Mickley, Jed Kaplan, Pengfei Liu, *Harvard University*

7BC.4 | 4:15

An Evaluation of Smoke Impacts and Smoke Modeling Techniques.

SHAWN P. URBANSKI, Derek Mallia, Adam Kochanski, *USDA Forest Service.* INVITED.

7BC.6 | 4:45

What Matters for the Climate Impact of Biomass Burning Smoke.

DANIEL MURPHY, NOAA ESRL

7HA HEALTH-RELATED AEROSOLS III

ROOM B 110-112

Roby Greenwald and **Kamaljeet Kaur,** chairs

7HA.1 | 3:30

Black Carbon Exposure during Physical Activity is Associated With Exhaled Markers of Oxidative Stress and Metabolomic Features Involving Oxidative Stress Mediating Pathways.

ROBY GREENWALD, Matthew J. Hayat, Elizabeth Finlon, Donghai Liang, Jeremy A. Sarnat, Dean P. Jones, Parinya Panuwet, Lou Ann Brown, *Georgia State University*

7HA.2 | 3:45

Air Pollutant Exposure and inhaled Dose during Urban Commute.

Keith Casserly, HAIDER KHWAJA, *University at Albany*

7HA.3 | 4:00

Sources and Health Risks of Ambient Polycyclic Aromatic Hydrocarbons in India.

Fenglin Han, Hao Guo, Jianlin Hu, Sri Kota, Jie Zhang, Qi Ying, HONGLIANG ZHANG, *Louisiana State University*

7HA.4 | 4:15

Quantifying Pharmaceutical Aerosol Dissolution at Relative Humidities >99.5%.

ALLEN E. HADDRELL, Grazia Rovelli, David Lewis, Tanya Church, Jonathan P. Reid, *University of Bristol*

7HA.5 | 4:30

Compositional Changes and Gas-Particle Partitioning of Unflavored E-Cigarette Carrier Liquids Propylene Glycol and Glycerol.

SARAH SUDA PETTERS, Yael-Natalie Escobar, Grace Nipp, Yue Zhang, Tianqu Cui, Ilona Jaspers, Jonathan Thornburg, Jason Surratt, *University of North Carolina at Chapel Hill*

7HA.6 | 4:45

Amorphous Pullulan Trehalose Microparticle Platform for Respiratory Delivery.

NICHOLAS B. CARRIGY, Mani Ordoubadi, Yushan Liu, Omar Melhem, David Barona, Hui Wang, Leanne Milburn, Conor A. Ruzycki, Warren H. Finlay, Reinhard Vehring, *University of Alberta*

7IM INSTRUMENTATION AND METHODS VI: ULTRAFINE PARTICLE SIZING AND COUNTING

ROOM B 115-116

Chongai Kuang and **Andrew Freedman,** chairs

7IM.1 | 3:30

A Two-Stage Condenser to Improve the Detection of Sub-3 nm Particles Using Diethylene Glycol Condensation Particle Counter.

Mo Xue, Michel Attoui, JINGKUN JIANG, *Tsinghua University, Beijing, China*

7IM.2 | 3:45

A New Mobility Particle Size Spectrometer Capable of Measuring the Size Tange from 1.1 to 55nm.

GERHARD STEINER, Joonas Vanhanen, Joonas Enroth, Lothar Keck, Minna Väkevä, *Grimm Aerosol Technik Ainring*

7IM.3 | 4:00

Modification of a Water-Based Condensation Particle Counter to Rapidly Measure Sub 3 Nanometer Atmospheric Clusters through Pulse Height Analysis.

CHONGAI KUANG, *Brookhaven National Laboratory*

7IM.4 | 4:15

Brownian Dynamics Simulation to Investigate the Performance of Half Mini DMA to Classify Sub-2 nm Particles.

HUANG ZHANG, Girish Sharma, Pratim Biswas, *Washington University in St Louis*

7IM.5 | 4:30

Charging Fractions of Soot Aggregates.

TYLER J. JOHNSON, Robert T. Nishida, Xiao Zhang, Jonathan Symonds, Jason S. Olfert, Adam M Boies, *University of Cambridge*

7IM.6 | 4:45

An Aerosol Gas Exchange System (AGES) for Engine Exhaust Conditioning.

MARKUS BAINSCHAB, Sampsa Martikainen, Panu Karjalainen, Jorma Keskinen, Alexander Bergmann, *Graz University of Technology*

7RA REMOTE AND REGIONAL ATMOSPHERIC AEROSOL III

ROOM A 106

James Schwab and **Yang Wang,** chairs

7RA.1 | 3:30

Evaluating Aerosol Property Predictions from E3SM Using Recent ARM Field Campaign Measurements in Continental and Tropical Environments.

JEROME FAST, Po-Lun Ma, John Shilling, ManishKumar Shrivastava, Jason Tomlinson, Jian Wang, Rahul Zaveri, Alla Zelenyuk, *Pacific Northwest National Laboratory*

7RA.2 | 3:45

Intermediate-scale Concentrations of Volatile and Semivolatile Organic Compounds in the Near-canopy Forest Atmosphere and Implications for Emission Heterogeneity.

JIANHUAI YE, Carla E. Batista, Igor O. Ribeiro, Patrícia C. Guimarães, Adan Medeiros, Rafael Barbosa, Rafael L. Oliveira, Sérgio Duvoisin Junior, Kolby Jardine, Dasa Gu, Alex Guenther, Karena McKinney, Leila Martins, Rodrigo Souza, Scot T. Martin, *Harvard University*

7RA.3 | 4:00

Atmospheric Microplastics in Populated and Remote Regions of Colorado.

MARWA EL-SAYED, Katherine Benedict, Amy P. Sullivan, Bret Schichtel, Jeffrey Collett, *Colorado State University*

7RA.4 | 4:15

Characteristics of Particle Size Distributions for Two Sites in New York State.

JOSEPH P. MARTO, James Schwab, Fangqun Yu, Gan Luo, *University at Albany, SUNY*

7RA.5 | 4:30

Multi-Wavelength Optical Properties of Arctic Haze Aerosols in the Canadian High Arctic.

PATRICK HAYES, Andy Vicente-Luis, Samantha Tremblay, Rachel Chang, Pierre Fogal, Felicia Kolonjari, Sangeeta Sharma, Richard Leaitch, Alireza Aslemand, Norman O'Neill, *Université de Montréal*

7RA.6 | 4:45

Transboundary Air Pollution and Public Health in Northeast Asia: Attribution-Of-Responsibility Framing Effects Among Koreans.

PARHAM AZIMI, Matthew Shapiro, Hao Huang, Brent Stephens, *Harvard School of Public Health*

7UA URBAN AEROSOLS V: PREDICTING AEROSOLS IN URBAN ENVIRONMENTS

ROOM B 117-119

Serena Chung and **Elyse Pennington,** chairs

7UA.1 | 3:30

High Resolution (1 km) Chemical Transport Modeling of Fine Particulate Matter in an Urban Area.

PABLO GARCIA, Shayak Sengupta, Spyros Pandis, Peter Adams, *Carnegie Mellon University*

7UA.2 | 3:45

PM2.5, PM10, and Ozone Forecasting in Southern California: Determining the Best Forecast Model as a Function of Predicted Meteorology and Emissions.

SCOTT A. EPSTEIN, Nico Schulte, Mark Bassett, Elham Baranizadeh, Melissa Sheffer, *South Coast Air Quality Management District*

7UA.3 | 4:00

Impacts of Spatial Distribution and Spatial Resolution of Emissions on Air Quality Model.

YITING LI, Michael Kleeman, *University of California, Davis*

7UA.4 | 4:15

Simulation on IVOC Emissions and SOA Formation in Los Angeles during CalNex Study Using Updated Mobile Source Emission Profiles and SOA Parameterization.

Quanyang Lu, Benjamin Murphy, Peter Adams, Yunliang Zhao, Momei Qin, Havala Pye, Christos Efstathiou, Chris Allen, ALLEN ROBINSON, *Carnegie Mellon University*

7UA.5 | 4:30

Estimated Aerosol Radiative and Health Effects of the Residential Coal Ban in the Beijing-Tianjin-Hebei Region of China.

KELSEY BILSBACK, Michael Cheeseman, Bonne Ford, Jack Kodros, Xiaoying Li, Emily Ramnarine, Ellison Carter, Jeffrey R. Pierce, *Colorado State University*

7UA.6 | 4:45

Bridging Model Estimates of Vehicular Emissions with Near-Roadway Ambient Measurements.

AYLA MORETTI, David R. Cocker III, Matthew Barth, *University of California, Riverside*

Wednesday 5:00 PM - 6:00 PM

Working Group Meetings 2: Aerosol Physics, Atmospheric Aerosols, Bioaerosols, Control and Mitigation Technology, Indoor Aerosols and Aerosol Exposure

Wednesday 6:00 PM - 7:00 PM

Annual Business Meeting

Thursday 8:00 AM - 9:15 AM
OCTOBER 17, 2019

Plenary III

8:00
Soot Formation and Chemical Evolution during Combustion
Hope Michelsen, *University of Colorado Boulder*
Moderator **Kevin Wilson,** *Lawrence Berkeley National Laboratory*

9:00

Sinclair Award Presentation, Mercer Award Announcement
Matti Maricq, *Ford Motor Company*

Thursday 9:00 AM - 3:30 PM
Exhibits Open

Thursday 9:15 AM - 9:45 AM
Coffee Break

Thursday 9:45 AM - 11:30 AM
Session 8: Platform

8AE/IA AEROSOL EXPOSURE III AND INDOOR AEROSOLS II

ROOM B 115-116

Donghyun Rim and **Teresa Barone,** chairs

8AE/IA.1 | 9:45

An Analysis of Fine Inorganic Aerosols Emitted by a Diesel Engine with Urea-Based Selective Catalytic Reduction.

TERESA BARONE, Taekhee Lee, Jon Hummer, Sherri Friend, John Storey, Samuel Lewis, Aleksandar Bugarski, *National Institute for Occupational Safety and Health*

8AE/IA.2 | 10:00

Establishment of a PM Toxicity Evaluation Platform for Tailpipe Emissions under Real Driving Conditions.

CHEN-HUA WANG, Yi-Ying Chen, Po-Kai Chang, Hsiao-Chi Chuang, Ta-Chih Hsiao, *National Taiwan University, Taiwan*

8AE/IA.3 | 10:15

Online Aerosol Monitoring for In Vitro Toxicological Studies Using Single-Photoionization Mass Spectrometry.

CARLA FREGE, Sandro Steiner, Sandra Ferreira, Shoaib Majeed, Francesco Lucci, Mahdi Asgari, Julia Hoeng, Stefan Frentzel, Arkadiusz Kuczaj, *Philip Morris International R&D*

8AE/IA.4 | 10:30

Estimations of Oxidative Potential Contributed by Metal Oxides in Welding Fume Particles.

JUN WANG, Jacob Bartels, Macrio Bezerra, *University of Oklahoma Health Sciences Center*

8AE/IA.5 | 10:45

Lung Dosimetry Assessments of Welding Fume and Gas Exposure using a Virtual Human Model with a Subject-Specific Respiratory System.

JIANAN ZHAO, Yu Feng, Macrio Bezerra, Jun Wang, Ted Sperry, *Oklahoma State University*

8AE/IA.6 | 11:00

Passive Exposure to Aerosols Emitted from Vaping Marijuana Liquid.

LANCE WALLACE, Wayne Ott, Kai-Chung Cheng, Tongke Zhao, Lynn M. Hildemann, *US EPA* (retired)

8AE/IA.7 | 11:15

Cognitive Impacts of Exposure to Indoor Sources.

Heather Schwartz-Narbonne, BOWEN DU, Marlie Tandoc, Michael Mack, Jeffrey Siegel, *University of Toronto*

8AP AEROSOL PHYSICS I

ROOM B 117-119

Chuji Wang and **Rajan Chakrabarty,** chairs

8AP.1 | 9:45

Non-equilibrium Effects in SOA Formation and Evaporation Investigated with an Advanced Kinetic Multi-layer Model of Gas-particle Interactions (KM-GAP 2.0).

THOMAS BERKEMEIER, Manabu Shiraiwa, Nga Lee Ng, Ulrich Pöschl, *Max Planck Institute for Chemistry*

8AP.2 | 10:00

Phase Behavior and Surface Tension of Sea Spray Aerosol Droplets using Microfluidics.

SHIHAO LIU, Lucy Nandy, Cari Dutcher, *University of Minnesota*

8AP.3 | 10:15

Utilizing a Sub-Micron Silicon Nitride Waveguide as Single Particle Aerosol Detector.

ANTON BUCHBERGER, Paul Maierhofer, Martin Sagmeister, Victor Sidorov, Jochen Kraft, Alexander Bergmann, *Graz University of Technology*

8AP.4 | 10:30

What Slows the Freezing of Pentane Nanodroplets?

Kehinde Ogunronbi, Sherwin Singer, BARBARA WYSLOUZIL, *The Ohio State University*

8AP.5 | 10:45

Predictions of Viscosity of Organic Aerosols by Volatility Distributions: Applications to Field Observations.

YING LI, Douglas Day, Harald Stark, Jose-Luis Jimenez, Manabu Shiraiwa, *University of California, Irvine*

8AP.6 | 11:00

Spray Aerosol Production from Raindrop Impaction on Seawater and Soil Surfaces.

Kaili Zhou, Shurong Wang, Xin Yang, XIAOFEI WANG, *Fudan University*

8AP.7 | 11:15

Mass Absorption Cross Section and its Enhancement Factor for Internally Mixed Black Carbon Aggregates with varying Fractal Dimension.

PAYTON BEELER, William Heinson, Rajan K. Chakrabarty, *Washington University in St. Louis*

8BC SYMPOSIUM: BIOMASS COMBUSTION: EMISSIONS, CHEMISTRY, AIR QUALITY, CLIMATE, AND HUMAN HEALTH VII: CHEMICAL AND PHYSICAL EVOLUTIONS OF BIOMASS BURNING PLUMES

ROOM B 113-114

Ricardo Morales Betancourt and **Mariam Fawaz,** chairs

8BC.1 | 9:45

Long-Range Transport Mechanisms in East and Southeast Asia and Impacts on Size-Resolved Aerosol Composition: Contrasting High and Low Aerosol Loading Events.

RACHEL BRAUN, Mojtaba Aghdam, Paola Bañaga, Grace Betito, Ma. Obiminda Cambaliza, Melliza Cruz, Genevieve Lorenzo, Alex MacDonald, James Simpas, Connor Stahl, Armin Sorooshian, *University of Arizona*

8BC.2 | 10:00

Where's the Mass: Why Might Field and Laboratory Studies on Aging of Biomass Burning Aerosols Disagree on Mass Enhancements?

ANNA HODSHIRE, Ali Akherati, Matthew Alvarado, Benjamin Brown-Steiner, Shantanu Jathar, Jose-Luis Jimenez, Sonia Kreidenweis, Chantelle Lonsdale, Timothy Onasch, Amber Ortega, Jeffrey R. Pierce, *Colorado State University*

8BC.3 | 10:15

Simulating the Near-Source Forest Fire Plume Chemistry and Secondary Particle Formation Using SAM-ASP.

Chantelle Lonsdale, MATTHEW ALVARADO, Anna Hodshire, Emily Ramnarine, Jeffrey R. Pierce, *AER*

8BC.4 | 10:30

Rapid Transformations of Biomass Burning Particulate Emissions in the Near Field.

ARTHUR J. SEDLACEK, Timothy Onasch, Kouji Adachi, W. Patrick Arnott, Peter Buseck, Qi Zhang, John Shilling, Mikhail Pekour, Sonya Collier, Shan Zhou, Andrew Freedman, Lawrence Kleinman, *Brookhaven National Lab*

8BC.5 | 10:45

Analysis of Unidentified Organic Species in Fresh and Aged Biomass-Burning Emissions Generated under Controlled Conditions.

VERA SAMBUROVA, Deep Sengupta, Chiranjivi Bhattarai, Adam Watts, Hans Moosmuller, Andrey Khlystov, *Desert Research Institute*

8BC.6 | 11:00

Measured and Modeled SOA Formation from Biomass-Burning-Derived Precursors.

KELLEY BARSANTI, Isaac Afreh, Jia Jiang, Lindsay Hatch, William P. L. Carter, Weihan Peng, David R. Cocker III, *University of California, Riverside*

8BC.7 | 11:15

Large Contribution of Oxygenated Aromatic Compounds in Biomass Burning Emissions to Secondary Organic Aerosol Formation.

ALI AKHERATI, Charles He, Matthew Coggon, Abigail Koss, Carsten Warneke, Joost de Gouw, Christopher Cappa, Jeffrey R. Pierce, Michael Kleeman, Shantanu Jathar, *Colorado State University*

8CM CONTROL AND MITIGATION TECHNOLOGY I

ROOM B 110-112

Marit Meyer and **Tian Xia,** chairs

8CM.1 | 9:45

A Novel In-stack Pre-cutter for Separating Droplets in Gas Streams Saturated with Water Vapor.

Chih-Hsiang Chien, Joshua Udvardy, CHANG-YU WU, Zachery Emerson, Derek Sain, Leland Carlson, Vipin Varma, Cathe Kalisz, *University of Florida*

8CM.2 | 10:00

Numerical Simulations of Inhomogeneous Current Density Effects on ESP Performance for Fly Ash and Mercury Sorbent Mixtures.

ERIC MONSU LEE, Herek Clack, *Illinois Institute of Technology*

8CM.3 | 10:15

An Experimental Study on Airflow Patterns of Pleated Filters by Using the PIV Method.

QINGFENG CAO, Seungkoo Kang, David Y. H. Pui, *University of Minnesota*

8CM.4 | 10:30

Respiratory Deposition of Ultrafine Welding Fume Particles.

WEI-CHUNG SU, Yi Chen, Marcio Bezerra, Jun Wang, *University of Texas Health Science Center at Houston*

8CM.5 | 10:45

Resonances in Laser Desorption/Ionization of Particle-Bound Metals Feature Remote Sensing of Ship Emissions.

Johannes Passig, Julian Schade, Thomas Kröger-Badge, Robert Irsig, Hendryk Czech, Martin Sklorz, Lei Li, Xue Li, Zhen Zhou, Benjamin Stengel, Bert Buchholz, Thorsten Streibel, RALF ZIMMERMANN, *Helmholtz Zentrum München and University of Rostock*

8CM.6 | 11:00

A CFD Study of a Vegetative Barrier as a Near-Road Pollutant Mitigation Strategy: An Evaluation of CFD Modelling Techniques with Field Measurements.

KHALED HASHAD, Xinwei Liu, Bo Yang, K. Max Zhang, Pradeep S. Prathibha, Jay R. Turner, Daniel Fleischer, *Cornell University*

8CM.7 | 11:15

Airborne Measurements of Particle Size Distribution in Coal Power Plant Emissions Exhausted through Cooling Towers.

JAN HOVORKA, Jaroslav Schwarz, Miroslav Klán, Filip Kobrzek, Petr Marecek, *Charles University*

8IM INSTRUMENTATION AND METHODS VII: CHEMICAL METHODS

OREGON BALLROOM

Philip Croteau and **Swarup China,** chairs

8IM.1 | 9:45

Towards More Accurate Particulate Organic Nitrate Quantification through Aerosol Mass Spectrometry.

Frans Graeffe, Liine Heikkinen, LEAH WILLIAMS, Jean-Eudes Petit, Athina-Cerise Kalogridis, Andrew Lambe, Evelyn Freney, Philip Croteau, John Jayne, Manjula Canagaratna, Mikael Ehn, Olivier Favez, Alexandre Albinet, *University of Helsinki*

8IM.2 | 10:00

A New Method to Quantify Mineral Dust, Sea Salt, Biomass Burning, and Other Aerosol Species from Aircraft Platforms using Single Particle Mass Spectrometry.

KARL D. FROYD, Daniel Murphy, Charles Brock, Pedro Campuzano-Jost, Jack Dibb, Jose-Luis Jimenez, Agnieszka Kupc, Ann M. Middlebrook, Gregory Schill, Kenneth Thornhill, Christina Williamson, James Wilson, Luke Ziemba, *NOAA ESRL and CIRES*

8IM.3 | 10:15

A New Method for Robust, Moderate-Cost Measurement of Oxygen, Carbon, and Sulfur Content of Organic Compounds and Mixtures.

James Hurley, Nathan Kreisberg, Braden Stump, Patricia Keady, Susanne Hering, GABRIEL ISAACMAN-VANWERTZ, *Virginia Tech*

8IM.4 | 10:30

Intercomparison of AMS and ACSM Measurements for Particulate Organic Nitrates (pON).

ATHINA-CERISE KALOGRIDIS, Jean-Eudes Petit, Alexandre Albinet, Andrew Lambe, Liine Heikkinen, Frans Graeffe, Manuela Cirtog, James Allan, Zainab Bibi, Tanguy Amodeo, Nicolas Karoski, Laurent Meunier, Valerie Gros, Mikael Ehn, Tuija Jokinen, Minna Aurela, Marek Maasikmets, Axel C. Eriksson, Erik Ahlberg, Evelyn Freney, Konstantinos Eleftheriadis, MariCruz Minguillon, Leah Williams, Olivier Favez, et al., *NCSR Demokritos*

8IM.5 | 10:45

A novel High-Resolution Ion Mobility Drift Tube with Diffusion Auto-correction.

Xi Chen, CARLOS LARRIBA-ANDALUZ, *IUPUI*

8IM.6 | 11:00

Quantifying Errors in Aerosol Mixing State Metrics due to Limited Particle Sample Size.

JESSICA GASPARIK, Nicole Riemer, Matthew West, Qing Ye, Ryan Sullivan, Albert Presto, *University of Illinois at Urbana-Champaign*

8IM.7 | 11:15

Probing the Phase State and Viscosities of Sub-micron Organic Aerosols in Controlled Environmental Conditions.

NOOPUR SHARMA, Kuo-Pin Tseng, Libor Kovarik, Swarup China, *Pacific Northwest National Laboratory*

8NM NANOPARTICLES AND MATERIALS SYNTHESIS I

ROOM A 106

Girish Sharma and **Tim Sipkens,** chairs

8NM.1 | 9:45

Electroluminescence Induced by Electric Current through Defects of Cubic Magnesium Oxide Nanoparticles Synthesized by Self-Combustion Method.

CHANGHYUK KIM, Peter Pikhitsa, Sukbyung Chae, Kyungil Cho, Mansoo Choi, *Pusan National University*

8NM.2 | 10:00

A Numerical Model to Predict the Morphology of Particle Synthesized via Spray Pyrolysis.

SUKRANT DHAWAN, Pratim Biswas, *Washington University in St Louis*

8NM.3 | 10:15

One-step Gas-phase Synthesis of Core-shell Nanoparticles via Surface Segregation.

NAMSOON EOM, Markus Snellman, Martin Ek, Maria Messing, Knut Deppert, *Lund University*

8NM.4 | 10:30

Analysis of Si Nanoparticle Growth in Low Pressure Non-thermal Plasmas and Plasma Afterglows via Differential Mobility Analysis and Monte Carlo Simulations.

XIAOSHUANG CHEN, Takafumi Seto, Uwe R. Kortshagen, Christopher Hogan Jr., *University of Minnesota*

8NM.5 | 10:45

A Versatile Aerosol-based Technique to Deposit Nanoparticle Thin Films from Colloidal Solutions.

SHALINEE KAVADIYA, Jonathan Bryan, Yuji Okamoto, Peter Firth, Hussain Saddam, Zachary Holman, *Arizona State University*

8NM.6 | 11:00

Optical Monitoring of Aerosol Thermal Processing.

JAMES RADNEY, Christopher Zangmeister, *National Institute of Standards and Technology*

8NM.7 | 11:15

Observing, Predicting and Controlling Crystalline and Amorphous Particle Formation in Evaporating Aqueous Aerosol Droplets.

JONATHAN P. REID, Florence Gregson, Rachael E.H. Miles, Jim Walker, Daniel Hardy, Justice Archer, Joshua Robinson, Royall Patrick, *University of Bristol*

Thursday 11:30 AM - 12:15 PM
Light Take-Away Lunch

Thursday 12:15 PM - 1:45 PM
Session 9: Poster

9AC AEROSOL CHEMISTRY VII: POSTERS

EXHIBIT HALL A

9AC.1

Long-term Analysis of Sources Contributing to PM2.5 in Beijing.

KASPAR DAELLENBACH, Jing Cai, Jordan Krechmer, Chao Yan, Yonghong Wang, Biwu Chu, Feixue Zheng, Liine Heikkinen, Tommy Chan, Lubna Dada, Juha Kangasluoma, Ying Zhou, Joni Kujansuu, Tuukka Petäjä, Veli-Matti Kerminen, Federico Bianchi, Douglas Worsnop, Yongchun Liu, Manjula Canagaratna, Markku Kulmala, *Beijing University of Chemical Technology*

9AC.2

Simulation of SOA Formation from the Photooxidation of Gasoline in the Presence of NOx and Electrolytic Inorganic Aerosol.

MYOSEON JANG, Chufan Zhou, Zechen Yu, Sanghee Han, *University of Florida*

9AC.3

Recent Declines in Water Uptake and Acidity of Inorganic Aerosols during Beijing Winter Haze Events.

SHAOJIE SONG, *Harvard University*

9AC.4

Emergence of a New Chemical Regime: Growing Abundance of Water Soluble Organics in Cloud Water Associated with a Growing Ion Imbalance.

CHRISTOPHER LAWRENCE, Sara Lance, James Schwab, James Dukett, Kevin Civerolo, Oliver Rattigan, Dan Kelting, Elizabeth Yerger, Hunter Favreau, Paul Casson, Richard Brandt, *University at Albany, SUNY*

9AC.5

IEPOX-Derived Organosulfates Contribute a Significant Portion of the Aerosol Mass Spectral Tracer Ion of IEPOX-derived SOA and Its Implications.

YUE ZHANG, Yuzhi Chen, Manjula Canagaratna, Sri Hapsari Budisulistiorini, Tianqu Cui, Zhenfa Zhang, Avram Gold, John Jayne, Douglas Worsnop, Barbara Turpin, Jason Surratt, *Univ. of North Carolina, Chapel Hill/Aerodyne Research, Inc.*

9AC.6

Combined Impacts of Acidity and Viscosity on the Formation of Inorganic-Organic Mixed Isoprene Epoxydiol (IEPOX)-Derived Aerosols.

YUE ZHANG, Yuzhi Chen, Ziying Lei, Nicole Olson, Matthieu Riva, Abigail Koss, Zhenfa Zhang, Avram Gold, John Jayne, Douglas Worsnop, Timothy Onasch, Barbara Turpin, Jesse Kroll, Andrew Ault, Jason Surratt, *University of North Carolina at Chapel Hill*

9AC.7

Aerospec – An Online Platform for Analysis of Chemical Composition of Aerosols.

HE JIAYANG, Gaurav Mahamuni, Jay Rutherford, Jiawei Zhang, Igor Novosselov, Edmund Seto, *University of Washington*

9AC.8

Observation on Chemical Characteristics of Airborne Particles in Xi'an, Inland China during Dust Storm Events with Implications for Heterogeneous Formation of Ammonium Nitrate and Enhancement of N-deposition.

GEHUI WANG, Wu Can, Jianjun Li, Cong Cao, Jin Li, *East China Normal University*

9AC.9

Effects of Common Inorganic Salts on Aqueous Photochemistry of Secondary Organic Aerosol.

ALEXANDRA KLODT, Dian Romonosky, Peng Lin, Julia Laskin, Alexander Laskin, Sergey Nizkorodov, *University of California, Irvine*

9AC.10

Growth Mechanisms of Size-Selected Ammonium Sulfate Seed Particles by Monoterpene Ozonolysis.

JUSTIN KRASNOMOWITZ, Michael J. Apsokardu, Devon Haugh, Michael Taylor, Murray Johnston, *University of Delaware*

9AC.11

Accelerated Reaction of Carbonyls in Aerosol Droplets Studied with Droplet Assisted Ionization.

YAO ZHANG, Michael J. Apsokardu, Devan E. Kerecman, Murray Johnston, *University of Delaware*

9AC.12

Elucidation of the Influence of Specific Meteorological Conditions on the Electrostatic Charging State of Ambient Aerosols by a Parallel Electrode Plate Device.

RYOYA TABATA, Ayumi Iwata, Kentaro Fujioka, Tomoaki Okuda, *Keio University*

9AC.13

Chemical Characterization of Secondary Organic Aerosol Formed from the Photoreactions of Guaiacyl Acetone in an Aqueous Particle Extract.

WENQING JIANG, Richie Kaur, Martin Brüggemann, Hartmut Herrmann, Cort Anastasio, Qi Zhang, *University of California, Davis*

9AC.14

Impact of Wildfire on Ambient Air Levels of Unsubstituted and Alkylated-PAHs in the Region of Oil Sands Exploitation and Bitumen Processing in Alberta, Canada.

ANDRZEJ WNOROWSKI, Jean-Pierre Charland, *Environment and Climate Change Canada*

9AC.15

The Role of the Solvent Environment on Physical Properties in Secondary Organic Aerosol Mimicking Solutions.

Rebecca Miller, Hannah Inman, Emmaline Longnecker, Lucy Metz, ANDREW BERKE, *Smith College*

9AC.16

Assessing the Contribution of NO3 Radical Chemistry to Nanoparticle Composition in the Boreal Atmosphere.

DANIELLE C. DRAPER, Michael Lawler, Theo Kurten, James Smith, *University of California, Irvine*

9AC.17

Modeling Studies of Isoprene- and Monoterpene-derived Organic Nitrates in a Mixed Forest Environment and the Role of Deposition and Aerosol Multiphase Chemistry.

ISAAC CANADA, Paul Shepson, Jonathan Slade, *University of California, San Diego*

9AC.18

An Isomer-Resolved Picture of Evolving Organic Aerosol Composition during Heterogeneous OH-Oxidation under Different OH concentrations and Timescales.

ZIXU ZHAO, Haofei Zhang, *University of California, Riverside*

9AC.19

Toward Development of a Metric to Relate Molecular Characteristics with Optical Properties for Biomass Burning Aerosol.

NISHIT SHETTY, Apoorva Pandey, Simeon Schum, Maryam Khaksari, Lynn Mazzoleni, Rajan K. Chakrabarty, *Washington University in St. Louis*

9AC.20

Formation of Reactive Oxygen Species by Size-Segregated Particles Collected in Forest and Urban Environments.

BRIAN HWANG, Ting Fang, Michihiro Mochida, Manabu Shiraiwa, *University of California, Irvine*

9AC.21

Secondary Aerosol Formation from Oxidation of Dimethyl Selenide.

ROYA BAHREINI, Alexander Frie, Ying-Hsuan Lin, C.M. Sabbir Ahmed, *University of California, Riverside*

9AC.22

Healthy and Aphid-stressed Shrubby Plant (Baccharis salicifolia) Metabolomics Impact on Produced Biogenic Secondary Organic Aerosol.

FATEMEH KHALAJ, Celia Faiola, Kailen Mooney, Swarup China, Christopher Anderton, Alber Rivas-Ubach, *University of California, Irvine*

9AC.23

Aerosol Precursors from Agricultural Emissions.

PHILIP SILVA, *USDA - Agricultural Research Service*

9AC.24

NO3-initiated Oxidation of Isoprene: Oxidation Mechanism and Aerosol Formation.

BELLAMY BROWNWOOD, Juliane Fry, *Reed College*

9AC.25

Particle, Volatile Organic Compounds and Polycyclic Aromatic Hydrocarbon Emission Flaring from Hydrofracking.

OLANREWAJU WASIU BELLO, Thi Duong Bui, Benjamin Savareear, J. James Harynuk, Larry W. Kostiuk, Jason S. Olfert, *University of Alberta*

9AC.26

Heterogeneous Chemistry of CaCO3 Aerosols with HNO3 and HCl.

HAN HUYNH, V. Faye McNeill, *Columbia University*

9AC.27

ISORROPIA-MCX: Implementation of the Multicomplex Variable Method into the Aerosol Thermodynamic Model, ISORROPIA.

BRYAN BERMAN, Isaiah Sauvageau, Shannon Capps, Ryan Russell, *Drexel University*

9AC.28

Degradant Formation in Cannabis Concentrate Aerosols.

JIRIES MEEHAN-ATRASH, Robert Strongin, *Portland State University*

9AC.29

Growth and Evaporation Kinetics of Secondary Organic Aerosol as a Function of Relative Humidity.

RAHUL ZAVERI, John Shilling, Alla Zelenyuk, Maria Zawadowicz, Kaitlyn J. Suski, Swarup China, Daniel Veghte, Alexander Laskin, *Pacific Northwest National Laboratory*

9AC.30

Chemical Role of Water on Secondary Organic Aerosol Formation and Ageing.

CHRISTOPHER SNYDER, Giuseppe Petrucci, *University of Vermont*

9AC.32

Using GECKO-A to Study Secondary Organic Aerosol Formation from Camphene Relative to a-Pinene and Limonene.

ISAAC AFREH, Bernard Aumont, Marie Camredon, Kelley Barsanti, *University of California, Riverside*

9AC.33

Simulation of SOA Formation Using Gas-Wall Process Free Model parameters in the Presence of Inorganic Salts Containing Electrolytes under Various NOx Levels.

SANGHEE HAN, Myoseon Jang, *University of Florida*

9AC.34

Effects of Emission Reduction on Air Pollution in India.

HAO GUO, Sri Kota, Hongliang Zhang, *Louisiana State University*

9AC.35

Isoprene Effects on Biogenic and Inorganic New Particle Formation.

LEE TISZENKEL, Ryan Haley, Shanhu Lee, *University of Alabama Huntsville*

9AC.37

Investigations of the Mixing of Sulfate Aerosols and Isoprene Epoxydiols in Secondary Organic Aerosol Formation Chamber Experiments.

THEODORA NAH, Lu Xu, Kymberlee Osborne-Benthaus, S. Meghan White, Stefan France, Nga Lee Ng, *City University of Hong Kong*

9AC.38

Photolysis of Aqueous Atmospheric Aerosol Mimics.

MELISSA GALLOWAY, Jacqueline Sharp, Shiqing Ma, Joseph Woo, *Lafayette College*

9AC.39

Effects of Relative Humidity and Aerosol Liquid Water on the Molecular Composition and Aging of Secondary Organic Aerosols.

CYNTHIA WONG, Lauren Fleming, Julia Montoya-Aguilera, Sergey Nizkorodov, *University of California, Irvine*

9AC.40

Role of Particle Composition in the Heterogeneous Reactivity of Carboxylic Acid Aerosol.

REBECCA RAPF, Kevin Wilson, Lawrence Berkeley *National Laboratory*

9AC.41

An Integrated Organic Aerosol Simulation: From Volatile Precursors to Cloud Droplet Formation.

KYLE GORKOWSKI, Camilo Damha, Dalrin Ampritta Amaladhasan, Thomas Preston, Andreas Zuend, *McGill University*

9AC.42

Volatility Change during Droplet Evaporation of Pyruvic Acid.

SARAH SUDA PETTERS, Thomas Hilditch, Sophie Tomaz, Rachael E.H. Miles, Jonathan P. Reid, Barbara Turpin, *University of North Carolina at Chapel Hill*

9AC.43

A Scalable, Portable, Gas-Aerosol Chemistry Treatment for Atmospheric Models.

MATTHEW DAWSON, Christian Guzman, Matthew West, Nicole Riemer, Mario Acosta, Oriol Jorba, Donald Dabdub, *Barcelona Supercomputing Center*

9AC.44

H2SO4-H2O Binary and H2SO4-H2O-NH3 Ternary Homogeneous and Ion-mediated Nucleation: Lookup Tables and Comparisons with CLOUD Measurements.

FANGQUN YU, Alexey Nadykto, Gan Luo, Jason Herb, *The State University of New York at Albany*

9AP AEROSOL PHYSICS II: POSTERS

EXHIBIT HALL A

9AP.1

The Light Scattering Study of Highly Absorptive Hematite Aggregates.

PRAKASH GAUTAM, Justin Maughan, Christopher Sorensen, *Kansas State University*

9AP.2

The Effect of Particle Size on Aerosol Concentration.

TERRENCE GARCIA, Ashley Alli, Sabrina MAJ McGraw, *Laulima Government Solutions*

9AP.3

The Dependence of the Optical Properties of Soot Aggregates on Their Morphological Mixing State.

OGOCHUKWU ENEKWIZU, Divjyot Singh, Mary McGuinness, Alexei Khalizov, *New Jersey Institute of Technology*

9AP.4

Integration of the MOSAIC Aerosol Model into the Environment and Climate Change Canada AQ Model.

KIRILL SEMENIUK, Ashu Dastoor, *Environment and Climate Change Canada*

9AP.6

Individually Identifiable Aerosol Particles Using Luminescent Nanocrystals.

Michael H. Stewart, Kimihiro Susumu, Jozsef Czege, Cathy S. Scotto, Alan Huston, JAY D. EVERSOLE, *Naval Research Laboratory*

9AP.7

Modeling of Multispecies Aerosol Formation and Evolution in a Capillary Aerosol Generator.

Francesco Lucci, Edo Frederix, ARKADIUSZ KUCZAJ, *Philip Morris International R&D*

9AP.8

Timescales of Secondary Organic Aerosols to Reach Equilibrium at Various Temperatures and Relative Humidities.

YING LI, Manabu Shiraiwa, *University of California, Irvine*

9AP.9

Backscattering from Fractal Aggregates.

BLAINE FRY, Christopher Sorensen, Raiya Ebini, *Kansas State University*

9AP.10

Shape and Structure of Alkane+CO2 Multicomponent Particles from FTIR Measurements.

YENSIL PARK, Ruth Signorell, Barbara Wyslouzil, *The Ohio State University*

9AP.11

Size, Structure, and Phase of Carbon Dioxide Aerosols Formed by Homogeneous Nucleation in a Supersonic Laval Nozzle.

KAYANE DINGILIAN, Ruth Signorell, Barbara Wyslouzil, *The Ohio State University*

9AP.12

A General Description of Light Scattering by Particles of Arbitrary Size, Shape and Refractive Index.

JUSTIN MAUGHAN, Christopher Sorensen, *Kansas State University*

9AP.13

Variations of New Particle Formation (NPF) Events during 2016-2018 in the Arctic Area (Ny-Alesund, Norway).

HAEBUM LEE, Young-Jun Yoon, Kihong Park, *Gwangju Institute of Science and Technology*

9AP.14

Homogeneous Ice Nucleation From Supercooled Nanodroplets ~230 K.

TONG SUN, Barbara Wyslouzil, *The Ohio State University*

9AP.15

Simulation and Evaluation of the Effectiveness of House Sheltering from the Perspective of the Penetration Factor.

WENLU WANG, Nobuyuki Kato, Shigeru Kimoto, Yasuto Matsui, Minoru Yoneda, *Kyoto University*

9AP.18

Black Metal Nanoparticles from Abrasion Processes in Our Everyday Lives: Bicycle Chains, Rock Climbing Ropes, and Motor Oil.

HANS MOOSMULLER, Ramesh Giri, Matthew Berg, Christopher Sorensen, *Desert Research Institute*

9AP.19

A Hybrid Continuum-Molecular Dynamics Flux Matching Calculation Method for Collision Rate Coefficients.

TOMOYA TAMADATE, Christopher Hogan Jr., Hidenori Higashi, Yoshio Otani, Takafumi Seto, *Kanazawa University*

9AS SYMPOSIUM: AIR QUALITY SENSORS: LOW-COST != LOW COMPLEXITY I: POSTERS

EXHIBIT HALL A

9AS.1

Laboratory and Field Evaluation of Real-time and Near Real-time PM2.5 Smoke Monitors.

HANS MOOSMULLER, Ahmed Mehadi, David Campbell, Walter Ham, Donald Schweizer, Leland Tarnay, Julie Hunter, *Desert Research Institute*

9AS.2

Spatiotemporal Modeling of PM2.5, CO and NO2 Concentrations Measured by a Low-cost Sensor Network: Comparison of Linear and Machine-learning Enabled Land Use Models.

SAKSHI JAIN, Albert Presto, Naomi Zimmerman, *University of British Columbia*

9AS.3

From Building Blocks to Building Air-Quality Sensors, Air-Quality Estimates and Citizen Scientists.

KERRY KELLY, James Moore, Wei Xing, Matt Dailey, Katrina Le, Tofigh Sayahi, Tom Becnel, Pascal Goffin, Miriah Meyer, Pierre-Emanuel Gaillardon, Deborah Burney-Sigman, Jason Weise, Ross Whitaker, Anthony Butterfield, *University of Utah*

9AS.4

Spatiotemporal Mapping of Ultrafine Particles in Buildings with Low-Cost Sensing Networks.

DANIELLE WAGNER, Brandon E. Boor, *Purdue University*

9AS.5

Using Mini-PEMS to Monitor Motor Vehicle Exhaust PM.

Diep Vu, Joseph Szente, Michael Loos, MATTI MARICQ, *Ford Motor Co.*

9AS.6

Design and Evaluation of a Portable PM Monitor Featuring a Low-Cost Light Scattering Sensor in Line with an Active Filter Sampler.

JESSICA TRYNER, Casey Quinn, Bret Windom, John Volckens, *Colorado State University*

9AS.7

Using Indoor Positioning and Mobile Sensing for Spatial Exposure and Environmental Characterizations: Pilot Demonstration of PM2.5 Mapping.

KAI-CHUNG CHENG, Ching-Hao Tseng, Lynn M. Hildemann, *Stanford University*

9AS.8

Evaluations of Three Commercially Available Indoor PM2.5 Monitors.

MISTI ZAMORA, Kirsten Koehler, *Johns Hopkins Bloomberg School of Public Health*

9AS.9

Towards a Highly-Integrated Low-Cost PM Sensor.

PAUL MAIERHOFER, Georg Röhrer, Jaka Pribošek, Gernot Fasching, Anderson Singulani, Harald Etschmaier, Martin Kraft, Alexander Bergmann, *Graz University of Technology*

9AS.10

Spark-Plug Sized Automotive Exhaust Aerosol Sensors for Emission Monitoring and On-Board Diagnostics.

VINAY PREMNATH, Imad Abdul-Khalek, *Southwest Research Institute*

9AS.11

A Physical-property Based Method to Characterize Low-cost Sensor.

MEILU HE, Nueraili Kuerbanjiang, Suresh Dhaniyala, *Clarkson University*

9AS.12

Correlation Measurements of Indoor and Outdoor Particulate Matter Air Quality Using Low-Cost Air Pollution Sensors at a Freeway Site in Southern California.

DANIEL B. CURTIS, Linh K. Luu, Brian M. Chavez, Karen E. McReynolds, *California State University, Fullerton*

9AS.13

Calibration of C-RUV Aerosol Acidity Measurement Using Two Inorganic Thermodynamic Models and Its Application to Field Data.

SHIQI SUN, Myoseon Jang, Sanghee Han, Chufan Zhou, Ryan Winslow, *University of Florida*

9AS.14

Application and Use of Low-cost Sensors for Air Quality Monitoring.

YI LI, Houxin Cui, Mengxian Wu, Zhanbang Feng, *SailBri Cooper Inc*

9AS.15

Real-time Sampling of Total Biogenic Volatile Organic Compounds Using a Compact, Portable Photoionization Detector.

MATTHEW STEWART, Jianhuai Ye, Tianning Zhao, Karena McKinney, Scot T. Martin, *Harvard University*

9AS.16

Field Evaluation and Calibration of a Six-Parameter Low-Cost Sensor System in Northwestern and Southeastern US.

Yi Li, HAOFEI YU, Zack Fregin, *SailBri Cooper Inc*

9AS.17

Sensitive and Selective Gas Sensing Module for Isoprene.

TIANNING ZHAO, Jianhuai Ye, Matthew Stewart, Scot T. Martin, *Harvard University*

9AS.18

Evaluation of PurpleAir Sensors across the United States.

KAROLINE BARKJOHN, Ian VonWald, Daniel Garver, Ryan Brown, Andrea Clements, *U.S. EPA Office of Research and Development*

9AS.19

Low Cost Sensor Approach to Intra-Urban UFP Characterization in Austin, TX.

MARK CAMPMIER, Rijul Gosar, Jing Wu, Betty Molinier, Joshua Apte, *University of Texas at Austin*

9AS.20

Preliminary Assessments of Sensor Performance and Data Analysis for California Communities under a US EPA STAR Grant Project.

Ashley Collier-Oxandale, VASILEIOS PAPAPOSTOLOU, Brandon Feenstra, Berj Der Boghossian, Andrea Polidori, *South Coast Air Quality Management District*

9AS.21

Inferring Aerosol Types and Sources from Low-Cost Air Quality Sensor Measurements: A Case Study in Cambridge, Massachusetts.

AMANDA GAO, David Hagan, Jesse Kroll, *MIT*

9AS.22

Low-Cost Sensing to Assess Personal Exposure in a Heavily Burdened Air Basin.

KHANH DO, Haofei Yu, Cesunica E. Ivey, *University of California, Riverside*

9AS.23

From Data Retrieval to Performance Evaluation: PurpleAir Sensor Collocation Across Phoenix, AZ.

IAN VONWALD, Karoline Barkjohn, Sue Kimbrough, Ben Davis, Hirna Patel, Ira Domsky, Ron Pope, Andrea Clements, *U.S. EPA Office of Research and Development*

9AS.24

Design and Development of a Cylindrical Calibration Chamber for Laboratory Evaluation of Low-cost Particulate Matter Sensors.

TOFIGH SAYAHI, Dylan Kaufman, Tom Becnel, Kamaljeet Kaur, Anthony Butterfield, Scott Collingwood, Yue Zhang, Pierre-Emanuel Gaillardon, Kerry Kelly, *University of Utah*

9AS.25

BevoBeacon: A Low-Cost Sensor Platform to Monitor Indoor Environmental Quality.

HAGEN FRITZ, William Waites, Sepehr Bastami, Kerry Kinney, Zoltan Nagy, David Schyner, *University of Texas at Austin*

9AS.26

A Data-driven Approach for Detection of Toxic Metallic Particulate Matters Using Spark Emission Spectroscopy and Machine Learning Algorithms.

SEYYED ALI DAVARI, Anthony S. Wexler, *University of California, Davis*

9AS.27

Utilizing Hygroscopicity of Aerosols to Develop Corrections for Low Cost Air Quality Sensors.

SAHIL BHANDARI, Brandon Feenstra, Ashley Collier-Oxandale, Wilton Mui, Vasileios Papapostolou, Andrea Polidori, *South Coast Air Quality Management District*

9AS.28

Performance Evaluation of Light Scattering PM2.5 Sensors for Deployment in an Urban Sensing Network in Bangalore, India.

JONATHAN GINGRICH, Mark Campmier, Advaitha Byereddy, Shayan Charolia, Heather Howton, Brian Mai, Meenakshi Kushwaha, Elbin Savio, Adithi Upadhya, Sreekanth Vakacherla, Julian Marshall, Joshua Apte, *University of Texas at Austin*

9AS.29

Long-Term Performance Evaluation of the PurpleAir PA-II Sensor in New Delhi, India.

MARK CAMPMIER, Shahzad Gani, Joshua Apte, *University of Texas at Austin*

9AS.30

New Concept for a Low-Cost Particulate Matter Sensor Based on Rolling Filter Tape Light Attenuation.

ELIZABETH CORSON, Jennifer Therkorn, *Johns Hopkins University Applied Physics Laboratory*

9AS.31

Using Low-cost Sensor Networks to Identify the Influence of Outdoor Air Quality and Indoor Activities on Indoor Air Quality.

JIAYU LI, Aliaksei Hauryliuk, Albert Presto, *Carnegie Mellon University*

9BA BIOAEROSOLS I: POSTERS

EXHIBIT HALL A

9BA.1

Improved Discrimination Between Dust and Bioaerosol by Aerosol Time-of-Flight Mass Spectrometry.

GAVIN CORNWELL, Camille Sultana, Markus Petters, Hashim Al-Mashat, Nicholas Rothfuss, Hans Taylor, Paul DeMott, Sonia Kreidenweis, Andrew Martin, Kimberly Prather, *University of California, San Diego*

9BA.2

Size Distributions and Emissions of Fluorescent Biological Aerosol Particles in an Office.

TIANREN WU, Brandon E. Boor, *Purdue University*

9BA.3

Summertime Bioaerosol Loadings above the Arctic Ocean.

ANNE PERRING, James Churnside, Ru-Shan Gao, Richard Marchbanks, Braden Mediavilla, David Fahey, *Colgate University, CIRES CU Boulder*

9BA.4

Impacts of Ambient Bioaerosols to an Unoccupied Indoor Bioaerosols during and after the Hazy Events.

FENG ZHOU, Mutong Niu, Tianle Zhu, Fangxia Shen, *Beihang University*

9BA.5

Pollen Grains Impacting the Region of Paris: Speciation, Temporal Variations and Geographical Origins.

Roland Sarda-Esteve, Dominique Baisnee, JEAN-EUDES PETIT, Valerie Gros, *CEA*

9BA.6

Design and Evaluation of a New Electrostatic-based Low-cost Biological Sampler.

HEMA RAVINDRAN, Kavindra Kumaragama, Shantanu Sur, Suresh Dhaniyala, *Clarkson University*

9BA.7

Analysis of Airborne Microbiome Using a Portable Bioaerosol Monitoring and Collection Device.

KAVINDRA KUMARAGAMA, Hema Ravindran, Shane Rogers, Shantanu Sur, Suresh Dhaniyala, *Clarkson University, Potsdam, NY, USA*

9BA.8

Further Investigation and Application of Passive and Low-Energy Bioaerosol Samplers.

SYDONIA MANIBUSAN, Gediminas Mainelis, Rutgers, *The State University of New Jersey*

9BA.9

A New Portable High-flow Aerosol-to-Hydrosol Sampler for Rapid Microbial Detection.

XINYUE LI, Maosheng Yao, *Peking University*

9BA.10

Successful Collection of Viable Vegetative E. coli on Dry Electret Filters.

Andrew Page, Zachary Packingham, Michael Hornback, Stephanie Cantrell, DAVID ALBURTY, *InnovaPrep LLC*

9BA.11

Decay of Single and Clusters of Bacillus Anthracis Sterne Spores Exposed to UV-C and Solar Light.

JANA KESAVAN, Daniel Mcgrady, Jerry Cabalo, Aime Goad, *US ARMY CCDC CBC*

9BA.12

Characterisation of a Rotating Drum for Bioaerosol Survival Studies.

EMMA KEYSER, Carwyn Davies, Andrew Scott, *Dstl*

9BA.13

UV Intensity Calculated in Clusters of Spores Held on Surfaces for Models of the Effects of UV on Viability.

STEVEN HILL, Dan Mackowski, David Doughty, *CCDC Army Research Laboratory*

9BA.14

Comparison of Aerosol Samplers for Measurement of Yersinia pestis in Aerosols.

GREGORY WILLIAMS, Stewart Wood, Sierra Gardner, Melissa Krause, Shanna Ratnesar-Shumate, *BNBI / DHS NBACC*

9BA.15

Evaluation of Boron-Metal Fluoride Reactive Materials for Inactivating Viable Aerosolized Spores Simulating Bacillus Anthracis.

SERGEY A. GRINSHPUN, Worrawit Nakpan, Michael Yermakov, Reshmi Indugula, Tiina Reponen, Siva Kumar Valluri, Mirko Schoenitz, Edward Dreizin, *University of Cincinnati*

9BA.16

Small Particle Aerosols of Francisella Tularensis; Characterization and Optimization to Support Pivotal Animal Efficacy Studies.

Katherine O' Malley, Jennifer Bowling, Eileen Barry, Karsten Hazlett, DOUGLAS REED, *University of Pittsburgh*

9BA.17

An Improved Method for Quantification of Ebola virus Titers in Dilute Aerosols.

MICHAEL SCHUIT, Rebecca Dunning, Jill Taylor, Katie Beck, Denise Freeburger, Paul Dabisch, *BNBI / DHS NBACC*

9BA.18

Displacement Ventilation to Prevent Pathogen Spread during Meat Processing.

ALEXANDER ZUNIGA, Maria King, *Texas A&M University*

9BA.20

Methodology to Estimate Performance of Onepass-type Air Sterilization System Using UVC LED in a Chamber for Inactivating Aerosolized Virus.

SUNGJAE PARK, Dae Hoon Park, Jungho Hwang, Yonsei University, *Korea*

9BA.21

Large Enclosure Decontamination of Coxiella burnetii.

YOUNG CHOI, Michelle Sunderman, Heather Davis, Cassandra O'Connor, William Richter, Mani Muthalagi, Kevin Hommema, *Battelle*

9BA.22

Comparison of Disease Progression in A/J and C57Bl/6 Mice Exposed to Aerosolized Coxiella burnetii.

CHRISTOPHER JENSEN, Jeanean Ghering, Aysegul Nalca, Sara Ruiz, *USAMRIID*

9BA.23

Tracking the Movement of Antibiotic Resistant Genes in Dairy Farms using Computational Fluid Dynamics.

HYOUNGMOOK PAK, Maria King, *Texas A&M University*

9BA.24

Comparison of Large Particle vs Small Particle Aerosolized Rabbitpox Virus Exposure in New Zealand White Rabbits (Oryctolagus cuniculus).

AYSEGUL NALCA, *USAMRIID*

9BA.25

Comparison of the Performance of Pneumatic Atomizers for Inhalation Studies with Ebola Virus.

KATIE BECK, Rebecca Dunning, Michael Schuit, Amy Reese, Jill Taylor, John Yeager, Paul Dabisch, *BNBI / DHS NBACC*

9BA.26

Continuous and Efficient Virus Sampling and Enrichment System.

HYEONG RAE KIM, Sanggwon An, Jungho Hwang, *Yonsei University*

9BA.27

Characteristics of Antibiotic-resistance Bacterial Aerosols and the Removal Efficiency of Biofilter during Composting Process.

YUNHAO ZHENG, Hongmin Dong, Yu Zhang, *Chinese Academy of Agricultural Sciences*

9BA.28

Efficiency Examination of a Pilot Scale Packed-bed Non-thermal Plasma (NTP) Reactor in Inactivating Airborne Viruses Emitted from a Pig Barn on a Michigan Farm.

TIAN XIA, Zijie Lin, Eric Lee, Kevin Melotti, Mitchell Rohde, Herek Clack, *University of Michigan*

9BA.29

Design, Fabrication, and Evaluation of Stationary Electrostatic Bioaerosol Sampler (SEBS) with High Concentration Rate.

TAEWON HAN, Nirmala Thomas, Sydonia Manibusan, Gediminas Mainelis, Rutgers, *The State University of New Jersey*

9BA.30

Investigation of Hygroscopic Properties of Giant Cloud-Condensation Nuclei with an Aerosol Optical Trap and Humidified Tandem Differential Mobility Analyzer.

BENJAMIN E. SWANSON, Rachel Bramblett, Amanda Frossard, *University of Georgia*

9BA.31

Comparison of DNATrax and Bacillus anthracis Surrogate Resuspension from Subway Surfaces.

JOHN ARCHER, Adam Hook, Jerome Gilberry, Denise Aslett, Ahmed Abdel-Hady, M. Worth Calfee, Robert Yaga, Donald Bansleben, *US EPA*

9BA.32

A Microfluidic Inertial Aerosol Sampler for Continuous, Efficient Collection and near Real-Time Detection of Bioaerosols.

LEAH CAROL, Andrea Timm, Ronald Jacak, Christopher Stiles, Brian Damit, *Johns Hopkins University Applied Physics Laboratory*

9BA.33

Development of a Bioaerosol Test Platform for the Evaluation of Biothreat Sensor Performance in Identifying Live BSL-3 Threat Agents.

JILL TAYLOR, Benjamin Alvarez, Felix Sage, Thomas Pilholski, Elizabeth Corson, Leah Carol, Brian Damit, *Johns Hopkins University Applied Physics Laboratory*

9BA.34

Chemical Modification of Ragweed Pollen Allergens via Ambient Air.

RACHEL L. DAVEY, Courtney Seffense, Erick Mattson, J. Alex Huffman, *University of Denver*

9BA.35

Culturability, Metabolic Activity and Composition of Ambient Bacterial Aerosols in a Surrogate Lung Fluid.

FANGXIA SHEN, Mutong Niu, Feng Zhou, Yan Wu, Tianle Zhu, *Beihang University*

9CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE I: POSTERS

EXHIBIT HALL A

9CA.1

Experimental Determination of the Relationship between Organic Aerosol Viscosity and Deposition Mode Ice Nucleation at Upper Free Tropospheric Conditions.

SABIN KASPAROGLU, Russell Perkins, Paul DeMott, Sonia Kreidenweis, Markus Petters, *North Carolina State University*

9CA.3

Scaling Laws for Light Absorption Enhancement Due to Nonrefractory Coating of Atmospheric Black Carbon Aerosol.

RAJAN K. CHAKRABARTY, William Heinson, *Washington University in St. Louis*

9CA.5

Major Influence of Secondary Organic Aerosols on Black Carbon Absorption Enhancement in the Region of Paris, France.

Yunjiang Zhang, Olivier Favez, Francesco Canonaco, Grisa Mocnik, Dantong Liu, Tanguy Amodeo, Francois Truong, Andre S.H. Prévôt, Jean Sciare, Valerie Gros, ALEXANDRE ALBINET, *INERIS, France*

9CA.6

Optical Absorption Properties of Brown Carbon Aerosols in the Pearl River Delta Region of China.

JUN ZHENG, Zhujie Li, Yan Ma, Haobo Tan, *Nanjing University of Information Science & Technology*

9CA.7

Detection of Tar Brown Carbon with the Single Particle Soot Photometer (SP2).

JOEL CORBIN, Martin Gysel, *National Research Council Canada*

9CA.8

Chemical and Optical Properties of BC-containing Particles in Urban and Remote Sites of China.

XINLEI GE, Junfeng Wang, Yele Sun, Dantong Liu, *Nanjing University of Information Science & Technology*

9CA.9

Multi-year Observations of Black Carbon and Brown Carbon in Bogota, Colombia: Relation to Biomass Burning Tracers and Number of Fires in Northern South America.

JUAN MANUEL RINCÓN, Amy P. Sullivan, Juan Felipe Mendez, Ricardo Morales Betancourt, *Universidad de los Andes*

9CA.10

Aerosol Light Absorption and Warming Impacts from Cookstove Emissions in India.

Apoorva Pandey, Alice Hsu, Shamsh Pervez, RAJAN K. CHAKRABARTY, *Washington University in St Louis*

9CA.11

Estimating Volatility Distributions of Primary Organic Aerosols Using Artifact-Corrected Quartz Filters.

Alexandra Ng, Hanyang Li, ANDREW MAY, *The Ohio State University*

9CA.12

The Influence of Calibration Standards on the Measurement of the Mass Absorption Coefficient of Black Carbon.

ELIZABETH WIGGINS, Richard Moore, Luke Ziemba, Gregory Schuster, *NASA*

9CA.13

Portable Real-time Black Carbon Monitoring Using the MA300: Performance Characterization in Laboratory and Real-world Environments.

MRINMOY CHAKRABORTY, Jeff Meiklejohn, Keyhan Babaee, Steven Rogak, Naomi Zimmerman, *University of British Columbia*

9CA.14

Quantifying Organic Matter and Functional Groups in Aerosol Filter Samples from the Southeastern Aerosol Research and Characterization (SEARCH) Network.

ALEXANDRA BORIS, Satoshi Takahama, Andrew Weakley, Bruno Debus, Stephanie L. Shaw, Eric Edgerton, Ann Dillner, *University of California, Davis*

9CA.15

Numerical Evidence of Blocking Effect of Brown Coatings on the Light Absorption of Internally Mixed Black Carbon.

Jie Luo, Yongming Zhang, QIXING ZHANG, *University of Science and Technology of China*

9CA.16

Characteristics of Organic Compounds in PM2.5 Aerosols in Seoul, Korea.

SOYOUNG JUNG, Hyewon Kim, Mi Rae Lee, Min Hye Kim, Youngkwon Kim, Jieun Park, Seung-Muk Yi, *Seoul National University, Seoul, Korea*

9CA.17

Comparing the RDG-FA and T-matrix Methods for Soot Given Information about Polydispersity and Effective Density.

Keyhan Babaee, Timothy Sipkens, STEVEN ROGAK, *University of British Columbia*

9CM CONTROL AND MITIGATION TECHNOLOGY II: POSTERS

EXHIBIT HALL A

9CM.1

Characterizing Amine Aerosol Emissions from Water-Lean Solvent CO2 Capture Process.

Paul Mobley, Jak Tanthana, Ryan Chartier, David Barbee, Roger Pope, Shaojun Zhou, JONATHAN THORNBURG, *RTI International*

9CM.2

Effects of Defects on Adsorption Characteristics of Magnesium Oxide Nanoparticles Synthesized through Aerosol Processes to Gas Air Pollutants.

KYUNGIL CHO, Changhyuk Kim, *Pusan National University*

9CM.3

Simulation of Electrohydrodynamic Flow and Particle Motion in Electrostatic Precipitators Under Turbulent Conditions.

AUSTIN ANDREWS, Christopher Hogan Jr., *University of Minnesota*

9CM.5

A Numerical Study for Pressure Drop Across a Two-Stage HEPA Filter.

Wonyoung Jeon, Byong Hyeok Lee, Jong Cheol kim, Sanghyeon Kang, Hyunjun Yun, YOUNGJIN SEO, *Kumoh National Institute of Technology*

9CM.6

Application of the Mobile Aerosol Lung Deposition Apparatus (MALDA) on Estimation of Ultrafine Welding Fume Respiratory Deposition.

Yi Chen, WEI-CHUNG SU, Macrio Bezerra, Jun Wang, *University of Texas Health Science Center at Houston*

9CM.7

In Situ Time- and Size-Resolved Particle Removal Efficiency of a HVAC Filter Bank in an Office Building.

JINGLIN JIANG, Tianren Wu, Brandon E. Boor, *Purdue University*

9CM.8

3-D Simulation of Submicron Particle Filtration on an Elliptical Fibrous Surface.

MING DONG, Jinyang Li, Sufen Li, Yan Shang, *Dalian University of Technology*

9CM.10

Charge Characterization of Nanoparticles Exiting Non-thermal Atmospheric Pressure Plasmas.

GIRISH SHARMA, Nabiel Abuyazid, Sukrant Dhawan, R. Mohan Sankaran, Pratim Biswas, *Washington University in St Louis*

9CM.11

Modeling the Impact of Ventilation Control Strategies on Airborne Infectious Disease Transmission in Schools.

SANGEETHA KUMAR, Atila Novoselac, Richard Corsi, *The University of Texas at Austin*

9CM.12

Dioxin Emission Reduction of Medical Waste Incinerators Using Low Temperature Plasma Integration Technology.

ZHENYU DU, Ting Zhang, Aimin Liu, Zhiguang Zhou, Yixiang Zhang, Rui Zhou, Yue Yu, *CNEAC, China*

9CO COMBUSTION I: POSTERS

EXHIBIT HALL A

9CO.1

Mode Specified Semi-volatile Chemical Composition in PM Emissions from a Commercial Gas Turbine Aircraft Engine.

ZHENHONG YU, Michael Timko, Andreas Beyersdorf, Luke Ziemba, Edward Winstead, Bruce Anderson, Scott Herndon, Richard Miake-Lye, *Aerodyne Research, Inc.*

9CO.2

Predicting the Fuel Consumption and Tailpipe Emissions from Light-Duty Passenger Vehicles using Artificial Neural Networks.

Shiva Tarun, Asher Zachary, Johnston Brian, Bradley Thomas, SHANTANU JATHAR, *Colorado State University*

9CO.3

Secondary Organic Aerosol (SOA) Formation from a Light-Duty Gasoline Direct Injection (GDI) Vehicle at Different Drive Conditions.

WEIHAN PENG, Niina Kuittinen, Cavan McCaffery, Stephen Zimmerman, Patrick Roth, Roya Bahreini, David R. Cocker III, Georgios Karavalakis, *University of California, Riverside*

9CO.4

Aircraft Exhaust Nanoparticles: Great Contribution of Jet Engine Lubrication Oil.

AKIHIRO FUSHIMI, Katsumi Saitoh, Yuji Fujitani, Nobuyuki Takegawa, *National Institute for Environmental Studies*

9CO.5

Diesel Exhaust Particle Number Measurement and Measurement Variability Using Off-Highway Test Cycles.

KIRBY J BAUMGARD, Nicholas J Barsic, *John Deere Power Systems*

9CO.6

Characterization of Smoke for Spacecraft Fire Safety.

XIAOLIANG WANG, Hao Zhou, W. Patrick Arnott, Marit Meyer, Samuel Taylor, Hatef Firouzkouhi, Hans Moosmuller, Judith Chow, John Watson, *Desert Research Institute*

9CO.7

Black Carbon and Particle Size Distributions Emitted from a Modern Aircraft Turbofan Engine Operated on Sustainable Alternative Jet Fuels.

JOEL CORBIN, Prem Lobo, Gregory Smallwood, Tobias Schripp, Ewan Crosbie, Michael Shook, Claire Robinson, Edward Winstead, Bruce Anderson, Richard Miake-Lye, Zhenhong Yu, Andrew Freedman, Philip Whitefield, *National Research Council Canada*

9CO.8

Soot Formation Models for Non-Premixed Flames with Variable Stoichiometric Mixture Fraction and Strain.

PHILLIP JOHNSON, Rajan K. Chakrabarty, Benjamin M. Kumfer, *Washington University in St. Louis*

9CO.9

Influence of Temperature and Dilution on Final Soot Nanostructure.

JUSTIN DAVIS, Igor Novosselov, *University of Washington*

9CO.10

A Multiscale Study of Soot Morphology and Evolution in Combustion Devices.

KHALED MOSHARRAF MUKUT, Eirini Goudeli, Somesh Roy, *Marquette University*

9CO.11

Ash Formation in High Pressure Oxy-Combustion Systems.

DISHANT KHATRI, Zhiwei Yang, Richard Axelbaum, *Washington University in St. Louis*

9CO.12

Emission Factors and Physicochemical Properties of Soot Produced in Low-Temperature Combustion.

OMAR EL HAJJ, Khairallah Atwi, Zezhen Cheng, Alanna L. Koritzke, Matthew G. Christianson, Brandon Rotavera, Rawad Saleh, *University of Georgia*

9IA INDOOR AEROSOLS III

EXHIBIT HALL A

9IA.1

Fungal Communities in Puerto Rican Homes after Hurricane Maria.

JUAN PEDRO MAESTRE, Filipa Godoy Vitorino, Benjamin Bolaños-Rosero, Felix Rivera-Mariani, Humberto Cavallin, Kerry Kinney, *University of Texas at Austin*

9IA.2

Aerosol Movement and Deposition into Hidden Interior Spaces Within a Full-Scale Test House.

MENGJIA TANG, Ningling Zhu, Kerry Kinney, Atila Novoselac, *University of Texas at Austin*

9IA.3

The Impact of Cooking Pan Material on Ultrafine Particle Emission Rates.

MEHDI AMOUEI TORKMAHALLEH, Hamed Sharifi, Maryam Dareini, Giorgio Buonanno, *Chemical and Aerosol Research Team, Nazarbayev University*

9IA.4

Occupancy Sensing with Chair-Embedded Thermocouples: Applications for Evaluating Human-Associated Bioaerosol and VOC Emission Factors.

DANIELLE WAGNER, Aayush Mathur, Brandon E. Boor, *Purdue University*

9IA.5

Insights on Particulate Matter Formation and Evolution during a 3D Printer Operation.

SAMEER PATEL, Sumit Sankhyan, Marina Vance, *University of Colorado Boulder*

9IA.6

Exposure to Endotoxin in a Cohort of Pregnant Women and Their Children.

Javier Ustariz, HECTOR JORQUERA, Arturo Borzutzky, *Pontificia Universidad Catolica de Chile*

9IA.7

Computational Fluid Dynamics Modeling of Particles on the International Space Station.

KAITLYN KOEHLER, Andrea Ferro, Goodarz Ahmadi, *Clarkson University*

9IA.8

Characterisation of SVOCs Derived from Indoor Cooking and Cleaning Activities.

Elizabeth Lin, Marina Vance, Delphine K. Farmer, KRYSTAL GODRI POLLITT, *Yale University*

9IA.9

Laboratory Determination of the Functional Range of Eight Low-Cost Particle Sensors and Consumer Device.

YANGYANG ZOU, Matthew Young, Melissa Ryan, Andrew May, Jordan Clark, *The Ohio State University*

9IA.10

Use of Piezobalance to Determine Volatility of E-Cigarette Aerosol.

LANCE WALLACE, Wayne Ott, Kai-Chung Cheng, Tongke Zhao, Lynn M. Hildemann, *US EPA* (retired)

9IA.11

Investigating Aerosol Emissions from Cooking Oils.

SUMIT SANKHYAN, Sameer Patel, Marina Vance, *University of Colorado Boulder*

9IA.12

Developing an Air Quality Index for Space Vehicles and Habitats.

MEYTAR SOREK-HAMER, Marit Meyer, *NASA Ames Research Center, Moffett Field, CA, USA / USRA*

9IA.13

Indoor Environmental Quality and Association with Human Perception at Schools and Homes of Urban and Rural Areas.

HYEON-JU OH, Jong-Ryeul Sohn, *Korea University*

9IA.14

Ozone Reactions with Squalene: Particle Seeding and Formation.

BREANN COFFARO, Clifford Weisel, Rutgers, *The State University of New Jersey*

9IA.15

Assessment and Mitigation of Exhaled Electronic Cigarette Aerosols in a Multi-zone Indoor Environment.

Li Zhang, Yan Lin, YIFANG ZHU, *University of California Los Angeles*

9IA.16

A Dynamic Method to Measure Partition Coefficient and Mass Accommodation Coefficient for Gas/Particle Interaction of Phthalates in Indoor Environments.

Jianping Cao, CLARA EICHLER, Yaoxing Wu, John Little, *Virginia Tech*

9IS SYMPOSIUM: THE AIR WE BREATHE: INDOOR AEROSOL SOURCES AND CHEMISTRY I: POSTERS

EXHIBIT HALL A

9IS.1

Dynamics of Volatile Organic Compounds in a Living Laboratory Office and HVAC System.

TIANREN WU, Danielle Wagner, Jinglin Jiang, Philip Stevens, Heinz Huber, Antonios Tasoglou, Brandon E. Boor, *Purdue University*

9IS.2

Identification and Quantification of Personal Care Product Emissions Indoors during Exercise by GC-Vocus PTR-ToF.

Zachary Finewax, Megan Claflin, Demetrios Pagonis, Andrew Jensen, Olivia Jenks, Brian Lerner, Shelly Miller, Jose-Luis Jimenez, PAUL ZIEMANN, Joost de Gouw, *University of Colorado*

9IS.3

Seasonal and Regional Variations of Indoor Organic Aerosol Water Content, Phase State, and Temperature-Based Partitioning.

BRYAN CUMMINGS, Manabu Shiraiwa, Peter DeCarlo, Michael Waring, *Drexel University*

9IS.4

Chemical Properties of Indoor Organic Aerosols.

Hannah Przelomski, Erin Katz, Peter DeCarlo, RACHEL O'BRIEN, *College of William and Mary*

9IS.5

Phthalate Hydrolysis and Indoor Air Chemistry.

DO YOUNG MAENG, V. Faye McNeill, *Columbia University*

9IS.6

Using Aerosol Principles to Advance Exposure Science: The Effect of Humidity on the Uptake of Water-Soluble Gases on Authentic Indoor Surfaces.

MARC WEBB, Liyong Cui, Joanna Atkin, Glenn Morrison, Jason Surratt, Barbara Turpin, *UNC-Chapel Hill*

9IS.7

Modeling Water Uptake by Dust in Residential Environments.

David Kormos, Karen C. Dannemiller, ANDREW MAY, *The Ohio State University*

9IS.8

Biological Particle Resuspension from Simulated Children's Walking.

Lu Zhang, Xinyue Li, Ting Zhang, MAOSHENG YAO, *Peking Universirty*

9IS.9

Indoor and Outdoor Levels of Traffic-Related Air Pollution and Effectiveness of Remediation Measures in a Near-Freeway School.

Aurelie Laguerre, Pradeep Ramasubramanian, Matthew Survilo, Megan Duenas, Naveen Weerasekera, Linda George, ELLIOTT GALL, *Portland State University*

9IS.10

Ultrafine Particle Emission Interactions with Multiple Fused-Deposition Modeling (FDM) 3D Printing in Chamber Environments.

Nahin Ferdousi, JOSEPH WOO, *Lafayette College*

9IS.11

Surface Extractor for Deposited Indoor Aerosol.

HANNAH PRZELOMSKI, Rachel O'Brien, *College of William and Mary*

9IS.12

Aqueous Phase Chemistry on Indoor Surfaces.

MADELINE COOKE, Andrew Ault, *University of Michigan*

9IS.13

Dynamics of Ozone Reactivity for Different Indoor Surfaces Driven by Diurnal Ozone Exposure.

MICHAEL WADE, Atila Novoselac, Richard Corsi, *The University of Texas at Austin*

9IS.14

Are Indoor Surfaces and Aerosols Dropping Acid or Dropping the Base? Insights into Water Films and pH for Model and Authentic Indoor Samples.

ANDREW AULT, Madeline Cooke, *University of Michigan*

9IS.15

Spatiotemporal Trends in Concentrations of Ozone and Ozone-Skin Oil Oxidation Products in an Occupied Office and HVAC System.

JINGLIN JIANG, Tianren Wu, Danielle Wagner, Philip Stevens, Heinz Huber, Antonios Tasoglou, Brandon E. Boor, *Purdue University*

9IS.16

Real Time Observations of Indoor Third Hand Smoke Emissions Transported into Non-smoking Environments via Humans.

ROGER SHEU, Jenna Ditto, Christof Stönner, Thomas Klüpfel, Jonathan Williams, Drew Gentner, *Yale University*

9IS.17

Characteristics of Secondhand Marijuana Smoke: PM2.5 Calibration Factors and Emission Strengths.

TONGKE ZHAO, Kai-Chung Cheng, Wayne Ott, Lance Wallace, Lynn M. Hildemann, *Stanford University*

9IS.18

Heterogeneous Ozonolysis of THC and Nicotine.

AARON WYLIE, Christopher Lim, Jonathan Abbatt, *University of Toronto, Canada*

9IS.19

Characterizing Emissions from Heating Simulated Cannabis Extracts.

XIAOCHEN TANG, Lucia Cancelada, Marion Russell, Marta Litter, Lara Gundel, Hugo Destaillats, *Lawrence Berkeley National Laboratory*

9IS.20

Volatilization and Partitioning of Residual Electronic Cigarette Vapor to Aerosols.

HENRY COLBY, Erin Katz, Anita Avery, Peter DeCarlo, *Drexel University*

9IS.21

Can You Breathe Me Now? Effect of Wood Stove Exchange Programs on IAQ.

MATTHEW SURVILO, Aurelie Laguerre, Everett Stilley, Elliott Gall, *Portland State University*

9IS.22

Observations of Semi-volatile Siloxane Partitioning to Airborne Particles during Oven Use at Homechem.

ERIN KATZ, David Lunderberg, William Nazaroff, Allen Goldstein, Peter DeCarlo, *Drexel University*

9IS.23

An Overview of Aerosol Sources and Chemistry from the Homechem Field Campaign.

ERIN KATZ, Peter DeCarlo, Atila Novoselac, Jose-Luis Jimenez, Wyatt Brown, Rachel O'Brien, Delphine K. Farmer, Marina Vance, *Drexel University*

9IS.24

Indoor Particle Transformation Processes Due to Candle Burning.

Su-Gwang Jeong, Lance Wallace, DONGHYUN RIM, *Pennsylvania State University*

9IS.25

Developing a Volatility Basis Set for Indoor Cooking Aerosol Stirfry Emissions During the HOMEChem Study.

MATSON A. POTHIER, Erin K. Boedicker, Jose-Luis Jimenez, Jeffrey R. Pierce, Delphine K. Farmer, *Colorado State University*

9NM NANOPARTICLES AND MATERIALS SYNTHESIS II

EXHIBIT HALL A

9NM.1

Electrically Conducting, Near Bulk Density, Micrometer Thick Metal Coatings through Room Temperature Supersonic Aerosol Deposition.

YENSIL PARK, Souvik Ghosh, Christopher Hogan Jr., *University of Minnesota*

9NM.2

Steady Uniform Production of Ultrasmall Particles via Tandem Electrostatic System for Precise Antimicrobial Activities.

DAE HOON PARK, Jungho Hwang, Jeong Hoon Byeon, *Yonsei University, Korea*

9NM.3

Design of Dispersal System for Dust Detonation.

SHUSIL SIGDEL, Justin Wright, Stephen Corkill, Aravind Suresh, Christopher Sorensen, *Kansas State University*

9NM.4

Characteristics of Graphene Produced via Detonation Synthesis.

JUSTIN WRIGHT, Shusil Sigdel, Stephen Corkill, Arjun Nepal, Stefan Bossmann, Christopher Sorensen, *Kansas State University*

Thursday 1:45 PM - 3:00 PM

Session 10: Platform

10AC AEROSOL CHEMISTRY VIII: NOVEL TECHNIQUES TO STUDY AEROSOL CHEMISTRY

OREGON BALLROOM

Ryan Davis and **Jenna Ditto,** chairs

10AC.1 | 1:45

Investigation of Secondary Organic Aerosol Formation by a Filter-Based Thermal Desorption System (F-TDIS).

YUANLONG HUANG, Christopher Kenseth, John Seinfeld, *California Institute of Technology*

10AC.2 | 2:00

Probing Reaction Rates in Single Aerosol Droplets Using a Branched Quadrupole Trap.

GRAZIA ROVELLI, Michael Jacobs, Kevin Wilson, *Lawrence Berkeley National Laboratory*

10AC.3 | 2:15

Influence of Evaporation Rate and Suspended Solid Concentration on Dry Particle Formation from Evaporating Aerosol Microdroplets.

JUSTICE ARCHER, Florence Gregson, Daniel Hardy, Jim Walker, Rachael E.H. Miles, Jonathan P. Reid, *University of Bristol*

10AC.4 | 2:30

In Situ pH Measurements of Individual Microdroplets Using Aerosol Optical Tweezers to Study the Interplay between Acidity, Phase Separation, Morphology, and Reactivity.

Hallie Boyer, Kyle Gorkowski, RYAN SULLIVAN, *Carnegie Mellon University*

10AC.5 | 2:45

Electrospray Surface-enhanced Raman Spectroscopy (ES-SERS) for Studying Organic Coatings of Atmospheric Aerosol Particles.

Masao Gen, Ryota Kunihisa, Atsushi Matsuki, CHAK K. CHAN, *City University of Hong Kong*

10AS SYMPOSIUM: AIR QUALITY SENSORS: LOW-COST != LOW COMPLEXITY II: GLOBAL AQ SENSING

ROOM B 115-116

Kirsten Koehler and **Naomi Zimmerman,** chairs

10AS.1 | 1:45

Enabling Continuous Air Quality Measurements in Cap Haitien, Haiti – from Household Combustion to Open Burning to Political Protests.

AUDREY DANG, Eben Cross, Jay R. Turner, Brent Williams, *Washington University in St. Louis*

10AS.2 | 2:00

Development of a Low-cost Air Pollution Monitoring Network in Kinshasa, Democratic Republic of the Congo.

Daniel Westervelt, Anant Majumdar, R. SUBRAMANIAN, Carl Malings, Dovas Saulys, *Columbia University*

10AS.3 | 2:15

Low Cost, High Quality Sensors for Measuring Particle Mass and Size Distribution in a Megacity Delhi.

JAI PRAKASH, Shruti Choudhray, Ramesh Raliya, Tandeep Chadha, Jiaxi Fang, Pratim Biswas, *Washington University in St. Louis*

10AS.4 | 2:30

Integrating Multi-source (Satellite Retrieval, Model Simulation, Ground Based Monitoring) and Low-cost Sensor Particulate Mass Data to Improve Spatio-temporal Air Quality Mapping.

CARL MALINGS, Matthias Beekmann, Daniel Westervelt, Albert A. Presto, R. Subramanian, *LISA*

10AS.5 | 2:45

Gas and Particle Observations from Sensor Packages Deployed in Rural Malawi and a Near-Road Monitoring Location in North Carolina.

ASHLEY BITTNER, Eben Cross, Carl Malings, Eric Lipsky, Andrew Grieshop, *North Carolina State University*

10BA BIOAEROSOLS II

ROOM B 113-114

Shanna Ratnesar–Shumate and **Anne Perring,** chairs

10BA.1 | 1:45

Ultraviolet Irradiation and Gaseous Iodine Treatments against Viable Bacterial and Fungal Spores Deposited on Air Filters.

SERGEY A. GRINSHPUN, Worrawit Nakpan, Michael Yermakov, Reshmi Indugula, Tiina Reponen, *University of Cincinnati*

10BA.2 | 2:00

Controlled Spore Aerosol Experiments: Radiation Exposure Dependence.

Cathy S. Scotto, Matthew B. Hart, Jozsef Czege, JAY D. EVERSOLE, Steven Hill, Dan Mackowski, Jana Kesavan, Vipin Rastogi, *Naval Research Laboratory*

10BA.3 | 2:15

Explaining the U-shaped Pattern in the Viability of Airborne Viruses vs. Relative Humidity.

KAISEN LIN, Linsey Marr, *Virginia Tech*

10BA.4 | 2:30

Quantifying the Relationship between Physicochemical Properties and Biological Decay in Populations of Bioaerosol Droplets.

MARA OTERO-FERNANDEZ, Allen E. Haddrell, Richard Thomas, Henry Oswin, Jonathan P. Reid, *University of Bristol*

10BA.5 | 2:45

The Influence of Simulated Sunlight and Relative Humidity on the Inactivation of Influenza Virus in Aerosols.

MICHAEL SCHUIT, Sierra Gardner, Paul Dabisch, *BNBI / DHS NBACC*

10CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE II

ROOM B 117-119

Coty Jen and **Benjamin Murphy,** chairs

10CA.1 | 1:45

Physical Properties of Internally Mixed Soot Particles during the Carbonaceous Aerosols and Radiative Effects Study in California.

Noopur Sharma, Swarup China, Janarjan Bhandari, Kyle Gorkowski, Manvendra Dubey, Rahul Zaveri, CLAUDIO MAZZOLENI, *Michigan Technological University*

10CA.2 | 2:00

Changes of Black Carbon Sources in Beijing with Three-Year Continuous Measurements.

YUE LIU, Yazhen Wu, Caiqing Yan, Tony Hansen, Mei Zheng, *Peking University*

10CA.3 | 2:15

Influences of Primary Emission and Secondary Coating Formation on the Particle Diversity and Mixing State of Black Carbon Particles.

ALEX LEE, Laura-Helena Rivellini, Chia-Li Chen, Jun Liu, Derek Price, Raghu Betha, Lynn Russell, Xiaolu Zhang, Christopher Cappa, *National University of Singapore*

10CA.4 | 2:30

Long-Term Trends in Chemical Composition of PM2.5 in the South Coast Air Basin: A Focus on Time-integrated and Continuous Carbon Measurements.

FARAZ ENAYATI AHANGAR, Sina Hasheminassab, Payam Pakbin, Andrea Polidori, Aaron Katzenstein, Jason Low, *South Coast Air Quality Management District*

10CA.5 | 2:45

Chemical Composition of PM2.5 in Zion, IL during the 2017 Lake Michigan Ozone Study (LMOS).

DAGEN HUGHES, Alissia Milani, Megan Christiansen, Dylan Millet, Timothy Bertram, Charles Stanier, Elizabeth Stone, *University of Iowa*

10CO COMBUSTION II

ROOM A 106
Steve Rogak and **Prem Lobo,** chairs

10CO.1 | 1:45

Effect of Sodium Chloride on the Evolution of Size and Mixing State of Soot Particles from a Sooting Laminar Diffusion Flame.

MOHSEN KAZEMIMANESH, Chen Kuang, Larry W. Kostiuk, Jason S. Olfert, *University of Alberta*

10CO.2 | 2:00

On Generating Sub-100-nm Soot Particles with the Argonaut Miniature Inverted Soot Generator.

JOEL CORBIN, Senaratne Amrith, Jason S. Olfert, Gregory Smallwood, Stephanie Gagne, Fengshan Liu, Prem Lobo, *National Research Council Canada*

10CO.3 | 2:15

Measuring Nanometric Carbonaceous Materials from a Sooting Ethylene Premixed Flame with the Particle Size Magnifier.

FRANCESCO CARBONE, Kevin Gleason, Juha Kangasluoma, Michel Attoui, Joonas Vanhanen, Alessandro Gomez, *Yale University*

10CO.4 | 2:30

Investigating the Distribution of Mass and Mobility Diameter of Lab-Scale, Flare-Generated Soot Using Tandem CPMA-SMPS Measurements.

TIMOTHY SIPKENS, Mohsen Kazemimanesh, Melina Jefferson, Matthew Johnson, Jason S. Olfert, Steven Rogak, *University of British Columbia*

10CO.5 | 2:45

Role Played by Charge in the Early Stages of Particle Formation and Growth of Titania and Soot Nanoparticles in High Temperature Flame Environment.

GIRISH SHARMA, Mengda Wang, Huang Zhang, Xiaoqing You, Pratim Biswas, *Washington University in St Louis*

10IS SYMPOSIUM: THE AIR WE BREATHE: INDOOR AEROSOL SOURCES AND CHEMISTRY II

ROOM B 110-112

Rachel O'Brien and **Sameer Patel,** chairs

10IS.1 | 1:45

Indoor New Particle Formation: An "Outsider's" Perspective.

JAMES SMITH, Michael J. Lawler, Danielle C. Draper, Sabrina Chee, Hayley Glicker, Xiaoxiao Li, *University of California, Irvine*

10IS.2 | 2:00

Indoor Measurements of Nanocluster Aerosols and New Particle Formation.

TIANREN WU, Philip Stevens, Heinz Huber, Antonios Tasoglou, Brandon E. Boor, *Purdue University*

10IS.3 | 2:15

Environmental Microbes and Ambient Moisture: How Microbes Contribute to the Chemistry of Our Homes.

RACHEL I. ADAMS, Sarah Haines, Katarzyna Marciniak, Karen C. Dannemiller, Allen Goldstein, Pawel Misztal, *University of California, Berkeley*

10IS.4 | 2:30

Aerosol Particles from Human Speech as a Possible Vector for Airborne Infectious Disease Transmission.

SIMA ASADI, Anthony S. Wexler, Christopher Cappa, Santiago Barreda, Nicole M. Bouvier, William D. Ristenpart, *University of California, Davis*

10IS.5 | 2:45

Resuspension of Particles Deposited from Consumer Nanosprays: The Effect of Surface Type, Resuspending Force, and Sampling Height.

RUIKANG HE, Jie Zhang, Gediminas Mainelis, Rutgers, *The State University of New Jersey*

Thursday 3:00 PM - 3:30 PM

Coffee Break

Thursday 3:30 PM - 5:00 PM

Session 11: Platform

11AC AEROSOL CHEMISTRY IX: ORGANIC NITROGEN

OREGON BALLROOM

Tran Nguyen and **Sergey Nizkorodov,** chairs

11AC.1 | 3:30

Overview of the ACMCC Particulate Organonitrates (pON) Experiment.

ALEXANDRE ALBINET, Jean-Eudes Petit, Andrew Lambe, Athina-Cerise Kalogridis, Liine Heikkinen, Frans Graeffe, Manuela Cirtog, Anaïs Féron, James Allan, Zainab Bibi, Tanguy Amodeo, Nicolas Karoski, Robin Aujay-Plouzeau, Laurent Meunier, Valerie Gros, Nicolas Bonnaire, Roland Sarda-Esteve, Mikael Ehn, Tuija Jokinen, Minna Aurela, Cristina Marin, Evelyn Freney, Leah Williams, Olivier Favez, et al., *INERIS, France*

11AC.2 | 3:45

Volatility of Atmospheric Organic Nitrate Formed from Hydroxyl and Nitrate Radical Oxidation of α-Pinene and β-Pinene.

MASAYUKI TAKEUCHI, Justin Min, Rodney J. Weber, Nga Lee Ng, *Georgia Institute of Technology*

11AC.3 | 4:00

Organic Nitrate and Secondary Organic Aerosol Formation from the Reaction of Alpha-Pinene and Nitrate Radical under Simulated Ambient Conditions.

GUY BURKE, Yichen Li, Tran Nguyen, *UC Davis*

11AC.4 | 4:15

Experimental Investigation of the Gas- and Particle-Phase Products and Mechanism of Reaction of Δ-3-Carene with NO3 Radicals.

MARLA DEVAULT, Paul Ziemann, *University of Colorado*

11AC.5 | 4:30

A Laboratory and Modeling Investigation on the Effects of Amine Uptake on SOA Composition and Its Potential Impacts on Air Quality.

JULIA MONTOYA-AGUILERA, Natalie Smith, Shupeng Zhu, Donald Dabdub, Sergey Nizkorodov, *University of California, Irvine*

11AC.6 | 4:45

Observed Particle Phase Chemistry Deviates from Brown Carbon Formation in Bulk Solutions.

HENSLEY JACK, Adam Birdsall, Valtierra Gregory, Frank Keutsch, *Harvard University*

11AS SYMPOSIUM: AIR QUALITY SENSORS: LOW-COST != LOW COMPLEXITY III: INFORMING EXPOSURE

ROOM B 115-116

Audrey Dang and **David Hagan,** chairs

11AS.1 | 3:30

Estimating Personal Exposures from a Multi-Hazard Sensor Network.

KIRSTEN KOEHLER, Christopher Zuidema, Larissa Stebounova, Sinan Sousan, Alyson Gray, Oliver Stroh, Geb Thomas, Thomas Peters, *Johns Hopkins Bloomberg School of Public Health*

11AS.2 | 3:45

Big Data and Air Quality: Using Twitter Data for Air Quality Monitoring.

Supraja Gurajala, SURESH DHANIYALA, *SUNY Potsdam, NY*

11AS.3 | 4:00

Low-cost Sensor Packages in Parking Garages to Determine Emission Factors and Assess the Relative Importance of Cold Start Operation on Air Quality.

BINGQI LIU, Katia Cantu Flores, Sakshi Jain, Mrinmoy Chakraborty, Naomi Zimmerman, *University of British Columbia*

11AS.4 | 4:15

Integrating Low-cost Sensor Networks with Fixed and Satellite Monitoring Systems for Enhanced Accuracy, Reliability, and Applicability.

JIAYU LI, Huang Zhang, Chun-Ying Chao, Chih-Hsiang Chien, Chang Yu Wu, Cyuan-Heng Luo, Ling-Jyh Chen, Pratim Biswas, *Washington University in St Louis*

11AS.5 | 4:30

Improving the Performance of Low-Cost Optical Particle Counters with Machine Learning: Applications for Indoor Aerosol Measurements.

Satya Sundar Patra, RISHABH RAMSISARIA, Ruihang Du, Tianren Wu, Brandon E. Boor, *Purdue University*

11AS.6 | 4:45

Community-owned Air Quality Monitoring in East Boston, MA: An Integrated Approach to Air Health.

SCOTT HERSEY, Eben Cross, David Hagan, Jared Briskman, Lacie Fradet, Lauren Gulland, Isabel Harrison, Jonathan Jacobs, Linnea Laux, Samuel Myers, Louise Nielsen, Taylor Sheneman, Katerina Soltan, Jonah Spear, *Franklin W. Olin College of Engineering*

11BA BIOAEROSOLS III

ROOM B 113-114

Doug Reed and **Justin Taylor,** chairs

11BA.1 | 3:30

Characterization of M. Tuberculosis Lipids in Exhaled TB Bio-aerosols.

Robin Wood, Dapeng Chen, Wayne Bryden, CHARLES CALL, *Desmond Tutu HIV Research Centre, University of Cape Town*

11BA.2 | 3:45

Aerosolization-Based Techniques to Synthesize Pulmonary Drug Carrier Microparticles for Tuberculosis Therapy.

CHETHANI ATHUKORALA, Hema Ravindran, Shantanu Sur, Suresh Dhaniyala, *Clarkson University*

11BA.3 | 4:00

Bioaerosol Viability and Particle Dynamics of Aerosolized BCG Vaccine Using Jet and Clinical Nebulizers.

Rachel Redmann, Deepak Kaushal, Philip Kuehl, CHAD ROY, *Tulane University*

11BA.4 | 4:15

Modelling the Transport of Infectious Aerosols in Containment Patient Care Settings Using DNA-tagged Microspheres.

JOSHUA SANTARPIA, Danielle Rivera, Kevin Crown, Sean Kinahan, John Lowe, Jocelyn Herstein, *University of Nebraska Medical Center*

11BA.5 | 4:30

Exhaled Breath Aerosol Collection Methods.

CHARLES CALL, Wayne Bryden, Dapeng Chen, Robin Wood, *Zeteo Tech*

11BA.6 | 4:45

Non-invasive Measurement of Viral Load in Distal-Airway Lining Fluid through Characterization and Collection of Exhaled Breath Aerosols.

SOMAYEH YOUSSEFI, Jennifer German, Donald Milton, *University of Maryland School of Public Health*

11CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE III

ROOM B 117-119

Alexandra Boris and **Elizabeth Wiggins,** chairs

11CA.1 | 3:30

Experimental Evidence of the Lensing Effect Suppression for Atmospheric Black Carbon Containing Brown Coatings.

VAIOS MOSCHOS, Robin Modini, Joel Corbin, Dario Massabò, Silvia G. Danelli, Camilla Costa, Athanasia Vlachou, Kaspar Daellenbach, Paolo Prati, Martin Gysel, Andre S.H. Prévôt, Urs Baltensperger, Imad El Haddad, *Paul Scherrer Institute*

11CA.2 | 3:45

Evolution of the Light-absorption Properties of Brown Polycyclic Aromatic Hydrocarbons Due to Reaction with Nitrate Radicals.

ZEZHEN CHENG, Khairallah Atwi, Anita Avery, Manjula Canagaratna, Philip Croteau, Edward Fortner, Jordan Krechmer, Francesca Majluf, Leah Williams, Zhenhong Yu, Douglas Worsnop, Andrew Lambe, Rawad Saleh, *University of Georgia*

11CA.3 | 4:00

Evaluation of the Density and Absorption Properties of Laboratory-Generated Particulate Organic Nitrates (pON).

JEAN-EUDES PETIT, Alexandre Albinet, Andrew Lambe, Athina-Cerise Kalogridis, Liine Heikkinen, Frans Graeffe, Manuela Cirtog, Anaïs Féron, James Allan, Zainab Bibi, Tanguy Amodeo, Nicolas Karoski, Robin Aujay-Plouzeau, Laurent Meunier, Valerie Gros, Nicolas Bonnaire, Roland Sarda-Esteve, Francois Truong, Mikael Ehn, Tuija Jokinen, Minna Aurela, Evelyn Freney, Leah Williams, Olivier Favez, et al., *LSCE*

11CA.4 | 4:15

Browning of Brown Carbon Aerosol via Nocturnal NO3 Radical Oxidation.

CHUNLIN LI, Quanfu He, Yinon Rudich, *Weizmann Institute of Science*

11CA.5 | 4:30

Regional Climate and Air Quality Impacts of Particulate Emissions from Gasoline Direct-Injection (GDI) Vehicles.

SOROUSH ESMAEILI NEYESTANI, Gabriel Kooperman, Rawad Saleh, *University of Georgia*

11CA.6 | 4:45

Seasonal Variations in Aerosol Emissions from Light- and Heavy-Duty Vehicles in the Fort McHenry Tunnel.

ANDREY KHLYSTOV, David Campbell, *Desert Research Institute*

11CO COMBUSTION III

ROOM A 106

Chelsea Preble and **Albert Presto,** chairs

11CO.1 | 3:30

It's Not All about Mass: Changes in Particle Number and Composition from Light Duty Vehicle Engine Combustion through the Use of Gasoline Particle Filters.

REBECCA TANZER, Stani Bohac, Albert A. Presto, *Carnegie Mellon University*

11CO.2 | 3:45

Exploring the Secondary Organic Aerosol Formation Potential and Subsequent Secondary Trends from Gasoline Direct Injection Vehicles with Varying Experimental Conditions.

PATRICK ROTH, David R. Cocker III, Georgios Karavalakis, Akua Asa-Awuku, *TSI Incorporated*

11CO.3 | 4:00

Characterizing In-Use Commercial Harbor Craft Emissions.

CHELSEA V. PREBLE, Rebecca Sugrue, Hannah Schlaerth, George Ban-Weiss, Thomas W. Kirchstetter, *University of California, Berkeley*

11CO.4 | 4:15

Impacts of Switching from Diesel to Liquefied Natural Gas (LNG) for A Marine Vessel.

WEIHAN PENG, Jiacheng Yang, Joel Corbin, Qi Li, Una Trivanovic, Steven Rogak, Prem Lobo, Patrick Kirchen, Stephanie Gagne, David R. Cocker III, Wayne Miller, *University of California, Riverside*

11CO.5 | 4:30

Uncertainty in Thermal-Optical Analysis for Elemental Carbon from Aircraft Engine Exhaust.

GREGORY SMALLWOOD, Stephanie Gagne, Brett Smith, Joel Corbin, Benjamin Brem, Andrea Fischer, Lukas Durdina, Prem Lobo, *National Research Council Canada*

11CO.6 | 4:45

Particle Emissions from In-use Commercial Aircrafts Observed at the Narita International Airport.

NOBUYUKI TAKEGAWA, Kentaro Misawa, Akihiro Fushimi, Yoshiko Murashima, Hiromu Sakurai, *Tokyo Metropolitan University*

11IS SYMPOSIUM: THE AIR WE BREATHE: INDOOR AEROSOL SOURCES AND CHEMISTRY III

ROOM B 110-112

Rachel Adams and **Christopher Lim,** chairs

11IS.1 | 3:30

Secondary Aerosol Mass Contributions from Human Occupants in a Classroom.

ANITA AVERY, Michael Waring, Peter DeCarlo, *Drexel University*

11IS.2 | 3:45

Post-Wildfire Assessment of Indoor Dust Composition in Canadian Homes.

JUSTIN H. DINGLE, Lukas Kohl, Meng Meng, Yue Shi, Arthur W. H. Chan, *University of Toronto*

11IS.3 | 4:00

The CHEER Study: It's a Complicated Association between Home Infiltration Rates and Respiratory Health.

SHELLY MILLER, Jamie Humphrey, Prateek Shrestha, John Adgate, Elizabeth Carlton, Elisabeth Root, *University of Colorado Boulder*

11IS.4 | 4:15

Outside-In and Other Sources of Aerosols in the Indoor Environment.

PETER DECARLO, Anita Avery, Erin Katz, Michael Waring, Marina Vance, Delphine K. Farmer, *Drexel University*

11IS.5 | 4:30

Spatial Distribution of Indoor Aerosol during HOMEChem Cooking Events.

ERIN K. BOEDICKER, Delphine K. Farmer, Marina Vance, *Colorado State University*

11IS.6 | 4:45

Insights on Aerosol Emissions during HOMEChem.

SAMEER PATEL, Sumit Sankhyan, Yilin Tian, Allen Goldstein, Delphine K. Farmer, Marina Vance, *University of Colorado Boulder*

Friday 8:00 AM - 9:15 AM

OCTOBER 18, 2019

Plenary IV

8:00

AEESP Lecture: This is Getting Dynamic: How the Volatility Basis Set Informs Particle Formation and Growth

Neil Donahue, *Carnegie Mellon University*
Moderator **Jesse Kroll,** *Massachusetts Institute of Technology*

9:00

Student Poster Competition Awards Presentation and Fine Particle Art Prizes

Shunsuke Nakao, *Clarkson University*
Marit Meyer, *NASA*

9:10

Concluding Remarks and Preview for 2020

Nga Lee "Sally" Ng and **Matti Maricq,** *Georgia Institute of Technology and Ford Motor Company*

Friday 9:15 AM - 9:45 AM

Coffee Break

Friday 9:45 AM - 11:00 AM

Session 12: Platform

12AC AEROSOL CHEMISTRY X: ATMOSPHERIC SULFUR REACTIONS

OREGON BALLROOM

Sara Lance and **Paul Van Rooy,** chairs

12AC.1 | 9:45

Sulfate Formation from SO2 Uptake onto Organic Aerosol.

Shunyao Wang, William Tsui, V. Faye McNeill, Jonathan Abbatt, ARTHUR W. H. CHAN, *University of Toronto*

12AC.2 | 10:00

Moving Beyond the Bulk Phase: Kinetics of SO2 Oxidation in Sub-Micron, Deliquesced Aerosol Particles.

TENGYU LIU, Jonathan Abbatt, *University of Toronto, Canada*

12AC.3 | 10:15

Mechanisms and Compounds in Atmospheric Acid-Base Particle Formation.

NANNA MYLLYS, Tinja Olenius, Sabrina Chee, James Smith, *University of California, Irvine*

12AC.4 | 10:30

Oxidation of Reduced Sulfurs and Amines: Characterization and Mechanism Development.

PAUL VAN ROOY, Kathleen Purvis-Roberts, Philip Silva, Matthew Nee, David R. Cocker III, *University of California, Riverside*

12AC.5 | 10:45

Missing Source of Atmospheric Sulfate Formation in Wintertime Beijing Haze: Linking SO2 Oxidation and HONO Chemistry.

JUNFENG WANG, Jingyi Li, Jian Zhao, Jianhuai Ye, Xinlei Ge, Yiming Qin, Pengfei Liu, Shaojie Song, Hong Liao, Mindong Chen, Yele Sun, Qi Zhang, Scot T. Martin, Daniel Jacob, *Harvard University*

12AP AEROSOL PHYSICS III

ROOM A 106

Hans Moosmuller and **Matt Berg,** chairs

12AP.1 | 9:45

Monte Carlo Simulations Of Particle Formation Processes.

GREGOR KOTALCZYK, Ivan Skenderović, Frank Einar Kruis, *University Duisburg-Essen*

12AP.2 | 10:00

Modeling Smog Chamber Experiments: Forward and Inverse.

NASER G. A. MAHFOUZ, Neil Donahue, *Carnegie Mellon University*

12AP.3 | 10:15

Latent Heat for Condensation and Coagulation During Nanocluster Growth.

HUAN YANG, Yannis Drossinos, Christopher Hogan Jr., *University of Minnesota*

12AP.4 | 10:30

Determination of Gas Phase Ion Structures of Locally Polar Homopolymers through High Resolution Ion Mobility Spectrometry-Mass Spectrometry.

CARLOS LARRIBA-ANDALUZ, Xi Chen, *IUPUI*

12AP.5 | 10:45

Characterization of the Particle Wall Loss in the UCR Collapsible FEP-Teflon Chamber.

CHEN LE, Don Collins, David R. Cocker III, *University of California, Riverside*

12AS SYMPOSIUM: AIR QUALITY SENSORS: LOW-COST != LOW COMPLEXITY IV: SENSOR FUNDAMENTALS

ROOM B 115-116

Rebecca Sugrue and **Andrew Metcalf,** chairs

12AS.1 | 9:45

Variability Between High Time-Resolution PM Data from Regulatory Instruments: Implications for Low-cost Sensor Evaluations.

KAROLINE BARKJOHN, Ian VonWald, Joann Rice, Robert Vanderpool, Tim Hanley, Andrea Clements, *U.S. EPA Office of Research and Development*

12AS.2 | 10:00

Assessing the Accuracy and Reliability of Low-cost Particle Sensors for Quantifying Fine Particulate Matter.

DAVID HAGAN, Eben Cross, Timothy Onasch, John Jayne, Douglas Worsnop, Jesse Kroll, *MIT*

12AS.3 | 10:15

Characteristics of Ambient Ultrafine Particles Using a Combination of Low-Cost Sensors: Size Distributions and Volatility.

MOLLY J. HAUGEN, Robert T. Nishida, Tyler T. Johnson, Anna K. Schroeder, Josh Hassim, Marc E.J. Stettler, Simone Hochgreb, Adam M Boies, *University of Cambridge*

12AS.4 | 10:30

Ground- and Aerial-Based Platforms to Measure Aerosol Size Distributions: Spatiotemporal Variability, Vertical Profiles, and Near Source Sampling.

SHANTANU JATHAR, Liam Lewane, Dylan Giardina, Shiva Tarun, Joshua Weller, Alex Lieberman, Kepler Worobec, Vance Payne, Tim Gordon, Gavin McMeeking, *Colorado State University*

12AS.5 | 10:45

Six Years of Human and Machine Learning about Electrochemical Sensors.

EBEN CROSS, David Hagan, Leah Williams, Douglas Worsnop, Jesse Kroll, John Jayne, *Aerodyne Research, Inc.*

12BA BIOAEROSOLS IV

ROOM B 113-114

Susannah Burrows and **Tianren Wu,** chairs

12BA.1 | 9:45

Microbes Thrive in Clouds and Interact with Physico-chemical Processes: From Field Observations to Atmospheric Models.

PIERRE AMATO, Barbara Ervens, Raphaelle Peguilhan, Laurent Deguillaume, Anne-Marie Delort, *ICCF, CNRS, Clermont Auvergne Université*

12BA.2 | 10:00

Real-time Monitoring and Modelling of Bioaerosols in Dublin, Ireland.

Jose Manzano, Eoin McGillicuddy, Gavin Sewell, Paul Dowding, Matt Smith, Roland Sandra-Esteve, Dominique Baisnee, John Sodeau, DAVID O'CONNOR, *Technological University Dublin*

12BA.3 | 10:15

Effect of Season and Environmental Parameters on Assemblages of Airborne Bacteria and Fungi in Mexico City.

GEDIMINAS MAINELIS, Valdis Krumins, M. Hernandez, Jose Angeles, Victor Paramo-Figueroa, Martha Torres, Stephan Schwander, Rutgers, *The State University of New Jersey*

12BA.4 | 10:30

Complex Organic Particles from Terrestrial Sources as Ice Nucleators – More Than a Sum of Their Parts?

ISABELLE STEINKE, Naruki Hiranuma, Ottmar Möhler, Susannah Burrows, *Pacific Northwest National Laboratory*

12BA.5 | 10:45

Pollen Collection Campaign: Clustering and Classification Applications Utilizing a High-Spectral Resolution UV-LIF Instrument.

BENJAMIN E. SWANSON, Samir Rezgui, J. Alex Huffman, *University of Denver, CO*

12CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE IV

ROOM B 117-119

Joseph Woo and **Yunle Chen,** chairs

12CA.1 | 9:45

Spatio-temporal Trends and Source Apportionment of PM2.5 Organic Carbon Thermal Fractions (OCx) across the Los Angeles Basin.

EHSAN SOLEIMANIAN, Amirhosein Mousavi, Sina Taghvaee, Mohammad Sowlat, Sina Hasheminassab, Andrea Polidori, Constantinos Sioutas, *University of Southern California*

12CA.2 | 10:00

Biases in Quantifying Light Absorption Enhancement for Coated Black Carbon Aerosol Using a Thermodenuder.

NISHIT SHETTY, Apoorva Pandey, Wei Min Hao, Stephen Baker, Rajan K. Chakrabarty, *Washington University in St. Louis*

12CA.3 | 10:15

Development of a Universal Correction Algorithm for Filter-Based Absorption Photometers.

HANYANG LI, Gavin McMeeking, Andrew May, *The Ohio State University*

12CA.4 | 10:30

Prediction of Black Carbon Mass Absorption Cross Section: Effects of Particle Morphology and Refractive Index.

FENGSHAN LIU, Jerome Yon, Andrés Fuentes, Joel Corbin, Prem Lobo, Gregory Smallwood, *National Research Council Canada*

12CA.5 | 10:45

Quantifying the Thickness of Volatile Particle Coatings.

OGOCHUKWU ENEKWIZU, Ali Hasani, Mary McGuinness, Alexei Khalizov, *New Jersey Institute of Technology*

12IS SYMPOSIUM: THE AIR WE BREATHE: INDOOR AEROSOL SOURCES AND CHEMISTRY IV

ROOM B 110-112

Andy Ault and **Erin Katz,** chairs

12IS.1 | 9:45

Modeling Indoor Surface Chemistry Using Kinetic Multilayer Models.

Pascale Lakey, Glenn Morrison, James Mattila, Youngbo Won, Krista Parry, Michael von Domaros, Douglas Tobias, Donghyun Rim, Jonathan Abbatt, Delphine K. Farmer, MANABU SHIRAIWA, *University of California, Irvine*

12IS.2 | 10:00

Multiphase Reaction Mechanisms of Criegee Intermediates in Indoor Environments.

KEVIN WILSON, *Lawrence Berkeley National Laboratory*

12IS.3 | 10:15

Formation of Isocyanic Acid from the Heterogeneous Ozonolysis of Tobacco Smoke Deposited onto Indoor Surfaces.

CHRISTOPHER LIM, Jonathan Abbatt, *University of Toronto, Canada*

12IS.4 | 10:30

Change in Reactivity of Organic Aerosols toward Heterogeneous OH Oxidation over Reaction Time.

Man Mei Chim, Christopher Lim, Jesse Kroll, MAN NIN CHAN, *The Chinese University of Hong Kong*

12IS.5 | 10:45

Methods for the Quantification and Identification of Alkenes on Indoor Surfaces.

BENJAMIN DEMING, Paul Ziemann, *University of Colorado*

Friday 11:15 AM - 12:30 PM

Session 13: Platform

13AC AEROSOL CHEMISTRY XI: AEROSOL CHEMISTRY IN THE ATMOSPHERE

OREGON BALLROOM

Celia Faiola and **Yue Zhang,** chairs

13AC.1 | 11:15

A Diversity and Distribution of Organic Aerosol Functional Groups across Multiple Sites and Seasons.

JENNA DITTO, Taekyu Joo, Jonathan Slade, Paul Shepson, Nga Lee Ng, Drew Gentner, *Yale University*

13AC.2 | 11:30

Characterization of Organics in Cloud Water: Measurements from the Present Day and from Decades Past.

SARA LANCE, Christopher Lawrence, Jie Zhang, Qi Zhang, Liaquat Husain, Dan Kelting, Elizabeth Yerger, Hunter Favreau, James Schwab, Paul Casson, Richard Brandt, *University at Albany, SUNY*

13AC.3 | 11:45

Linking Organic and Sulfate Concentrations to the Annual Phytoplankton Bloom Cycle in the North Atlantic.

GEORGES SALIBA, Chia-Li Chen, Savannah Lewis, Lynn Russell, Derek Coffman, Patricia Quinn, Lucia Upchurch, Timothy Bates, Michael Behrenfeld, *Scripps Institution of Oceanography*

13AC.4 | 12:00

The Role of Highly Oxygenated Dimers in the Formation of New Particles in the Atmosphere.

MATTHIEU RIVA, Liine Heikkinen, Markus Lampimaki, Janne Lampilahti, Haiyan Li, Federico Bianchi, Otso Peräkyla, Pekka Rantala, Xinke Wang, Chrisitan George, Pierr Flaud, Eric Villenave, Emilie Perraudin, Mikael Ehn, Jonathan Duplissy, *University of Helsinki*

13AC.5 | 12:15

Urban Pollution Greatly Enhances Formation of Natural Aerosols over the Pristine Amazon.

MANISHKUMAR SHRIVASTAVA, Meinrat O. Andreae, Paulo Artaxo, Henrique Barbosa, Larry Berg, Joel Brito, Joseph Ching, Richard Easter, Jiwen Fan, Jerome Fast, Marianne Glasius, Allen Goldstein, Eliane Gomes, Helber Gomes, Dasa Gu, Alex Guenther, Shantanu Jathar, Saewung Kim, Sijia Lou, Scot T. Martin, Alla Zelenyuk, Rahul Zaveri, John Shilling, Joel A. Thornton, et al., *Pacific Northwest National Laboratory*

13AP AEROSOL PHYSICS IV

ROOM A 106

Justice Archer and **Chris Hogan,** chairs

13AP.1 | 11:15

Spherical Particle Absorption over a Broad Range of Imaginary Refractive Index.

CHRISTOPHER SORENSEN, Justin Maughan, Hans Moosmuller, *Kansas State University*

13AP.2 | 11:30

Estimating Uncertainties in Refractive Index Retrievals from Optical Closure Calculations using Full Aerosol Size Distributions.

ALEXANDER FRIE, Roya Bahreini, *University of California, Riverside*

13AP.3 | 11:45

Surface Tensions of Picoliter Droplets with Sub-Millisecond Surface Age.

BRYAN R. BZDEK, Rachael E.H. Miles, Michael Glerum, Hallie Boyer, Jim Walker, Jonathan P. Reid, Cari Dutcher, *University of Bristol*

13AP.4 | 12:00

Optical Properties and Q-space Study of Fractal-like Soot Aggregates from Coal Combustion Based on 3-D Electron Tomographic Reconstruction.

CHENCHONG ZHANG, William Heinson, Jingkun Jiang, Rajan K. Chakrabarty, *Washington University in St. Louis*

13AP.5 | 12:15

Aerodynamic Resuspension of RDX Trace Particles by Planar Impinging Air Jet.

KALYAN KOTTAPALLI, Harikrishnan Murali, Guanyu Song, Igor Novosselov, *University of Washington*

13AS SYMPOSIUM: AIR QUALITY SENSORS: LOW-COST != LOW COMPLEXITY V: SENSOR EVALUATION

ROOM B 115-116

Karoline Barkjohn and **Eben Cross,** chairs

13AS.1 | 11:15

Applicability of Different Type Particulate Matter Sensors to Urban Air Quality Measurements.

JOEL KUULA, Heino Kuuluvainen, Topi Rönkkö, Jarkko Niemi, Erkka Saukko, Harri Portin, Minna Aurela, Sanna Saarikoski, Rostedt Antti, Hilkka Timonen, *Finnish Meteorological Institute*

13AS.2 | 11:30

Evaluation of a New Low-Cost Particle Sensor as an IoT Device for Outdoor Particulate Matter Monitoring.

ANDREW METCALF, Christopher Post, John Pearce, Austin Green, Nilima Sarwar, Elena Mikhailova, Michael Cope, *Clemson University*

13AS.3 | 11:45

Evaluating Performance of High-, Mid-, and Low-cost Analyzers for Capturing Heavy-duty Diesel Truck Exhaust Plumes.

REBECCA SUGRUE, Chelsea V. Preble, Thomas W. Kirchstetter, *University of California, Berkeley*

13AS.4 | 12:00

Evaluation of Low-Cost PurpleAir Monitors and In-Field Correction Using Co-Located Portable Filter Samplers.

JESSICA TRYNER, Christian L'Orange, John Mehaffy, Dan Miller-Lionberg, Josephine Hofstetter, John Volckens, *Colorado State University*

13AS.5 | 12:15

Evaluation of Low-Cost Particulate Matter Sensors in a Test House.

JONATHAN GINGRICH, Sameer Patel, Elizabeth Graham, Erin K. Boedicker, Delphine K. Farmer, Richard Corsi, Marina Vance, *University of Colorado Boulder*

13BA BIOAEROSOLS V

ROOM B 113-114

David O'Connor and **Jennifer Therkorn,** chairs

13BA.1 | 11:15

Evaluation of Five Samplers to Determine Personal Bioaerosol Exposure in Indoor and Outdoor Environments.

NIRMALA THOMAS, Taewon Han, Hyeon-Ju Oh, Gediminas Mainelis, Rutgers, *The State University of New Jersey*

13BA.2 | 11:30

Development of Antimicrobial Resistance in Bioaerosols.

Gabriela Ramos, Brinda Venkateshaiah, Ryan Gerlich, Anish Jantrania, MARIA KING, *Texas A&M University*

13BA.3 | 11:45

Antibiotic Resistance Genes Distribution Analysis in Common Respiratory Pathogens.

MINFEI WANG, Maosheng Yao, *Peking University*

13BA.4 | 12:00

Quantitative Microbial Exposure Assessment of Aerosolized Enteric and Opportunistic Pathogens in La Paz, Bolivia: A One Health Approach to Study Bioaerosols in Cities with Poor Sanitation.

LUCAS ROCHA-MELOGNO, Olivia Ginn, Emily Bailey, Gregory Gray, Michael Bergin, Freddy Soria, Marcos Andrade, Joseph Brown, Marc Deshusses, *Duke University*

13BA.5 | 12:15

Biological Composition of Coastal Airborne Particulate Matters during Enteromorpha Prolifera Outbreak.

JIAHUI RONG, Song Yu, Yan Wu, *Shandong University*

13CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE V

ROOM B 117-119

Joel Corbin and **Alex Lee,** chairs

13CA.1 | 11:15

Chemical Evolution of Particulate and Gas-phase Emissions from Meat Cooking.

AIKATERINI LIANGOU, Spiro Jorga, Christos Kaltsonoudis, Antonios Tasoglou, Leif Jahn, Mingyi Wang, Spyros Pandis, Carnegie Mellon University, *University of Patras*

13CA.2 | 11:30

Laboratory Chamber Study on Organic Acids Production from Biogenic VOC Oxidation.

YUNLE CHEN, David Tanner, Greg Huey, Rodney J. Weber, Nga Lee Ng, *Georgia Institute of Technology*

13CA.3 | 11:45

Influence of Ammonia and Relative Humidity on the Optical Properties of Secondary Organic Aerosol Particles.

YUMENG CUI, Alexander Frie, Isis Frausto-Vicencio, Francesca Hopkins, Roya Bahreini, *University of California, Riverside*

13CA.4 | 12:00

Enhanced Ligand-Promoted Photochemical Reduction of Ferric Iron by Carbonaceous Nanoparticles.

Ashleen Reddy, ANNE JOHANSEN, *Central Washington University*

13CA.5 | 12:15

Ocean Biology Effects on Saccharide Composition in Sea Spray Aerosol.

ELIAS HASENECZ, Wyeth Gibson, Samantha Kruse, Jon Sauer, Kathryn Mayer, Chris Lee, Kimberly Prather, Elizabeth Stone, *University of Iowa*

13IS SYMPOSIUM: THE AIR WE BREATHE: INDOOR AEROSOL SOURCES AND CHEMISTRY V

ROOM B 110-112

Madeline Cooke and **Anita Avery,** chairs

13IS.1 | 11:15

Dynamic Equilibria of Volatile Chemicals between Indoor Surfaces and Indoor Air.

JONATHAN ABBATT, Douglas Collins, Chen Wang, *University of Toronto, Canada*

13IS.2 | 11:30

Influence of Gas-Phase and Heterogeneous OH Aging Reactions on Indoor Organic Aerosol Loading and SOA Formation.

Bryan Cummings, MICHAEL WARING, *Drexel University*

13IS.3 | 11:45

Investigation of Natural Ventilation and Household Activities during the Air Composition and Reactivity from Outdoor aNd Indoor Mixing (ACRONIM) Field Campaign.

CLAIRE FORTENBERRY, Michael Walker, Audrey Dang, Azin Eftekhari, Arun Loka, Gauri Date, Karolina Cysneiros de Carvalho, Glenn Morrison, Brent Williams, *Washington University in St Louis*

13IS.4 | 12:00

Indoor Abundance of Semivolatile Organic Compounds under Dynamic Aerosol Conditions.

DAVID LUNDERBERG, Kasper Kristensen, Yilin Tian, Caleb Arata, Yingjun Liu, Pawel Misztal, William Nazaroff, Allen Goldstein, *University of California, Berkeley*

13IS.5 | 12:15

Molecular Composition and Gas-Particle Partitioning of Indoor Cooking Aerosol: Insights from a FIGAERO-CIMS.

CATHERINE MASOUD, Dongyu S. Wang, Lea Hildebrandt Ruiz, *University of Texas at Austin*

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