

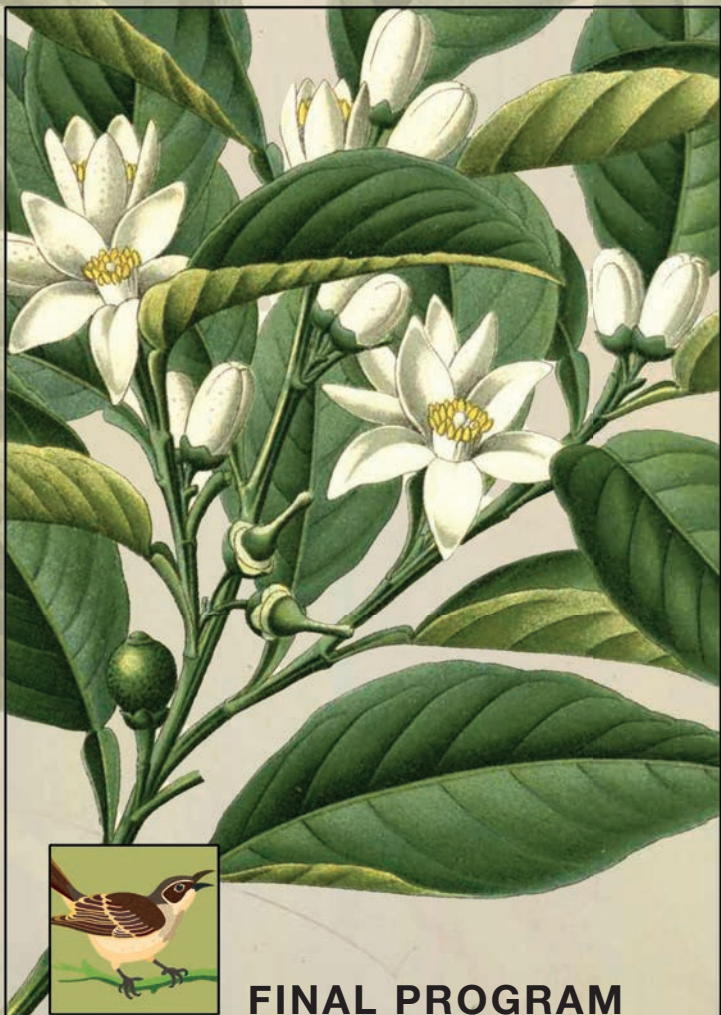


American Association
for Aerosol Research



33rd Annual CONFERENCE

Rosen Shingle Creek Resort
Orlando, Florida • October 20-24, 2014



FINAL PROGRAM

Measuring
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Learn more

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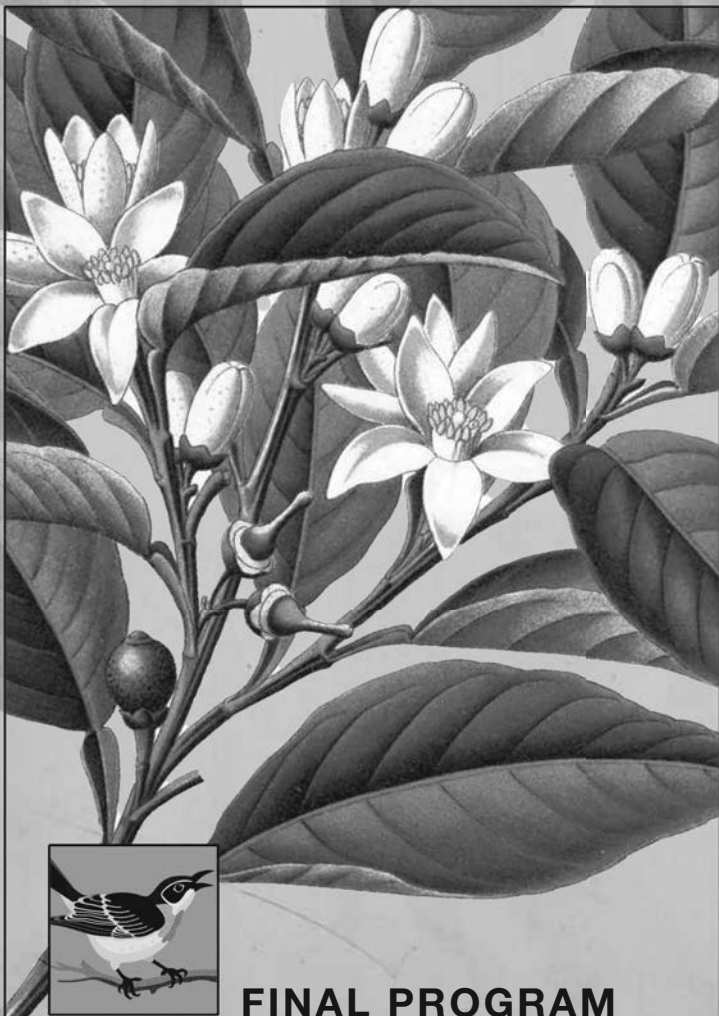


American Association
for Aerosol Research



33rd Annual CONFERENCE

Rosen Shingle Creek Resort
Orlando, Florida • October 20-24, 2014



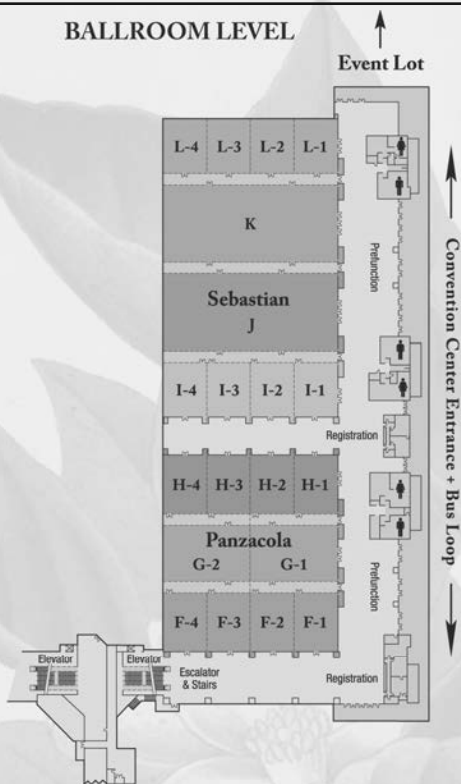
FINAL PROGRAM

33rd Annual CONFERENCE

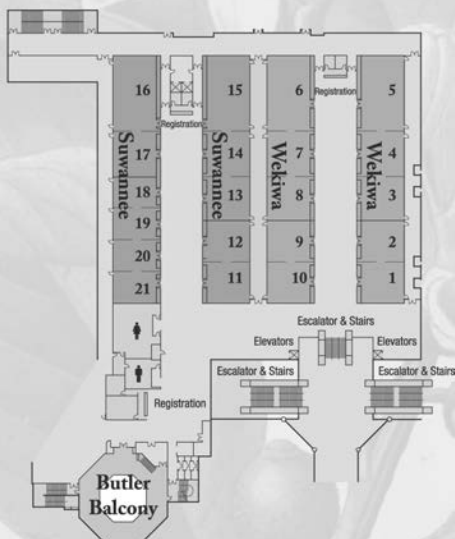


FLOOR PLAN

BALLROOM LEVEL



MEZZANINE LEVEL





AAAR 33RD ANNUAL CONFERENCE

***October 20-24, 2014
Orlando, FL***

AAAR Headquarters

1120 Route 73, Suite 200
Mount Laurel, NJ 08054
Phone: (856) 439-9080
Fax: (856) 439-0525
E-mail: info@aaar.org
Web site: www.aaar.org

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AAAR CONFERENCE SPONSORS

Supporting, Young Investigators Event
and Student Poster Awards Sponsor



Nucleation and Biomass
Burning Special Symposia Sponsor



U.S. DEPARTMENT OF
ENERGY

Bronze Sponsor



Student Travel Support



AEESP Lecture Sponsor

Institute for a Sustainable Environment



at Clarkson University



IMPORTANT CONFERENCE INFORMATION

REGISTRATION HOURS

Sunday, October 19	6:00 PM – 9:00 PM
Monday, October 20	7:00 AM – 6:00 PM
Tuesday, October 21	7:00 AM – 7:00 PM
Wednesday, October 22	7:00 AM – 6:00 PM
Thursday, October 23	7:00 AM – 6:00 PM
Friday, October 24	7:00 AM – 11:00 AM

EXHIBIT HOURS

Monday, October 20	12:00 PM – 5:00 PM (Set-up)
Tuesday, October 21	9:00 AM – 4:00 PM 6:00 PM – 8:00 PM (Welcome Reception)
Wednesday, October 22	9:00 AM – 5:00 PM
Thursday, October 23	9:00 AM – 3:30 PM 3:30 PM – 7:00 PM (Move-out)

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 in Wekiwa 1 at Rosen Shingle Creek. 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 20	2:00 PM – 5:00 PM (Set-up)
Tuesday, October 21	9:00 AM – 12:00 PM (Set-up)
Poster Session 2	1:00 PM – 3:00 PM
Thursday, October 23	9:00 AM – 3:30 PM (Exhibit Hall open)
Poster Session 8	12:15 PM – 1:45 PM 3:30 PM – 4:00 PM (Dismantle)

A poster in the poster session is based on a submitted and approved abstract. The size of a poster can not exceed 45" wide by 45" tall. Posters will be located in *Panzacola F/G*. There are two poster sessions during which authors will present their posters in the scheduled sessions and will be available for discussions. Posters are available for viewing throughout the conference at the times indicated below.

POSTER VIEWING TIMES

Tuesday, October 21

Posters Open	9:00 AM – 4:00 PM 6:00 PM – 8:00 PM
Poster Session 2	1:00 PM – 3:00 PM
Welcome Reception	6:00 PM – 8:00 PM

Wednesday, October 22

Posters Open	9:00 AM – 5:00 PM
--------------	-------------------

Thursday, October 23

Posters Open	9:00 AM – 3:30 PM
Poster Session 8	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 20 or between 9:00 AM – 12:00 PM on Tuesday, October 21. They should be removed at 3:30 PM and no later than 4:00 PM on Thursday, October 23. **All posters not removed by 4:00 PM on Thursday will be discarded.**



WELCOME RECEPTION

Tuesday, October 21.....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 *Panzacola F/G*.

AAAR ANNUAL BUSINESS MEETING

Wednesday, October 226:00 PM – 7:00 PM

This year the Annual Business Meeting takes place on Wednesday, October 22 from 6:00 PM – 7:00 PM. This important session provides an overview of the highlights of AAAR today and tomorrow. During this meeting, the ceremonial passing of the gavel will mark the transfer of leadership responsibility from Barbara Wyslouzil to incoming president Jay Turner.

WORKING GROUP MEETINGS

Working Group Meetings 1

Tuesday, October 21 **5:00 PM – 6:00 PM**

Working Group Meetings 2

Wednesday, October 22 **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 21 and Wednesday, October 22. 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, David Sinclair Award, Thomas T. Mercer Joint Prize, and Sheldon K. Friedlander Award. Please refer to the Schedule-at-a-Glance for the specific award presentation times.

FELLOWS and STUDENT POSTER AWARDS

The newly appointed AAAR Fellows will be recognized on Wednesday, October 22 at 8:00 AM in the plenary session which will be held in *Panzacola H 1-3*. In addition, the student poster awards will be presented on Friday, October 24 at 8:00 AM in *Panzacola H 1-3*.

SPEAKER READY ROOM

There will be a presentation preview/speaker ready room in Wekiwa 1 at Rosen Shingle Creek. 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 19	6:00 PM – 9:00 PM
Monday, October 20	7:00 AM – 6:00 PM
Tuesday, October 21	7:00 AM – 7:00 PM
Wednesday, October 22	7:00 AM – 6:00 PM
Thursday, October 23	7:00 AM – 6:00 PM
Friday, October 24	7:00 AM – 10:00 AM



HOTEL AND CONFERENCE VENUE INFORMATION

Hotel

Rosen Shingle Creek
9939 Universal Boulevard
Orlando, FL 32819
Telephone: 407-996-9939

All scientific sessions, food and beverage events, exhibits, and registration will be located at Rosen Shingle Creek.

ON-SITE MEAL AND SNACK OPTIONS

Food options within Rosen Shingle Creek include Café Osceola (serving breakfast, lunch and dinner and offering both buffet and a la carte options); 18 Monroe Street (a 24-hour deli restaurant); Smooth Java (coffee, smoothies, pastries, light sandwiches); Cala Bella (Italian bistro); Tobias Flats and Watering Hole (flatbread and tapas); Banrai Sushi (sushi, signature rolls, sakes). In addition, there is dining by the pool and at the golf course plus several bars located throughout the property.

AAAR will provide a box lunch for all attendees on Thursday, October 23 in the exhibit hall prior to the Thursday poster session.

Rosen Shingle Creek will offer a CASH and CARRY option for AAAR attendees on Tuesday, October 21.



CONFERENCE COMMITTEE

Athanasios Nenes

2014 Conference Chair

Andrea Ferro

2015 Conference Chair

Mark Swihart

2016 Conference Chair

Jay Turner

Development Committee Chair

Brian Osmondson

Exhibits Chair

Chris Sorensen

Tutorial Chair

Chris Hogan

Young Investigators Committee Chair

Donald Dabdub

Abstracts

TECHNICAL PROGRAM COMMITTEE

Lea Hildebrandt Ruiz

Aerosol Chemistry

Rajan Chakrabarty

Aerosol Physics

Paul Solomon

Atmospheric Aerosols

Alex Huffman

Bioaerosols

Matti Maricq

Combustion and Material Synthesis

Antonio Miguel

Control Technology

Patrick O'Shaughnessy

Health Related Aerosols

David Ensor

History of Aerosol Science

Tiina Reponen

Indoor Aerosols and Aerosol Exposure

Brent Williams

Instrumentation



COMMITTEE MEETINGS

Committee	Day/Date	Time	Room
AWARDS	Thursday, October 23	5:00 PM – 6:00 PM	<i>Wekiwa 2</i>
CONFERENCE	Wednesday, October 22	12:00 PM – 1:00 PM	<i>Wekiwa 2</i>
DEVELOPMENT	Wednesday, October 22	7:00 AM – 8:00 AM	<i>Wekiwa 2</i>
EDUCATION	Thursday, October 23	12:00 PM – 1:00 PM	<i>Wekiwa 2</i>
ENDOWMENT	Tuesday, October 21	7:00 AM – 8:00 AM	<i>Wekiwa 2</i>
FINANCE	Wednesday, October 22	12:00 PM – 1:00 PM	<i>Wekiwa 3</i>
INTERNET COMMUNICATIONS	Thursday, October 23	7:00 AM – 8:00 AM	<i>Wekiwa 2</i>
LONG RANGE PLANNING	Thursday, October 23	7:00 AM – 8:00 AM	<i>Wekiwa 3</i>
MEMBERSHIP	Thursday, October 23	12:00 PM – 1:00 PM	<i>Wekiwa 3</i>
NEWSLETTER	Wednesday, October 22	12:00 PM – 1:00 PM	<i>Wekiwa 9</i>
ONLINE EDUCATION TASK FORCE	Thursday, October 23	5:00 PM – 6:00 PM	<i>Wekiwa 3</i>
PUBLICATIONS	Wednesday, October 22	7:00 AM – 8:00 AM	<i>Wekiwa 3</i>
YOUNG INVESTIGATORS	Tuesday, October 21	7:00 AM – 8:00 AM	<i>Wekiwa 3</i>

WORKING GROUP CHAIRS

Committee	Day/Date	Time	Room
2014 Strategy	Tuesday, October 21	12:00 PM – 1:00 PM	<i>Wekiwa 3</i>
2015 Technical Program	Thursday, October 23	5:00 PM – 6:00 PM	<i>Wekiwa 4</i>

These meetings are for committee members and individuals invited by the committee chair.



2013-2014 BOARD OF DIRECTORS

Barbara Wyslouzil
President

Jay Turner
Vice President

Sheryl Ehrman
Vice President Elect

Lynn Russell
Treasurer

Linsey Marr
Treasurer Elect

Suresh Dhaniyala
Secretary

Barbara Turpin
Immediate Past President (Ex-officio)

Directors

Kelley Barsanti

Deborah Gross

Scot Martin

V. Faye McNeill

Hans Moosmuller

Sergey Nizkorodov

Ilona Riipinen

Jacky Rosati Rowe

Leah Williams

AAAR STAFF

Melissa Baldwin
Executive Director

Alicea Coccellato
Administrative Assistant

Ann Mitchell
Meeting/Exhibits Manager

Caroline Olson
Assistant Meeting/Registration Manager



Organizational Members

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

MSP Corporation
5910 Rice Creek Parkway
Suite 300
Shoreview, MN 55126
www.mspscorp.com

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

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



2014 STUDENT TRAVEL GRANT WINNERS

AAAR Travel Grant Winner

Sascha Schiller, University of Paderborn - Germany

DOE Travel Grant Winners

Wyatt Champion, University of Colorado Boulder

Coty Jen, University of Minnesota - Twin Cities

Sambhav Kumbhani, Brigham Young University

Peng Liu, Georgia Institute of Technology

Manasi Mahish, Texas A&M University

Sameer Patel, Washington University in St Louis

Kim Sakamoto, Colorado State University

Uma Shankar, University of North Carolina at Chapel Hill

Robin Stevens, Dalhousie University

Ryan Thompson, University of Illinois at Urbana-Champaign

Shan Zhou, University of California, Davis

NASA Travel Grant Winners

Maiko Arashiro, University of North Carolina at Chapel Hill

Parham Azimi, Illinois Institute of Technology

Robert Bullard, University of Iowa

Jiaxi Fang, Washington University in St Louis

Stephen Feinberg, Washington University in St. Louis

Amanda Grantz, California Institute of Technology

Rui Li, University of Colorado at Boulder

Jack Lin, Georgia Institute of Technology

Dhruv Mitroo, Washington University in St. Louis

Thien Khoi Nguyen, Rutgers University

Kyle Pierce, University of Denver

Derek Price, University of California, Riverside

Joel Ramirez, University of Iowa

Dian Romonosky, University of California, Irvine

Antonios Tasoglou, Carnegie Mellon University

Jennifer Therkorn, Rutgers University

Diep Vu, University of California, Riverside

Hsi-Wei Yeh, Virginia Commonwealth University

Xuan Zhang, California Institute of Technology



2014 STUDENT ASSISTANTS

AAAR would like to acknowledge the 2014 Student Assistant Volunteers.

Andrew Amaya

Christopher Boyd

Ramin Dastanpour

Julia DeGagne

Ashley Evanoski-Cole

Stephen Feinberg

Matthew Gunsch

Lucas Henneman

Cecilia Leoni

Viraj Modak

Arnaldo Negrón Marty

Yao Nie

Provat Saha

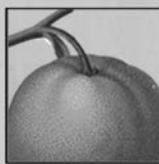
Hongru Shen

Yang Wang

Lu Xu

Jing Yan

Caiqing Yan



DATES AND TIMES OF 2014 SPECIAL SYMPOSIA

TITLE: Linking Aerosols with Public Health in a Changing World

DAY	SESSION	TIME	ROOM
Tuesday	2	1:00 PM – 3:00 PM	<i>Panzacola F/G</i>
Wednesday	5	1:00 PM – 3:00 PM	<i>Sebastian I 4</i>
Wednesday	6	3:30 PM – 5:00 PM	<i>Sebastian I 4</i>
Thursday	8	12:15 PM – 1:45 PM	<i>Panzacola F/G</i>
Thursday	9	1:45 PM – 3:00 PM	<i>Sebastian I 2</i>

TITLE: Biomass Burning Aerosol: From Emissions to Impacts

DAY	SESSION	TIME	ROOM
Tuesday	2	1:00 PM – 3:00 PM	<i>Panzacola F/G</i>
Wednesday	5	1:00 PM – 3:00 PM	<i>Sebastian I 2</i>
Wednesday	6	3:30 PM – 5:00 PM	<i>Sebastian I 2</i>
Thursday	7	9:45 AM – 11:30 AM	<i>Sebastian I 2</i>
Thursday	8	12:15 PM – 1:45 PM	<i>Panzacola F/G</i>
Thursday	10	3:30 PM – 5:00 PM	<i>Sebastian I 2</i>

TITLE: Aerosol Sources from Emerging Energy Technologies and Production

DAY	SESSION	TIME	ROOM
Wednesday	6	3:30 PM – 5:00 PM	<i>Sebastian I 3</i>
Thursday	8	12:15 PM – 1:45 PM	<i>Panzacola F/G</i>

TITLE: Air Quality and Climate in the Southeast US: Insights from Recent Measurement Campaigns

DAY	SESSION	TIME	ROOM
Tuesday	2	1:00 PM – 3:00 PM	<i>Panzacola F/G</i>
Wednesday	4	9:45 AM – 11:30 AM	<i>Sebastian I 1</i>
Wednesday	5	1:00 PM – 3:00 PM	<i>Sebastian I 1</i>
Wednesday	6	3:30 PM – 5:00 PM	<i>Sebastian I 1</i>
Thursday	7	9:45AM – 11:30 AM	<i>Sebastian I 1</i>
Thursday	8	12:15 PM – 1:45 PM	<i>Panzacola F/G</i>

TITLE: Advances in the Physics and Chemistry of New Particle Formation and Growth

DAY	SESSION	TIME	ROOM
Tuesday	2	1:00 – 3:00 PM	<i>Panzacola F/G</i>
Tuesday	3	3:30 PM – 5:00 PM	<i>Panzacola H 4</i>
Thursday	7	9:45 AM – 11:30 AM	<i>Panzacola H 4</i>
Thursday	9	1:45 PM – 3:00 PM	<i>Panzacola H 4</i>



SCHEDULE-AT-A-GLANCE

NOTE THAT ALL CONFERENCE SESSIONS WILL BE HELD AT ROSEN SHINGLE CREEK.

Sunday, October 19

- 6:00 PM – 9:00 PM **AAAR Registration**
Panzacola Registration
- 6:00 PM – 9:00 PM **Speaker Ready Room**
Wekiwa 1
- 7:30 PM – 8:30 PM **Student Assistant Orientation**
Wekiwa 2

Monday, October 20

- 7:00 AM – 6:00 PM **AAAR Registration**
Panzacola Registration
- 7:00 AM – 6:00 PM **Speaker Ready Room**
Wekiwa 1
- 8:00 AM – 9:40 AM **First Tutorial Session**
1. Introduction to Aerosols 1: Particle Aerodynamics, Diffusion, and Size Measurement
Richard Flagan
Sebastian I 1
 2. Field and Mobile Atmospheric Aerosol Measurement Principle and Practice
Charles Brock
Sebastian I 2
 3. Micro and Nanoparticle Synthesis
Sheryl Ehrman
Sebastian I 3
 4. Biomarkers of Air Pollution Exposure
Roby Greenwald
Sebastian I 4
- 10:00 AM – 11:40 AM **Second Tutorial Session**
5. Introduction to Aerosols 2: The Particle Size Distribution and its Dynamics
Richard Flagan
Sebastian I 1
 6. Hands-On Aerosol Instrumentation Design and Measurement
Moderated by: **Tyler Beck**
Panzacola F/G



7. Stochastic Simulations of Aerosol Dynamics
Amit Chakrabarti and Chris Hogan
Sebastian I 2

8. Molecular Biology-Based Aerosol Analyses
Jordan Peccia
Sebastian I 3

11:40 AM – 1:00 PM Lunch (on your own)

1:00 PM – 2:40 PM Third Tutorial Session

9. Chemical Characterization of Atmospheric Particles by Off-line Methods of Analysis
Alexander Laskin
Sebastian I 1

10. Fires in the Earth System: From Emissions to Impacts
Christine Wiedinmyer
Sebastian I 2

11. Advanced Vehicles, Emerging Technologies, and Their Impact on Particulate Emissions
Kent Johnson
Sebastian I 3

12. Aerosol Exposure Assessment: Principles and Techniques
John Volckens
Sebastian I 4

1:00 PM – 4:00 PM AS&T Editors Meeting
Wekiwa 2

2:00 PM – 4:30 PM AAAR Executive Committee Meeting
Wekiwa 3

12:00 PM – 5:00 PM Exhibitor Set-Up
Panzacola F/G

2:00 PM – 5:00 PM Poster Set-Up
Panzacola F/G



3:00 PM – 4:40 PM

Fourth Tutorial Session

13. Quality-assured Atmospheric Aerosol Measurements: Aerosol Sampling, Conditioning and Particle Size Spectrometers
Alfred Wiedensohler
Sebastian I 1
14. Environmental Chambers: Approaches and Challenges
David Cocker
Sebastian I 2
15. Fuel Combustion and Emission Controls
Antonio Miguel
Sebastian I 3
16. New Particle Formation and Growth
Charles Stanier
Sebastian I 4

6:00 PM – 7:30 PM

Young Investigators Event: Publication and Proposal Preparation Workshop
Wekiwa 4/5

Tuesday, October 21

7:00 AM – 7:00 PM

AAAR Registration
Panzacola Registration

7:00 AM – 7:00 PM

Speaker Ready Room
Wekiwa 1

7:00 AM – 8:00 AM

Endowment Committee Meeting
Wekiwa 2

7:00 AM – 8:00 AM

Young Investigators' Committee
Wekiwa 3

8:00 AM – 9:15 AM

Plenary Session 1: Can We Tame the Aerosol Uncertainty Monster?
Ken Carslaw
Panzacola H 1-3

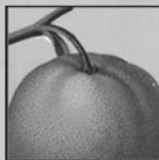
Kenneth T. Whitby Award Presentation

9:00 AM – 4:00 PM

Exhibits/Posters Open
Panzacola F/G

9:15 AM – 9:45 AM

Coffee Break
Panzacola F/G



9:45 AM – 11:30 AM

Technical Session 1: Platform

1AC. Aerosol Chemistry

Panzacola H 1-3

1AP. Aerosol Physics

Panzacola H 4

1CC. Aerosols, Clouds, and Climate

Sebastian I 1

1HA. Health Related Aerosols

Sebastian I 3

1IA. Indoor Aerosols

Sebastian I 4

1UA. Urban Aerosols

Sebastian I 2

11:30 AM – 1:00 PM

Lunch (*on your own*)

11:30 PM – 1:00 PM

AAAR Board of Directors Luncheon

Wekiwa 7

12:00 PM – 1:00 PM

Working Group Chairs 2014 Strategy Meeting

Wekiwa 3

1:00 PM – 3:00 PM

Technical Session 2: Poster

Panzacola F/G

2AC. Aerosol Chemistry

2AE. Aerosol Exposure

2AP. Aerosol Physics

2AQ. Air Quality and Climate in the Southeast US: Insights from Recent Measurement Campaigns

2BB. Biomass Burning Aerosol: From Emissions to Impacts

2CC. Aerosols, Clouds, and Climate

2CH. Control Technology

2HA. Health Related Aerosols

2IA. Indoor Aerosols

2IM. Instrumentation and Methods

2NP. Advances in the Physics and Chemistry of New Particle Formation and Growth



2PH. Linking Aerosols with Public Health in a Changing World

2UA. Urban Aerosols

3:00 PM – 3:30 PM

Coffee Break

Panzacola F/G

3:30 PM – 5:00 PM

Technical Session 3: Platform

3AC. Aerosol Chemistry

Panzacola H 1-3

3AE. Aerosol Exposure

Sebastian I 3

3CC. Aerosols, Clouds, and Climate

Sebastian I 1

3IA. Indoor Aerosols

Sebastian I 4

3NP. Advances in the Physics and Chemistry of New Particle Formation and Growth

Panzacola H 4

3UA. Urban Aerosols

Sebastian I 2

5:00 PM – 6:00 PM

Working Group Meetings 1

Aerosol Chemistry

Sebastian I 1

Combustion and Materials Synthesis

Sebastian I 2

History of Aerosol Science

Sebastian I 3

Indoor Aerosols and Aerosol Exposure

Sebastian I 4

Instrumentation

Panzacola H 4

6:00 PM – 8:00 PM

Welcome Reception

Panzacola F/G

Wednesday, October 22

7:00 AM – 6:00 PM

AAAR Registration

Panzacola Registration

7:00 AM – 6:00 PM

Speaker Ready Room

Wekiwa 1



- | | |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7:00 AM – 8:00 AM | Development Committee Meeting
<i>Wekiwa 2</i> |
| 7:00 AM – 8:00 AM | Publications Committee Meeting
<i>Wekiwa 3</i> |
| 8:00 AM – 9:15 AM | Plenary Session 2-AEESP Lecture: Fine
Particulate Air Pollution and Human
Health: Science, Public Policy, and
Controversy
C. Arden Pope, III
<i>Panzacola H 1-3</i>

David Sinclair Award Presentation and
Thomas T. Mercer Prize Presentation |
| 9:00 AM – 5:00 PM | Exhibits/Posters Open
<i>Panzacola F/G</i> |
| 9:15 AM – 9:45 AM | Coffee Break
<i>Panzacola F/G</i> |
| 9:45 AM – 11:30 AM | Technical Session 4: Platform

4AC. Aerosol Chemistry
<i>Panzacola H 4</i>

4AP. Aerosol Physics
<i>Sebastian I 4</i>

4AQ. Air Quality and Climate in the
Southeast US: Insights from Recent
Measurement Campaigns
<i>Sebastian I 1</i>

4HA. Health Related Aerosols
<i>Sebastian I 3</i>

4IM. Instrumentation and Methods
<i>Panzacola H 1-3</i>

4UA. Urban Aerosols
<i>Sebastian I 2</i> |
| 11:30 AM – 1:00 PM | Lunch (<i>on your own</i>) |
| 11:30 AM – 1:00 PM | AS&T Editorial Advisory Board Luncheon
<i>Wekiwa 4/5</i> |
| 12:00 PM – 1:00 PM | Conference Committee Meeting
<i>Wekiwa 2</i> |
| 12:00 PM – 1:00 PM | Finance Committee Meeting
<i>Wekiwa 3</i> |
| 12:00 PM – 1:00 PM | Newsletter Committee Meeting
<i>Wekiwa 9</i> |



1:00 PM – 3:00 PM

Technical Session 5: Platform

5AC. Aerosol Chemistry

Panzacola H 4

5AQ. Air Quality and Climate in the Southeast US: Insights from Recent Measurement Campaigns

Sebastian I 1

5BB. Biomass Burning Aerosol: From Emissions to Impacts

Sebastian I 2

5CH. Control Technology

Sebastian I 3

5IM. Instrumentation and Methods

Panzacola H 1-3

5PH. Linking Aerosols with Public Health in a Changing World

Sebastian I 4

3:00 PM – 3:30 PM

Coffee Break

Panzacola F/G

3:30 PM – 5:00 PM

Technical Session 6: Platform

6AC. Aerosol Chemistry

Panzacola H 4

6AQ. Air Quality and Climate in the Southeast US: Insights from Recent Measurement Campaigns

Sebastian I 1

6BB. Biomass Burning Aerosol: From Emissions to Impacts

Sebastian I 2

6EP. Aerosol Sources from Emerging Energy Technologies and Production

Sebastian I 3

6IM. Instrumentation and Methods

Panzacola H 1-3

6PH. Linking Aerosols with Public Health in a Changing World

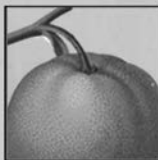
Sebastian I 4

5:00 PM – 6:00 PM

Working Group Meetings 2

Aerosol Physics

Sebastian I 1



Atmospheric Aerosols

Sebastian I 2

Bioaerosols

Sebastian I 3

Control Technology

Sebastian I 4

Health Related Aerosols

Panzacola H 4

6:00 PM – 7:00 PM

AAAR Annual Business Meeting

Panzacola H 1-3

Thursday, October 23

7:00 AM – 6:00 PM

AAAR Registration

Panzacola Registration

7:00 AM – 6:00 PM

Speaker Ready Room

Wekiwa 1

7:00 AM – 8:00 AM

Internet Communications Committee Meeting

Wekiwa 2

7:00 AM – 8:00 AM

Long Range Planning Committee

Wekiwa 3

8:00 AM – 9:15 AM

Plenary Session 3-Friedlander Lecture: Linking Tailpipe to Ambient: Atmospheric Evolution of Combustion Emissions

Allen L. Robinson

Panzacola H 1-3

Sheldon K. Friedlander Award and AAAR 2014 Fellows Presentation

9:00 AM – 3:30 PM

Exhibits/Posters Open

Panzacola F/G

9:15 AM – 9:45 AM

Coffee Break

Panzacola F/G

9:45 AM – 11:30 AM

Technical Session 7: Platform

7AQ. Air Quality and Climate in the Southeast US: Insights from Recent Measurement Campaigns

Sebastian I 1

7BA. Bioaerosols and Homeland Security

Sebastian I 4



7BB. Biomass Burning Aerosol: From Emissions to Impacts
Sebastian I 2

7CA. Carbonaceous Aerosols in the Atmosphere
Panzacola H 1-3

7NM. Nanoparticles and Materials Synthesis
Sebastian I 3

7NP. Advances in the Physics and Chemistry of New Particle Formation and Growth
Panzacola H 4

11:30 AM – 12:15 PM Light Take-Away Lunch
Panzacola F/G

12:00 PM – 1:00 PM Education Committee Meeting
Wekiwa 2

12:00 PM – 1:00 PM Membership Committee Meeting
Wekiwa 3

12:15 PM – 1:45 PM Technical Session 8: Poster
Panzacola F/G

8AC. Aerosol Chemistry

8AQ. Air Quality and Climate in the Southeast US: Insights from Recent Measurement Campaigns

8BA. Bioaerosols and Homeland Security

8BB. Biomass Burning Aerosol: From Emissions to Impacts

8CA. Carbonaceous Aerosols in the Atmosphere

8CO. Combustion

8EP. Aerosol Sources from Emerging Energy Technologies and Production

8IM. Instrumentation and Methods

8NM. Nanoparticles and Materials Synthesis

8PH. Linking Aerosols with Public Health in a Changing World



- 8RA. Remote and Regional Atmospheric Aerosols**
- 8SA. Source Apportionment**
- 8UA. Urban Aerosols**
- 1:45 PM – 3:00 PM Technical Session 9: Platform**
- 9AC. Aerosol Chemistry**
Sebastian I 4
- 9BA. Bioaerosols and Homeland Security**
Sebastian I 3
- 9IM. Instrumentation and Methods**
Panzacola H 1-3
- 9NP. Advances in the Physics and Chemistry of New Particle Formation and Growth**
Panzacola H 4
- 9PH. Linking Aerosols with Public Health in a Changing World**
Sebastian I 2
- 9UA. Urban Aerosols**
Sebastian I 1
- 3:00 PM – 3:30 PM Coffee Break**
Panzacola F/G
- 3:30 PM Exhibit Hall Closes**
- 3:30 PM – 5:00 PM Technical Session 10: Platform**
- 10BA. Bioaerosols and Homeland Security**
Sebastian I 3
- 10BB. Biomass Burning Aerosol: From Emissions to Impacts**
Sebastian I 2
- 10CA. Carbonaceous Aerosols in the Atmosphere**
Panzacola H 4
- 10CO. Combustion**
Sebastian I 4
- 10IM. Instrumentation and Methods**
Panzacola H 1-3
- 10SA. Source Apportionment**
Sebastian I 1



- 5:00 PM – 6:00 PM Working Group Chairs 2015 Technical Program Meeting
Wekiwa 4
- 5:00 PM – 6:00 PM Awards Committee Meeting
Wekiwa 2
- 5:00 PM – 6:00 PM Online Education Task Force Meeting
Wekiwa 3

Friday, October 24

- 7:00 AM – 11:00 AM AAAR Registration
Panzacola Registration
- 7:00 AM – 11:00 AM Speaker Ready Room
Wekiwa 1
- 8:00 AM – 9:15 AM Plenary Session 4: Climate, Biofuel Emissions and the Quest for Relevance
Tami Bond
Panzacola H 1-3
- Student Poster Competition Award Presentations
- 9:15 AM – 9:45 AM Coffee Break
Panzacola Pre-Function
- 9:45 AM – 11:00 AM Technical Session 11: Platform
- 11AC. Aerosol Chemistry
Panzacola H 4
- 11BA. Bioaerosols and Homeland Security
Panzacola H 1-3
- 11CO. Combustion
Sebastian I 4
- 11IM. Instrumentation and Methods
Sebastian I 1
- 11RA. Remote and Regional Atmospheric Aerosols
Sebastian I 3
- 11SA. Source Apportionment
Sebastian I 2
- 11:00 AM – 11:15 AM Break (*no beverages*)



11:15 AM – 12:30 PM Technical Session 12: Platform

12BA. Bioaerosols and Homeland Security

Panzacola H 1-3

12CA. Carbonaceous Aerosols in the
Atmosphere

Panzacola H 4

12CO. Combustion

Sebastian I 4

12IM. Instrumentation and Methods

Sebastian I 1

12RA. Remote and Regional Atmospheric
Aerosols

Sebastian I 3

12SA. Source Apportionment

Sebastian I 2

12:30 PM

Conference Ends

12:30 PM – 4:00 PM

AAAR Board of Directors Meeting

Board Room (Gatlin side)



TUTORIALS

Monday, October 20, 2014

First Session: 8:00 AM – 9:40 AM

TUTORIAL 1

INTRODUCTION TO AEROSOLS 1: PARTICLE AERODYNAMICS, DIFFUSION, AND SIZE MEASUREMENT

*Richard C. Flagan, Department of Chemical Engineering,
California Institute of Technology, Pasadena, CA*

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 noncontinuum 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 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 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 nanoparticles and other materials, and bioaerosols. His many contributions to the field of aerosol science have been acknowledged with the Sinclair Award of the AAAR and the Fuchs Award. He is a member of the National Academy of Engineering.



TUTORIAL 2

FIELD AND MOBILE ATMOSPHERIC AEROSOL MEASUREMENT: PRINCIPLE AND PRACTICE

Charles Brock, Chemical Sciences Division, NOAA Earth System Research Laboratory, Boulder, CO

Abstract: Studying the atmospheric aerosol often means setting up temporary measurement systems at field sites or sampling from mobile platforms such as vans, aircraft, or ships. Obtaining a representative sample in such conditions can be challenging, to say the least. This tutorial will first discuss how the physics, chemistry and thermodynamics of aerosol particles must be considered when developing a system for quantitative aerosol sampling and measurement. We will then explore practical solutions to common sampling problems, including inlet design for sampling from aircraft, simple techniques to minimize diffusional and inertial particle losses, and approaches to control thermodynamic changes to the aerosol. Next we will discuss how to choose instruments and develop flow and pressure control strategies for sampling in a rapidly changing environment, such as on an aircraft. We'll finish by discussing data processing issues, such as sample interval and time synchronization, that are commonly found with multi-instrument datasets, are often only an afterthought, and can compromise analysis of the collected dataset. Attendees should leave not only with a checklist of concerns, but with a toolbox of approaches and the confidence to adapt and apply them to their specific circumstances.

Charles Brock is a research physicist at the Earth System Research Laboratory at the National Oceanic and Atmospheric Administration in Boulder, Colorado. Dr. Brock specializes in using in situ measurements of atmospheric aerosol microphysical and optical properties, especially from airborne platforms, to understand aerosol direct and indirect radiative forcing. His expertise in field sampling of aerosols extends from stratospheric measurements on the NASA ER-2 high altitude research aircraft to near-surface observations using a slow-moving elevator platform on a 300-m tower.

TUTORIAL 3

MICRO AND NANOPARTICLE SYNTHESIS

Sheryl Ehrman, University of Maryland, College Park, MD

Abstract: This tutorial will focus on synthesis of micron-sized and nano-sized aerosols with controlled composition and morphology for materials processing applications as well as environmental



health and safety studies. Precursor selection, droplet generation or gas phase delivery methods, choice of reaction environment, and powder collection technologies will be reviewed. Aerosol dynamics involved in gas-to-particle conversion and droplet-to-particle conversion will be described. Upon completion of this tutorial, participants will be able to design a lab scale micro or nanoparticle synthesis process.

Sheryl Ehrman received her BS in chemical engineering from the University of California at Santa Barbara, and her doctorate from UCLA. Since August of 1998 she has been a faculty member in the Chemical and Biomolecular Engineering Department at the University of Maryland, College Park, where she is presently professor and chair of the department. Her current research interests include aerosol synthesis routes to micro and nanostructured materials, interactions between nanoparticles and biological materials, and the formation, characterization and minimization of air pollutants. Prof. Ehrman has been an active member of the American Association for Aerosol Research for over 20 years.

TUTORIAL 4

BIOMARKERS OF AIR POLLUTION EXPOSURE

Roby Greenwald, Department of Environmental Health, Rollins School of Public Health, Emory University, Atlanta, GA

Abstract: Exposure to ambient air pollution is associated with a wide variety of chronic and acute health outcomes. Although the precise mechanisms remain unclear, investigation of the biological processes linking exposure to outcomes is currently a very active area of research. An ever-expanding array of biomarkers is being developed to facilitate the examination of intermediate steps in the health response to air pollution. This tutorial will present an overview of biomarkers available for health-related research and will include discussion of biomarkers relevant to all physiological systems. Biomarkers appropriate for human subjects' research will be emphasized, and ethical issues related to the invasiveness of sample collection will be discussed. The advantages and disadvantages of various biological media (such as plasma, whole blood, dried blood spots, exhaled breath, urine and saliva) and analytical methodologies will be examined.

Roby Greenwald is a research assistant professor in the Rollins School of Public Health at Emory University. He received a PhD in environmental engineering at the Georgia Institute of Technology and completed a post-doc in the Pulmonary, Allergy and Cystic Fibrosis Division of the Emory University Department



of Pediatrics. His current research involves air pollution exposure assessment and health response in panel settings including persons commuting on highways and persons engaged in outdoor physical activity.

Second Session: 10:00 AM – 11:40 PM

TUTORIAL 5

INTRODUCTION TO AEROSOLS 2: THE PARTICLE SIZE DISTRIBUTION AND ITS DYNAMICS

*Richard C. Flagan, Department of Chemical Engineering,
California Institute of Technology, Pasadena, CA*

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 noncontinuum 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 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 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 nanoparticles and other materials, and bioaerosols. His many contributions to the field of aerosol science have been acknowledged with the Sinclair Award of the AAAR and the Fuchs Award. He is a member of the National Academy of Engineering.



TUTORIAL 6

HANDS-ON AEROSOL INSTRUMENTATION DESIGN AND MEASUREMENT

Moderated by Tyler Beck, Particle Instruments, Vadnais Heights, MN

Abstract: This tutorial will enable participants to get an “under-the-hood” look at a broad spectrum of currently available aerosol instruments. Whether you are an experimentalist, modeler, or both, this is an opportunity to learn how fundamental aerosol scientific 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 for what different instruments can, and cannot, do. Various aerosol instrumentation suppliers will present the design, concepts, and engineering choices that led to the successful development of different aerosol instrumentation. The tutorial is not a “marketing and sales opportunity” for participating vendors; this is an educational session with an emphasis entirely on technology and the key physical concepts employed by the instrumentation. A primary goal is that by the end of the tutorial participants no longer consider instrumentation a “black-box” but rather have some understanding of the principles and design considerations that went into the development of the various instruments. A secondary goal is that participants will use the information presented on measurement uncertainties and limitations to better avoid over-interpreting measurement results.

Instruments and companies participating:

- Aerosol Chemical Speciation Monitor (ACSM) - Aerodyne Research Inc.
- microAeth Model AE51 - AethLabs
- Particle Into Liquid Sampler (PILS) - Brechtel Manufacturing Inc.
- CPMA – Centrifugal Particle Mass Analyzer - Cambustion Ltd.
- Aethalometer AE-33 - Magee Scientific
- Portable Fine Dust Monitoring System Fidas® - Palas
- Dekati Electrical Low Pressure Impactor (ELPI) - Particle Instruments
- 3982(SMPS) - TSI Inc.

The listing of the equipment listed above is subject to change



TUTORIAL 7

STOCHASTIC SIMULATIONS OF AEROSOL DYNAMICS

*Amit Chakrabarti, Kansas State University, Manhattan, KS and
Chris Hogan, University of Minnesota, Minneapolis, MN*

Abstract: This tutorial will introduce attendees to the application of Monte Carlo, Molecular Dynamics, and Brownian Dynamics based approaches to modeling the motion of particles in the gas phase (aerosols). In the first half of the tutorial, the basic principles behind these simulation techniques will be introduced, including the computational generation of uniformly distributed and Gaussian distributed random variables, random number sampling from probability distributions, and the parameterization of distribution functions. Monte Carlo approaches will then be introduced generally, with a focus on non-equilibrium particulate systems undergoing aggregation. The second half of the tutorial will then discuss the application of stochastic differential equations to systems which are not in equilibrium, including diffusion dynamics at the single particle level, Brownian dynamics, and Molecular Dynamics. In particular, concepts of a Link-List will be introduced as well as the Velocity-Verlet Algorithm and solution techniques for the Langevin Equation. Specific applications of these techniques to particle aggregation, free molecular drag calculations, and particle/ion motion in the presence of electrostatic interactions will be discussed.

Amit Chakrabarti, Kansas State University, Manhattan, KS
Amit Chakrabarti received his PhD in physics from the University of Minnesota. Currently he is the William and Joan Porter Professor and Head of physics at Kansas State University. Dr. Chakrabarti has published over 150 papers in peer-reviewed journals. His current research interests include theoretical and computational studies of aggregation in aerosols, self-assembly in nanoparticles, and modeling of light scattering from irregular shaped particles.

Chris Hogan, University of Minnesota, Minneapolis, MN
Chris Hogan received his PhD in energy, environmental, and chemical engineering from Washington University. Currently he is an assistant professor of mechanical engineering at the University of Minnesota. He has published over 50 papers in peer-reviewed journals. His current research interests include Langevin dynamic based approaches to analyze collisions in aerosols, computational and experimental evaluation of the drag coefficient of nanoparticles and ions, and the heterogeneous uptake of vapor molecules by sub 10 nm particles.



TUTORIAL 8

MOLECULAR BIOLOGY-BASED AEROSOL ANALYSES

Jordan Peccia, Department of Chemical and Environmental Engineering, Yale University, New Haven, CT

Abstract: This tutorial covers molecular biology concepts and tools that are relevant for the analysis of airborne biological material. The course begins with a targeted introduction to genetics, phylogenetics, and bioinformatics for aerosol scientists that have a limited background in biology. Next, molecular biology-based methods that are useful for the quantification, identification, and population characterization of bacteria, fungi, and viruses in aerosols will be presented along with examples. These methods include polymerase chain reaction (PCR), quantitative PCR, immunoassays and proteomics, and next generation DNA sequencing to produce phylogenetic libraries. The course will conclude with an overview of sampling strategies that can be integrated with molecular biology-based analysis, and information on the quantitateness of the above methods.

Jordan Peccia is an associate professor of chemical and environmental engineering and the environmental engineering director of undergraduate studies at Yale University. His research group integrates molecular biotechnology with process engineering to address environmental problems. Dr. Peccia has over 15 years of experience in applying molecular biology to assess the diversity of, and the exposure to airborne bacteria, fungi and viruses in the atmosphere and in indoor environments. He earned his PhD in environmental engineering from the University of Colorado and is an associate editor for Indoor Air.

Third Session: 1:00 PM – 2:40 PM

TUTORIAL 9

CHEMICAL CHARACTERIZATION OF ATMOSPHERIC PARTICLES BY OFF-LINE METHODS OF ANALYSIS

Alexander Laskin, Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, Richland, WA

Abstract: Fundamental understanding of the complex chemistry of atmospheric aerosols, their physico-chemical properties and environmental impacts is a challenging task because no single method of analytical chemistry is capable of providing the full range of analytical chemistry information. Electron microscopy and micro-spectroscopy approaches can visualize individual particles and their internal structures; however, they



largely exclude molecular-level information, and are limited to elemental and chemical bonding characterization. Contemporary methods of high-resolution mass spectrometry can provide detailed information on the molecular content of organic aerosol, but these methods use bulk particle samples and provide no knowledge of the individual particle composition.

Therefore, application of complementary analytical methods of chemical analysis is necessary for comprehensive characterization of aerosol composition and properties ranging from bulk molecular composition of aerosol organic constituents to microscopy level details of individual particles. Combined assessment of the results provided by these complementary analytical approaches offers unique insights to understand the composition and physico-chemical properties of atmospheric aerosols determining their effects on air quality and climate. This tutorial will give an overview of new and emerging experimental techniques for off-line analysis of atmospheric particles, and applications of these techniques in fundamental studies of aerosol chemistry.

Dr. A. Laskin is a chief scientist at Pacific Northwest National Laboratory, Richland, WA. His research is focused on physical and analytical chemistry of environmental particles and includes laboratory and field studies focused on the understanding of chemical composition and physical properties of atmospheric aerosols. His group and collaborators apply an array of complementary analytical techniques for comprehensive chemical characterization of particles ranging from particle microscopy to molecular-level characterization of complex organic constituents of aerosols. Research findings of his group are relevant to a number of issues related to atmospheric chemistry of sea salt, mineral dust, soot, SOA and biomass burning particles. His present and past research interests include: environmental impact of aerosols; physical chemistry of gas-particle interactions; novel methods of aerosol collection and measurement; single-particle analysis of aerosols; high-resolution mass spectrometry of atmospheric organics; combustion related aerosols; combustion chemistry and chemical kinetics.



TUTORIAL 10

FIRES IN THE EARTH SYSTEM: FROM EMISSIONS TO IMPACTS

Christine Wiedinmyer, Atmospheric Chemistry Division, NCAR Earth Systems Laboratory, National Center for Atmospheric Research, Boulder, CO

Abstract: Open burning, whether wildland fires, prescribed burning, burning as part of agricultural practices, and even the burning of waste and biofuels, emits significant amounts of trace gases and particulate matter to the atmosphere. These emissions can play an important role in local and regional air quality, global atmospheric chemistry, and climatic processes. This tutorial will summarize some of the recent advances and challenges in the estimation of emissions from open burning. The mechanisms by which emissions from biomass burning impact to air quality, climate, and further, how these interactions may change in the future will be reviewed. Finally, ongoing research to understand associated with the burning of waste materials and biofuels will be introduced.

Dr. Christine Wiedinmyer is a scientist in the Atmospheric Chemistry Division of the NCAR Earth System Laboratory. She received her MS and PhD from the Department of Chemical Engineering at the University of Texas in Austin. Her research has focused on the characterization of gas-phase and particulate emissions to the atmosphere and their impact on air quality and climate. Dr. Wiedinmyer has developed a model to estimate the global emissions from fires for use by chemical and climate modelers.

TUTORIAL 11

ADVANCED VEHICLES, EMERGING TECHNOLOGIES, AND THEIR IMPACT ON PARTICULATE EMISSIONS

Kent C. Johnson, Thomas Durbin, George Karavalakis, David Cocker, and Wayne Miller, Emissions and Fuels Research, University of California Riverside, Center for Environmental Research and Technology, Riverside, CA

Abstract: Primary and secondary aerosol emissions impact our environmental and health from its global warming potential to its chemical and physical impacts. Aerosol characterization, formation, and understanding are needed as we innovate new technologies to meet our global objectives. Recently a wave of new technologies has resulted due to a desire in reducing greenhouse gases (GHG) emissions. Light duty vehicles have



implemented direct injection gasoline techniques to achieve like-diesel performance, but at the expense of an increase in PM mass and a lower particle size distribution. Natural gas vehicles are taking on a larger role in our heavy duty mobile fleet due to low fuel costs. These NG vehicles may be lower in PM mass, but their ultra-fine PM emissions have been found to be significant due to differences in oil contributing to the exhaust emissions. New ocean going vessels have demonstrated lower PM emissions from ultra-low sulfur fuels. Interestingly marine PM mass has been reduced, but not the overall black carbon emissions under some conditions. In this tutorial I will take you on a journey of advanced vehicles and emerging technologies and their impact on aerosol formation and its interaction with the environment.

Dr. Johnson joined CE-CERT's research faculty in 2009 after serving on the Center's staff as principal development engineer and manager of the Mobile Emissions Laboratory (MEL) and other laboratories. He has worked in the field of emissions and their interaction with the environment for over 20 years. He received his PhD in chemical and environmental engineering from UC Riverside where his doctoral research focused on the impact of emissions on ambient air quality. The main objective of Dr. Johnson's research is to improve our understanding of the impact of emissions on our environment. The research interests include: 1) quantification of in-use emission measurements; 2) advancement of measurement techniques; 3) characterization of particulate matter (PM), and 4) study of fuel impacts on emissions for diesel engines. Recently his research has expanded to include the characterization of advanced vehicles (natural gas, hybrid, and full electric heavy duty vehicles) and their in-use performance and impact on the environment which includes climate change.

TUTORIAL 12

AEROSOL EXPOSURE ASSESSMENT: PRINCIPLES AND TECHNIQUES

John Volckens, Environmental and Radiological Health Sciences, Colorado State University, Fort Collins, CO

Abstract: This tutorial covers concepts and tools relevant to assessing human exposure to aerosol hazards. The course is intended for individuals with a basic, but limited, understanding of environmental and occupational health. The course begins with an overview of the theory of exposure assessment and exposure statistics (for non-statisticians), followed by a discussion of



strategies, measurement techniques, and pitfalls associated with estimating human intake of airborne particles. Specific topics will include aspects of study design, personal and area monitoring, time-integrated vs. real-time monitoring, size-selective sampling, analytical techniques, data analyses, and strategies for working with human subjects. The course will conclude with an overview of more advanced techniques, such as geo-referencing, land-use regression modeling, spatiotemporal exposure monitoring, and other emerging research in the field.

Dr. John Volckens is an associate professor in the Departments of Environmental and Radiological Health Sciences and Mechanical Engineering at Colorado State University. He is also the director of the Center for Energy Development and Health in CSU's Energy Institute. His research interests involve human exposure to airborne particles, aerosol measurement and instrument development, and air pollution-related disease. He received a PhD from the University of North Carolina at Chapel Hill and went on to Postdoc at the U.S. EPA's National Exposure Research Laboratory in Research Triangle Park, NC. Dr. Volckens is the recipient of the AIHA Journal's 'Best Paper' award in 1999, has served two terms as chair of AIHA's Aerosol Technology Committee, and is the former president of the Board of Directors for the Journal of Occupational and Environmental Hygiene. He has over 15 years of experience and has published over 50 manuscripts related to exposure science and air pollution.

Fourth Session: 3:00 PM – 4:40 PM

TUTORIAL 13

QUALITY-ASSURED ATMOSPHERIC AEROSOL MEASUREMENTS: AEROSOL SAMPLING, CONDITIONING AND PARTICLE SIZE SPECTROMETERS

*Alfred Wiedensohler, Leibniz Institute for Tropospheric Research,
WMO-GAW World Calibration Centre for Aerosol Physics, Leipzig,
Germany*

Abstract: This tutorial will provide international standards to perform long-term and short-term atmospheric aerosol measurements. It covers the aspects of aerosol inlets also under extreme environmental conditions, requirements of the aerosol drying prior physical measurements as well as measurements of the particle number size distribution using mobility particle size spectrometer and their quality assurance.

Prof. Dr. Alfred Wiedensohler is head of the Experimental Aerosol & Cloud Microphysics Department at the Leibniz Institute for



Tropospheric Research. He is also head, World Calibration Center for Aerosol Physics in the frame of the WMO-GAW program. He is a guest professor at the Peking University, Department. of Environmental Science and Engineering, Beijing, China. Presently, he is editor-In-chief of the international journal "Atmospheric Environment". He has published more than 290 peer-reviewed articles in the field of aerosol physics and instrumentation as well as in atmospheric science.

TUTORIAL 14

ENVIRONMENTAL CHAMBERS: APPROACHES AND CHALLENGES

David Cocker, University of California Riverside, Riverside, CA

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-NO_x experimental conditions, wall loss, particle background, particle-gas-wall interactions, HONO release, and implications for kinetic and aerosol modeling will be discussed.

David Cocker is a professor of chemical and environmental engineering at UC Riverside. He received his PhD in environmental engineering science from Caltech and a BS in environmental engineering and chemistry from UC Riverside. He is the current director of the atmospheric processes laboratory group at the Bourns College of Engineering, Center for Environmental Research and Technology (CE-CERT). Research interests include experimental investigations of secondary organic aerosol formation using environmental chambers. Additional research interests focus on characterizing in-use particulate and gaseous emissions from mobile and stationary sources.

TUTORIAL 15

FUEL COMBUSTION AND EMISSION CONTROLS

Antonio H. Miguel, Southern California Particle Center & Supersite, Institute of the Environment, UCLA, Los Angeles, CA

Abstract: Over the last decade, increased understanding of the effects of fuel composition and emission control technologies



on the chemical and physical properties of the emissions led to significant progress in reducing the concentration of regulated and un-regulated air pollutants. This tutorial summarizes key developments in fuel combustion and emission control technologies of major sources of urban air pollution. Emission sources focused include: coal combustion at power plants, gasoline and diesel engines, ships, airplanes, two-stroke engines, and airport emissions that pollute air for miles downwind.

Antonio H. (Toni) Miguel completed his PhD in chemistry at the University of Illinois Urbana-Champaign. His current research interests include the effect of the composition vehicular organic compound emissions on new particle formation. Currently Dr. Miguel is an air pollution specialist at the ARB's Haagen-Smit Laboratory in El Monte, CA

TUTORIAL 16 NEW PARTICLE FORMATION AND GROWTH

Charles O. Stanier, Associate Professor of Chemical and Biochemical Engineering, Associate Research Engineer, IIHR Hydroscience and Engineering, University of Iowa, Iowa City, IA

Abstract: This tutorial will provide an overview of new particle formation and growth. The main topics to be addressed include: (1) the state-of-the-science in field campaigns regarding the new 1-3 nm atmospheric particles with respect to formation rates, precursors, mechanisms, and geographical coverage; (2) current status of field and laboratory research on particle growth from these initial nuclei sizes to larger particle sizes capable of cloud droplet formation. Both ground-based and aircraft based evidence will be included in the tutorial. Results from a wide variety of established and new instruments will be covered (e.g. SMPS, <20 nm aerosol mass spectrometers, ion mobility spectrometers, CIMS, tandem differential mobility analyzers, condensational growth assisted nuclei sizing); however, the focus on the tutorial will be on “what have we learned” from these instruments, rather than on their technical details. Techniques for separating urban ultrafine aerosols into secondary and primary components will also be covered. Time permitting, regional and global model-based assessments of the impact of new particle growth on the atmospheric particle size distribution, the cloud condensation nuclei concentration, and the indirect aerosol effect will be summarized in the tutorial.

Charles O. Stanier is an associate professor in the Department of Chemical and Biochemical Engineering, and a member of IIHR Hydroscience and Engineering Institute. His research interests



are in fundamental and applied issues in air pollution, climate science, and aerosol science. His field studies specialize in the continuous monitoring of ultrafine particles and secondary aerosol precursors most recently in Mexico City, Iowa City IA, and Bondville IL. He is the recipient of the NSF CAREER, the Walter R. Rosenblith Young Investigator Award of the Health Effects Institute, and the Sheldon K. Friedlander award of AAAR. Dr. Stanier has five years of experience in industry.

PLENARY LECTURES

Tuesday, October 21

8:00 AM – 9:15 AM

CAN WE TAME THE AEROSOL UNCERTAINTY MONSTER?

Ken Carslaw, PhD, Institute for Climate and Atmospheric Science and School of Earth & Environment, University of Leeds, United Kingdom

Abstract

Aerosol science has made enormous steps in understanding fundamental processes and in making measurements that probe ever more complex particle properties. But how much of this new knowledge is being translated into better models of how aerosols affect climate? From the third to the fifth IPCC assessment report, aerosols have remained the largest radiative forcing uncertainty. In this presentation I address two questions: firstly, whether we are working on the right processes and secondly, how we can use models and observations to slowly reduce the persistent uncertainty. Using fairly well established statistical techniques it is possible to perform essentially a Monte Carlo simulation with a complex global aerosol model. This enables the contribution of all important processes to the overall prediction uncertainty to be quantified and mapped. The list of key processes turns out to differ substantially depending on whether you want to understand the uncertainty in present-day aerosol or its effect on radiative forcing. The properties of biomass burning particles are important for present-day global CCN uncertainty but are less important for the uncertainty in forcing, although big questions remain about how these particles interact with clouds. The list also depends on whether you want to understand the sources of uncertainty in forcing since the pre-industrial period or over recent decades. Natural aerosols tend to dominate forcing uncertainty when referenced back to the pre-industrial, but uncertain anthropogenic emissions are the most important factor for recent changes in forcing, with aerosol microphysical processes being less important. Regardless, the list of most uncertain parameters



enables us to begin to constrain the model uncertainty using well-chosen measurements. In this direction, I will describe a methodology that could be used to define an optimum measurement strategy if the reduction in model uncertainty is the objective.

Ken Carslaw is a professor of atmospheric science at the University of Leeds in the UK. He is director of the Institute for Climate and Atmospheric Science and holder of the Royal Society Wolfson Award. Dr. Carslaw received his BSc in physics from the University of Birmingham, UK, and his PhD from the University of East Anglia in stratospheric aerosol thermodynamics. His early career at the Max Planck Institute for Chemistry in Mainz focused on understanding polar stratospheric clouds, leading to the discovery of liquid PSCs. Since 2005 his research group at Leeds has developed the Global Model of Aerosol Processes (GLOMAP). The model has been used to tackle a diverse range of aerosol problems, notably the role of nucleation in generating global CCN. Dr. Carslaw has published 130 papers on aerosol processes with diverse topics including nucleation, aerosol-cloud interaction, global CCN, Arctic and marine processes, volcanic impacts, earth system couplings, stratospheric aerosol and model uncertainty. He is co-founding and now executive editor of *Atmospheric Chemistry and Physics*.

Wednesday, October 22

8:00 AM – 9:15 AM

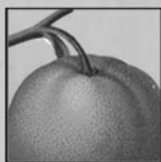
AEESP LECTURE

FINE PARTICULATE AIR POLLUTION AND HUMAN HEALTH: SCIENCE, PUBLIC POLICY, AND CONTROVERSY

C. Arden Pope III, PhD, Mary Lou Fulton Professor of Economics, Brigham Young University, Provo, UT

Abstract

There is increasingly compelling scientific evidence that breathing fine particulate air pollution contributes to human morbidity and mortality. Epidemiologic evidence suggests that short-term exposure exacerbates existing pulmonary and cardiovascular disease and increases the risk of becoming symptomatic, requiring medical attention, or even dying. Long-term repeated exposures increase the risk of chronic pulmonary and cardiovascular disease. There appears to be multiple mechanistic pathways that link exposure with adverse health outcomes including, pulmonary/systemic oxidative stress and inflammation, enhanced initiation and progression of atherosclerosis, and altered cardiac autonomic function. A



recent integrated study of factors that contribute to burden of disease suggest that exposure to fine particulate air pollution contributes substantially to global burden of disease, especially in much of the developing world. There is also evidence that public policy efforts to reduce fine particulate matter air pollution can be successful, can improve air quality, and can contribute to enhanced human health. Pollution abatement efforts, however, can also be costly, challenging and controversial. This presentation will focus on the air pollution health science that motivates the public policy and will briefly discuss the most recent controversy regarding the use of “secret science” to inform public policy.

Dr. C. Arden Pope III is the Mary Lou Fulton Professor of Economics at Brigham Young University. He received his PhD from Iowa State University (economics/statistics) and was a Fellow at the Harvard School of Public Health (environmental health and public policy). He has conducted research dealing with various natural resource and environmental issues. His cross-disciplinary research in environmental economics and air pollution epidemiology has resulted in seminal studies on the health effects and costs of air pollution. Dr. Pope has conducted or collaborated on various key studies of human health effects of short- and long-term air pollution exposure, has played prominent roles in reviewing and interpreting this literature, and is one of the world’s most widely cited and recognized experts on the health effects of air pollution. He has been the recipient of various honors and awards including the Thomas T. Mercer Joint Prize from the American Association for Aerosol Research and the International Society for Aerosols in Medicine (2001), the Utah Governor’s Medal for Science & Technology (2004), BYU’s Karl G. Maeser Distinguished Faculty Lecturer (2006); Honorary Fellow of the American College of Chest Physicians (FCCP Hon, 2008), and International Society for Environmental Epidemiology Best Environmental Epidemiology Paper Award (2010).



Thursday, October 23

8:00 AM – 9:15 AM

FRIEDLANDER LECTURE

LINKING TAILPIPE TO AMBIENT: ATMOSPHERIC EVOLUTION OF COMBUSTION EMISSIONS

Allen L. Robinson, PhD, Center for Atmospheric Particle Studies, Carnegie Mellon University, Pittsburgh, PA

Abstract

Emissions from motor vehicles, wildfires, and other combustion processes are major contributors to atmospheric fine particle mass. These emissions are a complex mixture of organic and inorganic species. Some of these species are directly emitted as particles, but the vast majority of the emissions are gases and vapors. Upon entering the atmosphere, emissions are exposed to oxidants and sunlight, which causes them to evolve chemically and physically, generating secondary particulate matter. To develop effective control strategies one must understand the overall contribution of emissions from combustion processes to ambient particulate matter - both direct particle emissions and particle mass formed in the atmosphere. This talk will synthesize results from source testing, tunnel experiments, ambient measurements and chemical transport modeling to investigate the atmospheric evolution of emissions from combustion processes, focusing on organic aerosols. The results reveal a dynamic picture in which secondary organic aerosol formed in the atmosphere dramatically exceeds the direct particle emissions, especially for low emitting sources. Both speciation data and mass closure analysis indicate that low-volatility vapors are an important class of secondary organic aerosol precursors. The talk concludes with a brief discussion of the implications of these findings on human exposures, climate, and the design of regulations to control pollutant emissions.

Dr. Allen L. Robinson is the Raymond J. Lane Distinguished Professor and Head of the Department of Mechanical Engineering at Carnegie Mellon University. He is also a professor in the Department of Engineering and Public Policy and a member of the Center for Atmospheric Particle Studies. Dr. Robinson's research examines the impact of emissions from energy systems on air quality and global climate. A major focus is the atmospheric transformation of particulate matter emissions from cars, trucks, and other combustion systems. In 2012-2013 he was a faculty member at Colorado State University in the Departments of Atmospheric Science and Mechanical Engineering. In 2009-2010



he was a visiting faculty fellow at the Cooperative Institute for Research in Environmental Science at the University of Colorado in Boulder. He is currently serving on the Research Committee of the Health Effects Institute, the Environmental Protection Agency Clean Air Scientific Advisory Committee (CASAC) Air Monitoring and Methods Subcommittee. He holds a BS in civil engineering from Stanford University and an MS and PhD in mechanical engineering from the University of California at Berkeley.

Friday, October 24

8:00 AM – 9:15 AM

CLIMATE, BIOFUEL EMISSIONS, AND THE QUEST FOR RELEVANCE

Tami Bond, PhD, Civil and Environmental Engineering and University Scholar, University of Illinois at Urbana-Champaign, Urbana-Champaign, IL

Abstract

Over the last 25 years, the climate research community has acknowledged that direct and cloud-related aerosol radiative forcing is one of the greatest uncertainties in understanding the trajectory of future climate. Understanding of present-day and historical aerosol forcing assists in determining climate sensitivity. Dr. Bond will discuss what is known about the historical evolution of burning biofuel to provide energy, the characteristics of emitted particles, and how these particles change with combustion technology. She will review how emission measurements made in controlled situations differ from those in real, in-use settings. She will also look forward to changes expected during the next 25 years, when aerosol concentrations will decrease or remain the same. The growing greenhouse-gas forcing is quite likely to overwhelm aerosol forcing, leaving aerosol science as a less important player in the climate arena. Nevertheless, stresses on well-being via climate and health are likely to persist, increasingly concentrated among sensitive and low-income populations. Dr. Bond argues that aerosol scientists will have a transformed but equally relevant role to play in the coming world.

Tami Bond is an associate professor in civil and environmental engineering and University Scholar at the University of Illinois at Urbana-Champaign. Her research group measures aerosol properties in the laboratory and emission rates far afield, and uses modeling to explore particle properties and their climate impact. She has BS and MS degrees in mechanical engineering, and an interdisciplinary PhD from the University of Washington.



She was a NOAA Climate and Global Change Postdoctoral Researcher, received an NSF CAREER award, has been an editor of Aerosol Science & Technology, and currently serves on the U.S. Technical Advisory Group to the ISO Technical Committee on Clean Cookstoves. Her professional hobby is synthesis and integration, the most recent example being the 177-page “Bounding Black Carbon” assessment published in the Journal of Geophysical Research.

SPECIAL SYMPOSIA

LINKING AEROSOLS WITH PUBLIC HEALTH IN A CHANGING WORLD

Chair: Rodney Weber, Georgia Institute of Technology, Atlanta, GA

Co-Chair: Vishal Verma, Georgia Institute of Technology, Atlanta GA

Awareness of the detrimental health effects of outdoor air pollution has been increasing. The World Health Organization recently announced that ambient pollution is a leading environmental cause of cancer deaths, and a Lancet study on the global burden of disease ranked particulate matter as one of the highest risk factors. Wide-spread and severe air pollution episodes in the developing economies of Southeast Asia and Asia have not only increased public awareness of these issues but also have provided unique opportunities to quantify their enormous impact. Advances are rapidly being made in linking aerosols and health endpoints through epidemiological, panel and concentrated air pollutant studies. Use of satellite data and low-cost widely dispersed sensors are better assessing exposures. Continuing progress in aerosol chemical characterization have provided new insights, including various measures of aerosol oxidative properties, based on the mechanistic model that certain aerosol components may catalytically generate oxidants in vivo leading to oxidative stress and inflammation. This symposium solicits contributions in all areas that address aerosol-health linkages.



BIOMASS BURNING AEROSOL: FROM EMISSIONS TO IMPACTS

Co-chairs: Sonia M. Kreidenweis, Colorado State University, Fort Collins, CO and Ryan Sullivan, Carnegie Mellon University, Pittsburgh, PA

Biomass burning is receiving increased attention for its potential roles in visibility reduction, negative impacts on air quality and health, and perturbations to regional climate through effects on circulation and precipitation patterns. Wildfire, prescribed fire, and domestic combustion of biomass represent regionally-important sources of trace gases and particles that are implicated in these effects. In addition, transport and deposition of absorbing particles onto snow and ice can accelerate melting, with correspondingly large impacts on water resources and local ecosystems. Regional impacts can be especially important and raise considerable concern in the United States and other regions throughout the globe. We invite contributed papers covering aspects of biomass burning, including characterization of emissions, and studies of human health, visibility, and climate impacts. Papers addressing regional impacts in the United States and other parts of the world, as well as impacts on global scales, are all welcomed.

AEROSOL SOURCES FROM EMERGING ENERGY TECHNOLOGIES AND PRODUCTION

Co-chairs: Akua Asa-Awuku, University of California Riverside, Riverside, CA and David Cocker, University of California Riverside, Riverside, CA

This symposium solicits contributions that improve our understanding of the aerosol budget from advanced energy technology sources. While the sources and production of energy are major drivers of national economic growth, they also play a fundamental role in regional air quality and global climate change. However, the contribution of the emerging energy sources (e.g., but not limited to, natural gas, alternative fossil fuels, algae, fracking, biomass, solar, biochar) to the aerosol budget has yet to be fully characterized. Abstracts submitted to this symposium will provide insight into the theoretical characterization, experimental methods, policy standards, characterization and instrumentation of aerosols emitted from emerging energy technologies.



AIR QUALITY AND CLIMATE IN THE SOUTHEAST US: INSIGHTS FROM RECENT MEASUREMENT CAMPAIGNS

Co-chairs: Ann Marie Carleton, Rutgers University, New Brunswick, NJ and Robert Griffin, Rice University, Houston, TX

Though widely acknowledged to occur, the extent to which emissions from human activity alter the fate of biogenic emissions to form radical species, ozone and particulate matter, including optically active and cloud-forming particles, is poorly understood. Comprehensive investigations among 100s of scientists converged on the Southeastern U.S. during the summers of 2012 and 2013 to address these critical knowledge gaps. Coordinated studies in the Southeast U.S. during the 1990s redefined air quality management. In the past 20+ years since, our understanding of atmospheric chemistry has vastly improved largely due to improved temporal resolution and an expanded spectrum of measureable compounds through state-of-art instrumentation. Experimental results from DC3 (Deep Convective Clouds and Chemistry), DISCOVER-AQ, the Southeast Atmosphere Study (SAS), and SEAC4RS (Studies of Emissions and Atmospheric Composition, Clouds and Climate Coupling by Regional Surveys) have the potential to produce substantial leaps in our understanding. This symposium solicits contributions presenting results and insights obtained from these campaigns.

ADVANCES IN THE PHYSICS AND CHEMISTRY OF NEW PARTICLE FORMATION AND GROWTH

Co-chairs: James N. Smith, National Center for Atmospheric Research, Boulder, CO and Jeffrey R. Pierce, Colorado State University, Fort Collins, CO

This symposium solicits contributions that describe research progress on atmospheric aerosol nucleation and growth, including laboratory studies, theoretical calculations and modeling, and field measurements. This is currently a time of rapid advances in research on atmospheric aerosol nucleation and the growth of nanometer-sized aerosol. New instruments can routinely detect particles as small as 1.5 nm in diameter and measure the composition of ambient charged and neutral clusters. New facilities now allow laboratory studies of nucleation with very low levels of contaminants and at precursor concentrations that approximate those in the real atmosphere. Theoretical calculations are providing insights into the mechanisms of nucleation and growth. Regional and global models that account for nucleated aerosols are increasing in



sophistication. The foci of these new instruments, facilities, and models are the fundamental questions that have challenged researchers for generations: What chemical species are responsible for nucleation? What species and mechanisms are responsible for the growth of freshly nucleated atmospheric aerosol? What are the ultimate impacts of atmospheric new particle formation in global chemistry and climate?





EXHIBITORS

AAAR gratefully acknowledges the following companies for their participation at the 33rd Annual Conference. Please visit each company in *Panzacola F/G* at Rosen Shingle Creek.

Organization.....Booth Number

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Cooper Environmental Services.....	306
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U.S. Environmental Protection Agency 300

Air, Climate, and Energy Research Program
109 T. W. Alexander Drive
Research Triangle Park, NC 27711
USA

Tel: 919-541-7818

Website: www.epa.gov/airscience

The U.S. Environmental Protection Agency is advancing atmospheric aerosol research to improve our understanding of its formation and atmospheric transport and fate and to assess its health effects. In light of climate change, research is addressing related impacts and interventions of airborne particulate matter, notably black carbon.



Mobile Smog Simulator

New Capabilities to Study Urban Air Mixtures

The U.S. Environmental Protection Agency's Air, Climate, and Energy Research program conducts comprehensive inhalation toxicity testing of combustion emissions. A smog simulator developed by EPA scientists and engineers has unique capabilities that will provide information for assessing the health impacts of relevant multipollutant atmospheres and will identify the relative contribution of specific sources on these processes.

Research Objectives:

- Generate novel atmospheres containing secondary organic aerosols and other reaction products.
- Study multipollutant health effects, including types, classes and activity that affect various health indicators.
- Perform cell (in vitro) screening for mutagenicity, cytotoxicity and oxidative stress markers.
- Conduct acute cardiopulmonary health testing of atmospheres using animal models of cardiac stress, hypertension, metabolic syndrome, respiratory infections and allergic asthma.
- Assess effects of temperature changes on smog formation.
- Support EPA's evaluation of air mixtures for setting the National Ambient Air Quality Standards (NAAQS).

SMOG SIMULATOR FEATURES:

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Unique temperature control capability

Simultaneous *in vitro* and *in vivo* testing

Steady-state mode enables extended testing times

Contact:

Dr. Ian Gilmour
919-541-0015

gilmour.ian@epa.gov



TECHNICAL PROGRAM

Tuesday 8:00 AM - 9:15 AM

Plenary I

- | | |
|------|-------------------------------------------------------------------------------------------------|
| 8:00 | Welcoming Remarks Athanasios Nenes,
Conference Chair, Georgia Institute of Technology |
| 8:05 | Can We Tame the Aerosol Uncertainty Monster?
Ken Carslaw, University of Leeds |
| | Moderator Peter Adams, Carnegie Mellon University |
| 9:00 | Whitby Award Presentation Donald Dabdub, Uni-
versity of California, Irvine |

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 *PANZACOLA H 1-3*

V. Faye McNeill and Qi Zhang, chairs

- | | |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1AC.1
9:45 | Secondary Organic Aerosol Formation from Acylperoxynitrates (APNs) of Biogenic Aldehydes.
TRAN NGUYEN, Kelvin Bates, Matthew Coggon,
Xuan Zhang, Zhenfa Zhang, Avram Gold, Jason Sur-
ratt, John Crounse, Paul Wennberg, John Seinfeld,
<i>California Institute of Technology</i> |
| 1AC.2
10:00 | SOA Formation from the Aqueous-phase Reactions of Phenolic Compounds. QI ZHANG, Lu Yu,
Jeremy Smith, Cort Anastasio, Alexander Laskin,
<i>University of California, Davis</i> |
| 1AC.3
10:15 | SOA Potential Formation from Whole Gasoline.
CHIA-LI CHEN, Ping Tang, Lijie Li, David R. Cocker III,
<i>University of California, Riverside</i> |



1AC.4 **Effect of Temperature and Dilution on SOA**
10:30 **Derived from Reaction of Beta-pinene with**
Nitrate Radical. CHRISTOPHER BOYD, Lu Xu, Javier
 Sanchez, Xiaoxi Liu, Wing-Yin Tuet, Greg Huey, Nga
 Lee Ng, *Georgia Institute of Technology*

1AC.5 **Photoactivated SOA Formation: Mechanistic**
10:45 **Insight from Modeling and Experiments.** V. FAYE
 MCNEILL, Andrew Sumner, Joseph Woo, Wanyi Li,
 Nabil Khan, Yi Rao, *Columbia University*

1AC.6 **Instantaneous NO Effect on Secondary Organic**
11:00 **Aerosol Formation during m-Xylene Photooxi-**
dation. LIJIE LI, Ping Tang, Chia-Li Chen, David R.
 Cocker III, *University of California, Riverside*

1AC.7 **Incremental Secondary Organic Aerosol Forma-**
11:15 **tion at Simulated Atmospheric Reactivities.** MARY
 KACARAB, William P. L. Carter, David R. Cocker III,
University of California, Riverside

1AP AEROSOL PHYSICS PANZACOLA H 4

Rajan Chakrabarty and William Heinson, chairs

1AP.1 **Light Scattering by Thickened Percolation Ag-**
9:45 **gregates.** WILLIAM HEINSON, Chris Sorensen, Amit
 Chakrabarti, *Kansas State University*

1AP.2 **Wavelength Resolved Polarized Elastic Scatter-**
10:00 **ing Measurements from Single Particles.** Jozsef
 Czege, VASANTHI SIVAPRAKASAM, Jay Eversole,
Naval Research Laboratory

1AP.3 **Bounds on Aerosol Physical and Optical Proper-**
10:15 **ties Using Linear Programming-based Extension**
of the Quadrature Method of Moments. ROBERT
 MCGRAW, *Brookhaven National Laboratory*

1AP.4 **Linear Electrodynamic Quadrupole Trap for**
10:30 **Single Particle Studies.** MATTHEW HART, Erin
 M. Durke, Jason Edmonds, Jay Eversole, *Naval*
Research Laboratory

1AP.5 **Radiative Properties of Soot Fractal Aggregates**
10:45 **Formed by Polydisperse Point-Touch Spherical**
Particles. FENGSHAN LIU, Jerome Yon, *National*
Research Council Canada



1AP.6
11:00
High Intensity X-ray Scattering of Nanosized Ice Particles Formed in a Supersonic Nozzle. ANDREW AMAYA, Viraj Modak, Harshad Pathak, Michael Bogan, Hartawan Laksmono, Claudiu Stan, Duane Loh, Raymond Sierra, Anders Nilsson, Jonas Sellburg, Trevor McQueen, Sebastien Boutet, Garth Williams, Marc Messerschmidt, Barbara Wyslouzil, *The Ohio State University*

1AP.7
11:15
Divine Proportion Shape Invariance of DLCA Fractal Aggregates: An Analytical Theory. William Heinson, Amit Chakrabarti, CHRIS SORENSEN, *Kansas State University*

1CC AEROSOLS, CLOUDS, AND CLIMATE
SEBASTIAN I 1

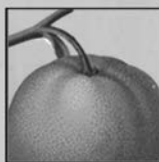
Andy Ault and Shunsuke Nakao, chairs

1CC.1
9:45
Optical Properties of Suspended Mineral Dusts from Desert Source Regions. Johann Engelbrecht, HANS MOOSMULLER, Samuel Pincock, David Campbell, Rajan K. Chakrabarty, R.K.M. Jayanty, Gary Casuccio, *Desert Research Institute*

1CC.2
10:00
In-situ Measurement of the Aerosol Absorption Spectrum as a Function of Particle Size: Implications for Climate Change. CHRISTOPHER ZANGMEISTER, James Radney, *National Institute of Standards and Technology*

1CC.3
10:15
Effects of Global Climate on Photochemical Pollutant Levels Using Climate Downscaling Meteorology and Chemical Transport Model. HONGLIANG ZHANG, Jianlin Hu, David Rasmussen, Zhan Zhao, Shu-Hua Chen, Michael Kleeman, *University of California, Davis*

1CC.4
10:30
Multi-year Analysis of Aerosol Optical Depth and its Impact on Cloud Properties over a Coastal-urban City of South Africa as Retrieved from MODIS. A. JOSEPH ADESINA, Venkataraman Sivakumar, K. Raghavendra Kumar, *University of Kwazulu-Natal, Durban, South Africa*



1CC.5
10:45 **Ice Nucleating Particle Emissions from Biomass Combustion and the Potential Importance of Soot Aerosol.** EZRA LEVIN, Gavin McMeeking, Paul DeMott, Christina S. McCluskey, Christian Carrico, Shunsuke Nakao, Chelsea Stockwell, Robert J. Yokelson, Sonia Kreidenweis, *Colorado State University*

1CC.6
11:00 **Adjoint Analysis of Ice Crystal Sensitivity to Heterogeneous Nucleation Spectrum.** SYLVIA SULLIVAN, Benjamin Sheyko, Athanasios Nenes, *Georgia Institute of Technology*

1CC.7
11:15 **Droplet Activation Parameterization for Climate Models: The Population Splitting Concept Revisited.** RICARDO MORALES BETANCOURT, Athanasios Nenes, *Georgia Institute of Technology*

1HA HEALTH RELATED AEROSOLS SEBASTIAN / 3

Roby Greenwald and Jun Wang, chairs

1HA.1
9:45 **Health Implications Of Aerosols from Asbestos-Bearing Road Pavements Traditionally Used in Southern Brazil.** RICARDO H. M. GODOI, Sérgio J. Gonçalves Jr., Célia Sayama, José M. Reis Neto, László Bencs, Bálint Alföldy, René Van Grieken, Carlos A. Riedi, Ana Flavia L. Godoi, Guilherme C. Borillo, Yara S. Tadano, *Federal University of Parana - Curitiba, PR, Brazil*

1HA.2
10:00 **An Analysis of Air Pollution Effects On Health In São Paulo City Through Health Impact Assessment Approach.** SIMONE MIRAGLIA, Karina Abe, Ricardo Popescu-Junior, *Universidade Federal de Sao Paulo, Sao Paulo, Brazil*

1HA.3
10:15 **Air Quality Assessment of Indoor Brazilians Elementary Schools Nearby Petrochemical Industry.** RICARDO H. M. GODOI, Ana Flavia L. Godoi, Sérgio J. Gonçalves Jr., Guilherme C. Borillo, Sarah L. Paralovo, Cybelli G. G. Barbosa, Manoela G. Arantes, Nelson A. Rosário Filho, Carlos I. Yamamoto, Sanja Potgieter-Vermaak, René Van Grieken, Yara S. Tadano, *Federal University of Parana - Curitiba, PR, Brazil*



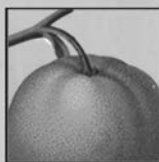
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|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1HA.4
10:30 | Estimating Climate and Health Costs from Emissions of On-road Gasoline and Diesel Vehicles. SHANTANU JATHAR, Allen Robinson, <i>University of California, Davis</i> |
| 1HA.5
10:45 | Aerosol Emissions from Ships Using Heavy Fuel Oil or Diesel Fuel: Composition and Biological Effects on Human Lung Cells. RALF ZIMMERMANN, Sebastian Öder, Tamara Kanashova, Olli Sipppula, Saen Sapcariu, Thorsten Streibel, Manuel Jose Arteaga-Salas, Johannes Passig, Hanns-Rudolf Paur, Marco Dilger, Benjamin Stengel, Horst Harndorf, Jorma Jokiniemi, Kelly BeruBe, Erwin Karg, Jürgen Schnelle-Kreis, Jürgen Orasche, Laarnie Müller, Ahmed Rehda, Thomas Gröger, Martin Sklorz, Christian Radischat, Karsten Hiller, Jeroen Buters, Gunnar Dittmar, <i>Helmholtz Zentrum München and Rostock University</i> |
| 1HA.6
11:00 | Characterization of Atmospherically Important Organic Radicals in the Gas and Particle Phase. STEVEN CAMPBELL, Chiara Giorio, Markus Kalberer, <i>University of Cambridge</i> |
| 1HA.7
11:15 | Factors Controlling the Pulmonary Bioaccessibility of Trace Elements in Atmospheric Fine and Ultrafine Particles Near an Industrial Site. LAURENT ALLEMAN, Saliou Mbengue, Esperanza Perdrix, Aude Pascaud, Pascal Flament, <i>Mines Douai, SAGE, F-59508 Douai, France</i> |

1IA INDOOR AEROSOLS

SEBASTIAN I 4

Tiina Reponen and Yifang Zhu, chairs

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|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1IA.1
9:45 | Relative Contributions of Self-Pollution and On-Road-Pollution to Children's Exposure in School Buses. EON LEE, Yifang Zhu, <i>University of California, Los Angeles</i> |
| 1IA.2
10:00 | Commuters' Exposure to PM_{2.5} and CO₂ in Metro Carriages of Shanghai Metro System. HAO GU, Bin Xu, <i>Tongji University</i> |
| 1IA.3
10:15 | Feasibility of Partial Air Recirculation for Vehicle HVAC System. HEEJUNG S. JUNG, Michael Grady, <i>University of California Riverside</i> |



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- 11A.4** **Physical Characteristics of Ultrafine Particles
Generated by Electronic Cigarettes.** CHA-CHEN
10:30 FUNG, Zhongshu Li, Mei Zheng, Yifang Zhu, *UCLA*
-
- 11A.5** **Investigation of the Reactivity of PAHs Present in
Model Indoor Surfaces.** SHOUMING ZHOU, Matthew
10:45 Forbes, Jonathan Abbatt, *University of Toronto*
-
- 11A.6** **How Air Quality Metrics and Wireless Technology
can Maximize the Energy Efficiency of HVAC in
a Working Auditorium.** ANNA LEAVEY, Yong Fu, Mo
11:00 Sha, Andrew Kutta, Chenyang Lu, Wei-Ning Wang,
Bill Drake, Yixin Chen, Pratim Biswas, *Washington
University in St Louis*
-
- 11A.7** **Indoor and Outdoor Endotoxins at Santiago,
Chile: Spring 2012 Results.** HECTOR JORQUERA,
11:15 Francisco Barraza, Gonzalo Valdivia, Lupita Montoya,
Pontificia Universidad Catolica de Chile
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1UA URBAN AEROSOLS SEBASTIAN I 2

Andy May and Kelley Barsanti, chairs

-
- 1UA.1** **Characterizing Particle Emissions from Light
Duty Gasoline Vehicles during Different Driving
Cycles.** ROYA BAHREINI, Jian Xue, Yang Li, Kent C.
9:45 Johnson, Thomas D. Durbin, David Quiros, Shao-
hua Hu, Tao Huai, Alberto Ayala, Heejung S. Jung,
University of California, Riverside
-
- 1UA.2** **Assessing the Impact of Driving Pattern on
Emission Factor Variability Using a Gasoline
Direct Injection Light-duty Passenger Vehicle.**
10:00 NAOMI ZIMMERMAN, Jon M Wang, Cheol-Heon
Jeong, Nathan Hilker, Kelly Sabaliauskas, Robert
Healy, Greg J. Evans, SOCAAR, *University of Toronto*
-
- 1UA.3** **Seasonal and Multi-Year Trends in Vehicle
Emissions Measured in a Traffic Tunnel.** ALBERT
10:15 A. PRESTO, Xiang Li, Timothy Dallmann, *Carnegie
Mellon University*
-



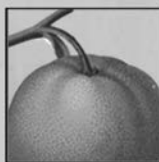
- 1UA.4**
10:30 **Real-World Vehicle Emission Factors of Gaseous and Particle Phase Pollutants from High Time Resolution Near-Road Measurements.** JON M WANG, Cheol-Heon Jeong, Naomi Zimmerman, Nathan Hilker, Robert Healy, Greg J. Evans, SOCAAR, *University of Toronto*
- 1UA.5**
10:45 **Characterization of Black Carbon and Polycyclic Aromatic Hydrocarbon Plume Events in Near-Source Microenvironments Using a Mobile Sampling Platform.** TIMOTHY DALLMANN, Peishi Gu, Yi Tan, Allen Robinson, Albert A. Presto, *Carnegie Mellon University*
- 1UA.6**
11:00 **Lead Impacts from General Aviation Airports: A Weight of Evidence Approach.** STEPHEN FEINBERG, Jay Turner, *Washington University in St. Louis*
- 1UA.7**
11:15 **Highly-resolved Modeling of Emissions and Concentrations of Carbon Monoxide, Carbon Dioxide, Nitrogen Oxides, and Fine Particulate Matter in Salt Lake City, Utah.** DANIEL MENDOZA, John Lin, Logan Mitchell, James Ehleringer, *University of Utah*

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

2AC AEROSOL CHEMISTRY
PANZACOLA F/G

Tran Nguyen, chair

- 2AC.1**
1:00 **Resolving Complex Hydrocarbon Mixtures Using Gas Chromatography Mass Spectrometry with Soft Ionization.** ARTHUR CHAN, Farhana Hoque, Aviv Amirav, *University of Toronto*
- 2AC.2**
1:00 **Effects of Meteorological Conditions on the Formation of Secondary Organic Aerosol from Amine Precursors.** DEREK PRICE, Mary Kacarab, David R. Cocker III, Kathleen Purvis-Roberts, Philip Silva, *University of California, Riverside*
- 2AC.3**
1:00 **Geraniol-trans (3,7-dimethylocta-2,6-dien-1-ol) Ozonolysis: Kinetics and Mechanism.** TADEU LEONARDO SOARES E SILVA, *State University of Rio de Janeiro*



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- 2AC.4**
1:00
Photooxidation of Isoprene Epoxydiol (IEPOX)-Derived Secondary Organic Aerosol. KELVIN BATES, Tran Nguyen, Rebecca Schwantes, Xuan Zhang, Matthew Coggon, Richard Flagan, Brian Stoltz, Paul Wennberg, John Seinfeld, *Caltech*
-
- 2AC.5**
1:00
SOA Formation from Photooxidation of Individual PAHs and Mixtures. CHIA-LI CHEN, Mary Kacarab, Ping Tang, David R. Cocker III, *University of California, Riverside*
-
- 2AC.6**
1:00
Mass Spectral Observations of Submicron Aerosol Particles and Production of Secondary Organic Aerosol at an Anthropogenically Influenced Site during the Wet Season of GoAmazon2014. SUZANE SIMOES DE SA, Brett Palm, Pedro Campuzano-Jost, Douglas Day, Weiwei Hu, Matt Newburn, Joel Brito, Paulo Artaxo, Rodrigo A. F. Souza, Antonio O. Manzi, Jose-Luis Jimenez, Lizabeth Alexander, Scot Martin, *Harvard University*
-
- 2AC.7**
1:00
Oxidation of Biodiesel Exhaust Particulate Matter with Ozone. JOHN KASUMBA, Britt Holmén, *University of Vermont*
-
- 2AC.8**
1:00
Brown Carbon Formation in Secondary Organic Aerosol from Heterogeneous Reactive Uptake of Isoprene Epoxydiols. Ying-Hsuan Lin, Sri Hapsari Budisulistiorini, Kevin Chu, RICHARD SIEJACK, Haofei Zhang, Zhenfa Zhang, Avram Gold, Jason Surratt, Kathryn Kautzman, *Towson University*
-
- 2AC.9**
1:00
Determining Extraction Efficiencies for the Trace Analysis of Organics in Airborne Particulate Matter. MORGAN DUNDON, Richard Siejack, Robert Ishakis, Kathryn Kautzman, *Towson University*
-
- 2AC.10**
1:00
Kinetics Modeling of the Functionalization and Fragmentation Mechanisms of Aerosol Oxidation. AARON WIEGEL, Kevin Wilson, William Hinsberg, Frances Houle, *Lawrence Berkeley National Laboratory*
-
- 2AC.11**
1:00
Chemical Mechanisms of Atmospheric Aging of Secondary Organic Aerosol. PEIJUN TU, Murray Johnston, *University of Delaware*
-



- 2AC.12**
1:00
Evaporation of and Water Uptake by Sub-10 Nano-meter Dimethylamine-Sulfuric Acid Nanoparticles. HUI OUYANG, Siqin He, Christopher Hogan Jr., *University of Minnesota*
- 2AC.13**
1:00
OH- Initiated Heterogeneous Oxidation of Saturated Organic Aerosols in the Presence of SO₂: Uptake Kinetics and Product Identification. NICOLE K. RICHARDS-HENDERSON, Michael Ward, Allen H. Goldstein, Kevin Wilson, *Lawrence Berkeley National Laboratory*
- 2AC.14**
1:00
Secondary Organic Aerosol from Aqueous Reactions of Green Leaf Volatiles with Organic Triplet Excited States and Singlet Molecular Oxygen. NICOLE K. RICHARDS-HENDERSON, Andrew Pham, Kalliat Valsaraj, Cort Anastasio, *University of California, Davis*

2AE AEROSOL EXPOSURE PANZACOLA F/G

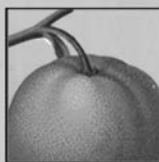
Roby Greenwald, chair

- 2AE.1**
1:00
Characterization of Aerosols Generated from Stainless Steel Plasma Cutting. JUN WANG, *University of Oklahoma Health Sciences Center*
- 2AE.2**
1:00
Nanoparticle Measurements for the Breathing Zone Model. JEROME GILBERRY, Meaghan McGrath, Jonathan Thornburg, *RTI International*
- 2AE.3**
1:00
Release of Airborne Particles from Nanotechnology-enabled Clothing. LEONARDO CALDERÓN, Le-tao Yang, Kibum Lee, Gediminas Mainelis, Rutgers, *The State University of New Jersey*

2AP AEROSOL PHYSICS PANZACOLA F/G

Hans Moosmuller, chair

- 2AP.2**
1:00
Evolution of Capacitance for Agglomerated Nanoparticles during Sintering. LEO N.Y. CAO, Jing Wang, Heinz Fissan, Sotiris E. Pratsinis, Max L. Eggersdorfer, David Y. H. Pui, *University of Minnesota*



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- 2AP.3**
1:00 **Gravity-induced Trapping and Aerogelation of Nanoparticles in Flame Reactors.** RAJAN K. CHAKRABARTY, Igor Novosselov, Nicholas Beres, Hans Moosmuller, Chris Sorensen, Christopher Stipe, *Desert Research Institute*
-
- 2AP.4**
1:00 **The Crossover from Spherical Particle Scattering to Circular Aperture Diffraction in the Limit of Vary Large Spheres.** WILLIAM HEINSON, Chris Sorensen, Amit Chakrabarti, *Kansas State University*
-
- 2AP.5**
1:00 **Q-space Analysis of Light Scattering by Gaussian Random Spheres.** JUSTIN MAUGHAN, William Heinson, Amit Chakrabarti, Chris Sorensen, *Kansas State University*
-
- 2AP.6**
1:00 **Characterization of Particle Resuspension from Surfaces.** BABAK NASR, Suresh Dhaniyala, Andrea R. Ferro, Goodarz Ahmadi, Sari Paikoff, *Clarkson University*
-
- 2AP.8**
1:00 **Growth of Small Molecular Clusters: Comparison of Growth Rates Determined from Cluster Appearance Times and Collision–Evaporation Fluxes.** Tinja Olenius, Ilona Riipinen, Katrianne Lehtipalo, HANNA VEHKAMÄKI, *University of Helsinki*
-
- 2AP.9**
1:00 **Alignment of Aerosolized Glass Fibers by an Applied Electric Field.** Bon Ki Ku, C.S. Lauber, G. J. DEYE, Leonid Turkevich, *NIOSH*
-

2AQ AIR QUALITY AND CLIMATE IN THE SOUTHEAST US: INSIGHTS FROM RECENT MEASUREMENT CAMPAIGNS *PANZACOLA F/G*

Annmarie Carlton, chair

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- 2AQ.1**
1:00 **Long-Range Transport of Agricultural Smoke to Houston, TX during September 2013: Effects on Aerosol Optical Depths.** ANDREAS BEYERS-DORF, Sharon P. Burton, Gao Chen, Jack Lin, Robert Martin, Richard Moore, Athanasios Nenes, Kenneth Thornhill, Edward Winstead, Luke Ziemba, Bruce Anderson, *NASA Langley Research Center*
-
- 2AQ.2**
1:00 **The Impact of Emissions from Mobile Sources and Biomass Burning on Ambient PM_{2.5} EC and OC in the SEARCH Network, 1999 - 2013.** CHARLES BLANCHARD, George Hidy, *Envair*
-

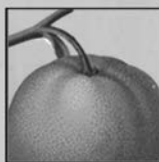


- 2AQ.3**
1:00
The Southeastern Center for Air Pollution and Epidemiology: Results from the Measurement Campaign. LAURA KING, Hongyu Guo, Ting Fang, Vishal Verma, Eric Edgerton, Armistead Russell, Rodney Weber, *Georgia Institute of Technology*
- 2AQ.4**
1:00
Single Particle Diversity and Its Impact on Heterogeneous Reactivity during the SOAS Field Campaign. ANDREW AULT, Amy Bondy, Rebecca Craig, Rachel O'Brien, Ryan Moffet, Bingbing Wang, Alexander Laskin, Mary Gilles, Kerri Pratt, Victor Nhliziyo, Steve Bertman, Paul Shepson, *University of Michigan*
- 2AQ.5**
1:00
Radiocarbon Measurements of PM_{2.5} Total Carbon and Elemental Carbon from Centreville, AL during the SOAS Field Study. ERIC EDGERTON, Yanlin Zhang, Soenke Szidat, Andre Prévôt, Stephanie Shaw, John Jansen, Karsten Baumann, Charles Blanchard, *Atmospheric Research & Analysis*
- 2AQ.6**
1:00
Chemical Characterization of Atmospheric Fine Aerosol at the Jefferson Street, Atlanta, GA Using the Aerodyne Aerosol Chemical Speciation Monitor (ACSM): Results from Winter, Spring and Summer 2014. WERUKA RATTANAVARAHA, Sri Hapsari Budisulistiorini, Philip Croteau, Karsten Baumann, Eric Edgerton, Manjula Canagaratna, John Jayne, Douglas Worsnop, Stephanie Shaw, Jason Surratt, *University of North Carolina at Chapel Hill*

2BB BIOMASS BURNING AEROSOL: FROM EMISSIONS TO IMPACTS
PANZACOLA F/G

Sonia Kreidenweis and Ryan Sullivan, chairs

- 2BB.2**
1:00
Quantifying Personal Exposures to Biomass Cookstove Emissions using RTI International's MicroPEM™ Technology. RYAN CHARTIER, Charles Rodes, J. Randall Newsome, James Carlson, Samuel DeFilipp, Seung-Hyun Cho, Jonathan Thornburg, *RTI International*
-



2BB.3 **How Fuel and Household Characteristics May Explain Variability in Biomass-burning Cook-stove Emissions in Rural Rajasthan, India.** ANNA LEAVEY, Jessica Londeree, Ravi Shrimali, Gautam Yadama, Pratim Biswas, *Washington University in St Louis*

1:00

2BB.4 **Transmission Electron Microscopy Analysis of Biomass-Burning Aerosol Particles during BBOP Campaign 2013.** KOUJI ADACHI, Arthur J. Sedlacek, Lawrence Kleinman, Duli Chand, Peter Buseck, *Meteorological Research Institute*

1:00

2BB.5 **Impact of Biomass Combustion Activities from Olive Oil Industry on Air Quality in South European Regions.** BEGONA ARTINANO, Ana Sanchez de la Campa, Esther Coz, Rocio Fernandez Camacho, Marta Becerril, Pedro Salvador, Rosa Perez Pastor, Susana Garcia Alonso, Jesus de la Rosa, *CIEMAT*

1:00

2BB.6 **An Integrated Particulate and Gaseous Emissions Model to Investigate the Effects of Cook-stove Design and Operating Conditions.** SAMEER PATEL, Chang Ki Kang, Ahmed Amin Abokifa, Pratim Biswas, *Washington University in St Louis*

1:00

2CC AEROSOLS, CLOUDS, AND CLIMATE PANZACOLA F/G

Honglian Zhang, chair

2CC.1 **Determining the Concentration of Insoluble and Soluble Species in Seawater using Membrane Filtration – Differential Mobility Analyzer (MF-DMA) Technique.** WAJIH UR REHMAN, Ji Yeon Park, Kihong Park, *Gwangju Institute of Science and Technology*

1:00

2CC.2 **Effect of Raindrop Size Distribution on Scavenging of Aerosol Particles from Gaussian Air Pollution Plumes Emitted from Point and Line Sources.** BORIS KRASOVITOV, Tov Elperin, Andrew Fominykh, *Ben-Gurion University of the Negev*

1:00

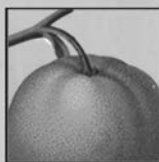


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| 2CC.3
1:00 | An Overview of the NASA ACCESS Flight Experiment. BRUCE ANDERSON, Richard Moore, Andreas Beyersdorf, Charles Hudgins, Robert Martin, Michael Shook, Kenneth Thornhill, Edward Winstead, Luke Ziemba, Aaron Swanson, <i>NASA</i> |
| 2CC.5
1:00 | Simulation of Particle Number and Cloud Droplet Concentrations in the Midwestern United States Using WRF-Chem. CAN DONG, Charles Stanier, Robert Bullard, Ashish Singh, <i>University of Iowa</i> |
| 2CC.7
1:00 | Atmospheric Impacts of Black Carbon Emissions Reductions through the Strategic Use of Biodiesel. HONGLIANG ZHANG, Kento Magara-Gomez, Michael Olson, Tomoaki Okuda, Keeneth Walz, Michael Kleeman, James Schauer, <i>University of California, Davis</i> |
| 2CC.8
1:00 | Future Projections of Aerosol Optical Depth, Radiative Forcing, and Climate Response due to Diminishing Aerosol Emissions. DANIEL WESTERVELT, Larry Horowitz, Vaishali Naik, Denise Mauzerall, <i>Princeton University</i> |
| 2CC.9
1:00 | Microscopic Studies of Ice Nucleation. BINGBING WANG, Daniel Knopf, Mary Gilles, Gourihar Kulkarni, Shawn Kathmann, Libor Kovarik, Alexander Laskin, <i>Pacific Northwest National Laboratory</i> |

2CH CONTROL TECHNOLOGY PANZACOLA F/G

Mei Wang and Zhili Zuo, chairs

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|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2CH.1
1:00 | Filtration of Combustion Aerosols by Facepiece Respirators and Stationary IAQ Filters. SHUANG GAO, Jin Yong Kim, Michael Yermakov, Xinjian He, Yousef Elmashae, Tiina Reponen, Sergey A. Grinshpun, <i>University of Cincinnati</i> |
| 2CH.2
1:00 | The Effect of Air Dilution on WOX Nanoparticle Generation and Thermal Rebound in Filtration. RAHELEH GIVEHCHI, Zhongchao Tan, <i>University of Waterloo</i> |
| 2CH.3
1:00 | Filtration Characteristics of Granular Ceramic Filter. MYONG-HWA LEE, Hyun-Jin Choi, Jeong-Uk Kim, <i>Korea Institute of Industrial Technology</i> |



2CH.4 **The Effect of Simulated Air Conditions on N95 Respirator Performance.** JOEL RAMIREZ, Patrick O'Shaughnessy, University of Iowa
1:00

2CH.5 **Effects of Particle and Spray Droplet Charge on Respirable Dust Capture by Surfactant Sprays.** MEI WANG, Peter Raynor, *University of Minnesota*
1:00

2CH.8 **Evaluation of Sampling Media for Use in a Nanoparticle Respiratory Deposition Sampler.** LEVI MINES, Jae Hong Park, Imali Mudunkotuwa, Vicki Grassian, T. Renee Anthony, Thomas Peters, *University of Iowa*
1:00

2HA HEALTH RELATED AEROSOLS PANZACOLA F/G

Maosheng Yao and Haider Khwaja, chairs

2HA.1 **Modeling Deposition of Cigarette Puff Mixture in Human Lungs.** BAHMAN ASGHARIAN, Owen Price, Caner Yurteri, John McAughey, *Applied Research Associates, Inc.*
1:00

2HA.2 **What is Effect of Water Pipe Height on Particulate Formation in Mainstream Waterpipe Smoke?** CINDY DEFOREST HAUSER, Jessica Annonio, *Davidson College*
1:00

2HA.3 **Estimation of Electron Microscopy Image-based Aerodynamic and Diffusion Diameters for Carbon Nanotube Aerosols.** BON KI KU, Pramod Kulkarni, Centers for Disease Control and Prevention, *NIOSH*
1:00

2HA.4 **Formation of Hydroxyl Radical from Cooking and Vehicle Exhaust Particles Extracted in a Cell-free Surrogate Lung Fluid.** SHEXIA MA, Ke Ren, Laiguo Chen, Zhencheng Xu, *South China Institute of Environmental Sciences*
1:00

2HA.5 **Airway-by-Airway Imaging of Particles Deposited in Animal Lungs.** CHRISTOPHER WALLIS, DongYoub Lee, Annalisa Smullin, Anthony Wexler, *University of California Davis*
1:00

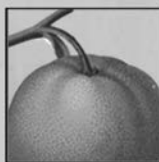


2HA.6 1:00	Generating a Pharmaceutical Aerosol with High Charge and Low Device Losses. LANDON HOLBROOK, Worth Longest, <i>Virginia Commonwealth University</i>
2HA.7 1:00	Source, Size and Seasonal Differences in the Biological Potency of Ambient Particulate Matter Collected at Three Different Locations across Canada. SUBRAMANIAN KARTHIKEYAN, Dalibor Breznán, Errol Thomson, Yunus Siddiqui, P. Goegan, Michael Denison, P. Kumarathasan, Jeff Brook, Renaud Vincent, Hazard Identification Division, HECSB, <i>Health Canada</i>
2HA.8 1:00	Evaluation Criteria for Bioaerosol Samplers. JANA KESAVAN, Jose-Luis Sagripanti, <i>US ARMY ECBC</i>
2HA.9 1:00	Evaporation Kinetics of Secondary Organic Aerosols Derived from Engine Exhaust Precursors. Mohammad Baasiri, ALAN SHIHADDEH, <i>American University of Beirut</i>
2HA.10 1:00	Effects of User Puff Topography, Device Power, and Liquid Nicotine Concentration on Electronic Cigarette Nicotine Yield: Measurements and Model Predictions. Soha Talih, Zainab Balhas, Thomas Eissenberg, Rola Salman, Nareg Karaoghlanian, Ahmad El Hellani, Rima Baalbaki, Najat A. Saliba, ALAN SHIHADDEH, <i>American University of Beirut</i>
2HA.12 1:00	Respiratory Dose Assessment for Heterogeneous Ambient Aerosols. CHONG KIM, Jung-il Choi, <i>USEPA</i>

2IA INDOOR AEROSOLS *PANZACOLA F/G*

Tiina Reponen, chair

2IA.1 1:00	High Face Velocity (0.5-1.0 m/s) Penetration of sub-50 nm Nanoparticles through HVAC Filter Media Used in Residence. DEQIANG CHANG, Sheng-Chieh Chen, David Y. H. Pui, China North-eastern University, <i>University of Minnesota</i>
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- 2IA.3**
1:00
Comparison of Indoor and Outdoor Air Quality in Latino Communities in Peru, Chile, and USA. Wyatt Champion, Francisco Barraza, Hector Jorquera, LUPITA MONTOYA, *University of Colorado Boulder*
-
- 2IA.4**
1:00
Size-Segregated Mass Concentrations and Elemental Compositions of Particulate Matter (PM) Emitted during Toasting and Cooking. Soudabeh Gorjinezhad, MEHDI AMOUEI TORKMAHALLEH, Melek Keles, Fatma Öztürk, Cansu Azgin, Hediye Sumru Unlüevcek, Berfin Tanis, Elif Cihan, Nergis Ozaslan, Nurseli Soy, *Middle East Technical University Northern Cyprus Campus*
-
- 2IA.5**
1:00
Preliminary Evidence for Aqueous Oxidation of Organic Compounds in Indoor Air. SARA DUNCAN, Yong Lim, Jeffrey R. Kirkland, Barbara Turpin, *Rutgers University*
-
- 2IA.6**
1:00
Heating and Indoor Air Quality on the Navajo Nation. JOANNA GORDON, John Ortega, Mike Russel, Evan Coffey, Josh Bowen, Ashley Collier, Ricardo Piedrahita, Nick Masson, Margaret Mayer, Barbara Klein, Perry Charley, Michael Hannigan, *University of Colorado at Boulder*
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- 2IA.7**
1:00
Emission Patterns of PM and UFP from 3D Printers. Scott Steady, Bill Hoffman, ELLIOTT HORNER, *UL Environment*
-
- 2IA.8**
1:00
Effects of Walking Factors on Particle Resuspension via Human Walking. Kyung Sul, Yilin Tian, ANDREA R. FERRO, *Clarkson University*
-
- 2IA.9**
1:00
Variability of Aerosols and Chemical Composition of PM₁₀, PM_{2.5} and PM₁ in the Prague Underground Metro. MICHAEL CUSACK, Jakub Ondrecek, Nicholas Talbot, Jaroslav Schwarz, Vladimir Zdimal, *Institute of Chemical Process Fundamentals of the ASCR, v. v*
-
- 2IA.10**
1:00
An Experimental Assessment of the Dissociation of Ammonium Nitrate Aerosol. NICHOLAS TALBOT, Vladimir Zdimal, Jakub Ondrecek, Jaroslav Schwarz, PhD candidate
-
- 2IA.11**
1:00
Wintertime Indoor and Outdoor PM_{2.5} Northern Utah's Cache Valley. Randy Martin, KORI MOORE, *Utah State University*
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2IA.12
1:00
Using Direct Feedback from IAQ Monitors to Change Human Behavior and Reduce Exposure to PM. SANGEETHA KUMAR, Haley Grassi, Jing Qian, Julia Jacobs, Angela Benedict, Andrea R. Ferro, *Clarkson University*

2IA.13
1:00
Overview of Air Quality Regulations in South America. ANDRÉ HENRIQUE PEREIRA DE FREITAS LEAL, Lupita Montoya, *University of Colorado Boulder*

2IM INSTRUMENTATION AND METHODS
PANZACOLA F/G

Rui Li and Amy Sullivan, chairs

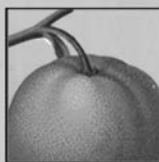
2IM.2
1:00
Atmospheric Aerosol Measurement Using Tethered Balloon Package System and Equipment Development. Kang-Ho Ahn, HEE-RAM EUN, Hong-Ku Lee, Lee Gun Ho, Yong-Hee Park, Chi-Young Choi, In-Kyu Hwang, *Hanyang University, R. of Korea*

2IM.3
1:00
MWCNTs Dispersion and Aerosolization Using EAAA (Electro-static Assist Axial Atomizer). GUN-HO LEE, Hong-Ku Lee, Hee-Ram Eun, Yong-Hee Park, In-Kyu Hwang, Chi-Young Choi, Jin-Kwon Kim, Ellen Kim, Il Je Yu, Kang-Ho Ahn, *Hanyang University, R. of Korea*

2IM.4
1:00
Chemical Analysis of Microliter-sized Liquid Samples Using Ultrasonic Nebulization and Aerosol Mass Spectrometry. KELSEY BOULANGER, Eben Cross, James Hunter, Anthony Carasquillo, Manjula Canagaratna, John Jayne, Philip Croteau, Jesse Kroll, *MIT*

2IM.5
1:00
Shear Induced Mixing of Laminar Flows: Implications for Aerosol Measurements. MATTHEW BROWN, Suresh Dhaniyala, *Clarkson University*

2IM.7
1:00
A New Personal Sampler for Measuring Inorganic Acid Mist and Gases: The Validation Test. CHIH-HSIANG CHIEN, Lin Shou, Alex Theodore, Chang-Yu Wu, Yu-Mei Hsu, Brian Birky, *University of Florida*



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- 2IM.8**
1:00 **Development of Sheathless Particle Classifier with Electrometer.** HIROYUKI YAMADA, Hiroshi Okuda, *National Traffic Safety and Environment Laboratory*
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- 2IM.9**
1:00 **Standard Test Method for the Measurement of Filtration Efficiency of Electret Facepiece Respirators Challenged with Diesel Exhaust.** SWATHI SATISH, Jacob Swanson, David Kittelson, David Y. H. Pui, *University of Minnesota*
-
- 2IM.10**
1:00 **NIOSH Center for Direct Reading and Sensor Technologies.** D. Gayle DeBord, MARK D HOOVER, *National Institute for Occupational Safety and Health*
-
- 2IM.11**
1:00 **Detection of Light vs. Heavy Atoms with a Laser Induced Plasma Ionization Source for Single Particle Analysis.** ANDREW J. HORAN, Justin Krasnomowitz, Murray Johnston, *University of Delaware*
-
- 2IM.12**
1:00 **Reduced Graphene Oxide: Towards an Absorbing Aerosol Standard.** JAMES RADNEY, Christopher Zangmeister, *National Institute of Standards and Technology*
-
- 2IM.13**
1:00 **Electrospray Aerosol Generator with Integrated Soft X-Ray Neutralizer and Usability Enhancements.** SHERRIE ELZEY, Jacob Scheckman, Aaron Avenido, Tim Johnson, *TSI Incorporated*
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2NP ADVANCES IN THE PHYSICS AND CHEMISTRY OF NEW PARTICLE FORMATION AND GROWTH *PANZACOLA F/G*

Jim Smith and Jeff Pierce, chairs

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- 2NP.1**
1:00 **Particle Formation in Vehicle Exhaust: Modelling the Nucleation and Growth.** MIIKKA DAL MASO, Miska Olin, Topi Ronkko, Jorma Keskinen, *Tampere University of Technology, Tampere, Finland*
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- 2NP.2**
1:00 **Chemical Mechanisms of Nanoparticle Growth Studied through a Combination of Ambient and Laboratory Measurements.** MURRAY JOHNSTON, Bryan R. Bzdek, Joseph DePalma, Andrew J. Horan, *University of Delaware*
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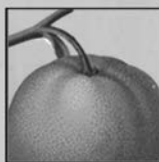
- 2NP.3**
1:00 **Aerosol Formation Initiated by Nucleation of Radical-Water Complexes.** SAMBHAV KUMBHANI, Emily Burrell, Shirts Randall, Jaron Hansen, *Brigham Young University*
- 2NP.4**
1:00 **Observation of Sub-3 nm Particles and New Particle Formation Events in Urban Shanghai, China.** Shan Xiao, MingYi Wang, JianMin Chen, Xin Yang, QingYan Fu, LIN WANG, *Fudan University*
- 2NP.5**
1:00 **Shrinkage of New Atmospheric Particles in an Urban Area of Southern Europe.** Elisabeth Alonso-Blanco, F. Javier Gomez-Moreno, Lourdes Nunez, Manuel Pujadas, *BEGONA ARTINANO, CIEMAT*
- 2NP.6**
1:00 **Insight into Particle Growth Rates and Controls from Two Years of SMPS and HTDMA Data.** MANASI MAHISH, Don Collins, *Texas A&M University*
- 2NP.7**
1:00 **Particle Nucleation and Vertical Profiles of 8-15 nm Particles at the DOE Southern Great Plains Facility from 300m to 1000m Above Sea Level.** JOHN ORTEGA, James N. Smith, James Greenberg, *National Center for Atmospheric Research*

2PH LINKING AEROSOLS WITH PUBLIC HEALTH IN A CHANGING WORLD

PANZACOLA F/G

V. Verma and Ting Fang, chairs

- 2PH.1**
1:00 **Estimating Spatiotemporal Variations of PM_{2.5} over the Pittsburgh Metropolitan Area Using Aerosol Optical Depth.** Tao Xue, RICHARD BILONICK, Daniel Connell, Evelyn Talbott, Judith Rager, LuAnn Brink, *University of Pittsburgh*
- 2PH.2**
1:00 **An Automated Microenvironmental Aerosol Sampler (AMAS) for Location/Activity Exposure Assessment.** CASEY QUINN, David Cate, Dan Miller-Lionberg, Charles Henry, John Volckens, *Colorado State University*
- 2PH.3**
1:00 **Impact of Urban Growth Form and Fleet Electrification on Emissions, Concentrations, and Exposures for Nitrogen Oxides and Select Toxic Volatile Organic Compounds.** HAOFEI YU, Amy L. Stuart, *University of South Florida*



2PH.4
1:00 **Health Implications of Exposure to Local Traffic-generated Particulate Matter (PM) in a Minority Community: Commuters and Local Residents' Perspectives.** JOHN BANG, Natushia Harris, Paige Presler-Jur, Andrey Khlystov, Dwayne Bell, *North Carolina Central University*

2PH.5
1:00 **E-cigarettes: Aerosol Sampling and Droplet Size Measurement.** JOHN MCAUGHEY, Ross Cabot, Caner Yurteri, David Lawson, *British American Tobacco*

2UA URBAN AEROSOLS PANZACOLA F/G

Adam Bateman and Paul A. Solomon, chairs

2UA.1
1:00 **Urban and Suburban Intermodal Fraction of Atmospheric Aerosol in Winter 2014.** JANA KOZAKOVA, Jan Hovorka, Jaroslav Schwarz, *Charles University in Prague*

2UA.2
1:00 **European Air Pollution Hot-Spot: Evidence of Industrial Plume over a Residential Area.** CECILIA LEONI, Jan Hovorka, *Charles University in Prague*

2UA.3
1:00 **Oxidative Potential and Chemical Speciation of Size-resolved Particulate Matter (PM) at Near-freeway and Urban Background Sites in the Greater Beirut Area.** NANCY DAHER, Najat A. Saliba, Alan Shihadeh, Malek Jaafar, Rima Baalbaki, Martin Shafer, James Schauer, Constantinos Sioutas, *University of Southern California*

2UA.4
1:00 **Relationship between PAHs and Elemental Composition of Size-segregated Aerosol.** JAN BENDL, Jan Hovorka, Jan Topinka, *Charles University in Prague*

2UA.6
1:00 **Assessment of In-cabin Human Exposure to Ultrafine Particles under Different Conditions of Urban Traffic in Salvador, Bahia, Brazil.** Egídio Guerreiro, Paulo Pinho, Márcio de Carvalho, Danilo Leão, João Marçal, José Róbson de Luna, Rodrigo Vieira, Lílian Guarieiro, Jailson de Andrade, ANTONIO MIGUEL, *University of California, Los Angeles*



2UA.7
1:00
Microcharacterization and Identification of Non-exhaust Particles from On-road Driving and Laboratory Measurements using SEM-EDX Analysis. SEOKHWAN LEE, Sunyoup Lee, Hongsuk Kim, *Korea Institute of Machinery and Materials*

2UA.8
1:00
Evaluation of Carbonyl Compounds Levels in Residential and Industrial Areas of Tijuana BC, Mexico Air Basin. Jesus Guerrero-García, GUILLERMO RODRÍGUEZ-VENTURA, Ernesto Velez-Lopez, Lilia Hurtado, Javier Emmanuel Castillo-Quinones, Penelope Quintana, Miguel Zavala, Luisa Molina, *Universidad Autonoma de Baja California*

2UA.9
1:00
Atmospheric Aerosols in Southeast Asia: Sources and Impacts. RAGHU BETHA, Xian Huang, Rajasekhar Balasubramanian, *National University of Singapore*

2UA.10
1:00
Morphological and Elemental Classification of Long-range Transported Fine and Ultrafine Particles by STEM-EDX Individual Particle Analysis. SHILA MASKEY, Hoseung Chae, *Kihong Park, GIST*

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

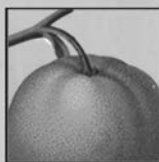
Tuesday 3:30 PM - 5:00 PM
Session 3: Platform

3AC AEROSOL CHEMISTRY PANZACOLA H 1-3

Sergey Nizkorodov and Manabu Shiraiwa, chairs

3AC.1
3:30
Photochemical Aging of Brown Carbon Aerosols. Paige Aiona, Hyun Ji Lee, Alexander Laskin, Julia Laskin, SERGEY NIZKORODOV, *University of California, Irvine*

3AC.2
3:45
Investigation of the Chemical Aging and Absorption of Carbonaceous Aerosol from Wood Fires. ANTONIOS TASOGLLOU, Spyros Pandis, *Carnegie Mellon University*



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- 3AC.3** **Aging of Alpha-pinene First-Generation Ozonolysis Products by Reactions with OH.** NINGXIN WANG, Spyros Pandis, Neil Donahue, *Carnegie Mellon University*
- 4:00
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- 3AC.4** **Molecular Corridors Represent the Multiphase Chemical Evolution of Secondary Organic Aerosol.** MANABU SHIRAIWA, Thomas Berkemeier, Katherine Schilling, John Seinfeld, Ulrich Poeschl, *MPIC*
- 4:15
-
- 3AC.5** **Formation of Low-Volatility Organics in Organic Acid/Inorganic Salt Mixtures.** SILJA HÄKKINEN, Ilona Riipinen, V. Faye McNeill, University of Helsinki, *Columbia University*
- 4:30
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- 3AC.6** **Organosulfates Formation in Secondary Organic Aerosol Produced from Photooxidation of Various VOCs In the Presence of NO_x and Sulfuric Acid Aerosol Using Natural Sunlight.** Jiaying Li, MYOSEON JANG, *University of Florida*
- 4:45
-

3AE AEROSOL EXPOSURE

SEBASTIAN / 3

Sergey Grinshpun and Jonathan Thornburg, chairs

- 3AE.1** **Advances in Nanoparticle Sampling and Analysis Methods.** GARY CASUCCIO, Traci Lersch, Henry Lentz, Dan Miller-Lionberg, John Volckens, *RJ Lee Group, Inc.*
- 3:30
-
- 3AE.2** **Aerosol-to-Liquid Phase Collection: A Method for Making Liquid Suspension Containing Dry-Dispersed Nanomaterials with a Known Mass Concentration.** KENJIRO IIDA, Hiromu Sakurai, Junko Nakanishi, Kensei Ehara, *AIST*
- 3:45
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- 3AE.3** **Characterization of 3-D Printer Aerosol Emissions.** MARIT MEYER, Kristin Bunker, Gary Casuccio, *NASA Glenn Research Center*
- 4:00
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- 3AE.4** **Uncontrolled Combustion of Shredded Tires in a Landfill: Emission Characterization, Population Exposure and Public Health Responses.** ASHISH SINGH, Scott N. Spak, Elizabeth Stone, Jared Downard, Robert Bullard, Mark Pooley, Pamela Kostle, Matthew W. Mainprize, Thomas Peters, Doug Beardsley, Charles Stanier, *University of Iowa*
- 4:15
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3AE.5
4:30 **Measurement of Aerosols Generated by Combustion of Different Materials.** SERGEY A. GRIN-SHPUN, Jin Yong Kim, Michael Yermakov, Shuang Gao, Tiina Reponen, Pramod Kulkarni, *University of Cincinnati*

3AE.6
4:45 **Indoor Air Quality in Latino Homes in Boulder, Colorado.** Luis Escobedo, WYATT CHAMPION, Ning Li, Lupita Montoya, *University of Colorado Boulder*

3CC AEROSOLS, CLOUDS, AND CLIMATE SEBASTIAN I 1

Richard Moore and Ezra Levin, chairs

3CC.1
3:30 **Measurement of the Optical Properties and Contact Freezing Ability of Supercooled Water Droplets Using Optical Tweezers.** Hassan Beydoun, Kyle Gorkowski, Mark Aboff, Jim Walker, Jonathan P. Reid, RYAN SULLIVAN, *Carnegie Mellon University*

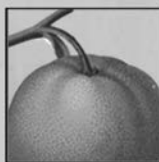
3CC.2
3:45 **The Role of Aqueous Chemistry in Cloud Formation: Impact of Oligomerization.** SHUNSUKE NAKAO, Yong Lim, Barbara Turpin, Alexandra Boris, Jeffrey Collett, Sonia Kreidenweis, *Colorado State University*

3CC.3
4:00 **Understanding Cloud Condensation Nuclei Mixing States from Flow Tube Experiments.** DIEP VU, Shaokai Gao, Jeffrey Pierce, Akua Asa-Awuku, *University of California, Riverside*

3CC.4
4:15 **Cloud Condensation Nuclei Activity of Secondary Organic Aerosol: Kappa Values for a Range of VOCs, Individually and Combined.** Josh Custer, William Madry, Dabrina Dutcher, TIMOTHY RAYMOND, *Bucknell University*

3CC.5
4:30 **Relating Volatility, Size and Cloud Condensation Nuclei Activation Properties of Longifolene SOA.** ASHLEY VIZENOR, Akua Asa-Awuku, *University of California, Riverside*

3CC.6
4:45 **Aerosol Size Distribution Response to Anthropogenically Driven Historical Changes in Biogenic Secondary Organic Aerosol Formation.** STEPHEN D'ANDREA, Juan-Camillo Acosta Navarro, Salvatore Farina, Catherine Scott, Delphine Farmer, Ilona Riipinen, Jeffrey Pierce, *Colorado State University*



3IA INDOOR AEROSOLS

SEBASTIAN I 4

Jordan Peccia and Lindsey Marr, chairs

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- 3IA.1** **Shorter People May Be Exposed to More Influenza Viruses in Resuspended Dust.** Peeyush Khare, LINSEY MARR, *Virginia Tech*
3:30
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- 3IA.2** **Biofilms and Bioaerosols in Showers.** MARIA D. KING, Alexandra Caya, Chloe Wooldridge, Juan Pedro Maestre, Michal Ziv-El, Yassin Hassan, Kerry Kinney, *Texas A&M University*
3:45
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- 3IA.3** **The Influence of Residential Environmental Factors on the Indoor Microbiome.** KAREN C. DANNEMILLER, Janneane Gent, Brian Leaderer, Jordan Peccia, *Yale University*
4:00
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- 3IA.4** **Assessing Building Penetration Challenges by Subalpine Wildfires: Juxtaposing Airborne Biomarker Profiles with Microbial Community Analysis.** ALINA M. HANDOREAN, Bharath Prithiviraj, Odessa Gomez, Jane Turner, Mark T. Hernandez, *University of Colorado Boulder*
4:15
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- 3IA.5** **Assessing Pollutant Exposures in Rural Homes Using a Filter Forensics Approach.** JUAN PEDRO MAESTRE, Shahana Khurshid, Kelli Royse, Sharon Horner, Jeffrey Siegel, Kerry Kinney, *The University of Texas at Austin*
4:30
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- 3IA.6** **Contextualizing Particles on HVAC Filters.** JEFFREY SIEGEL, Juan Pedro Maestre, Ying Xu, Shahana Khurshid, Kerry Kinney, *University of Toronto*
4:45
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3NP ADVANCES IN THE PHYSICS AND CHEMISTRY OF NEW PARTICLE FORMATION AND GROWTH

PANZACOLA H 4

Jim Smith and Robin Stevens, chairs

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- 3NP.1** **Field Deployment of a Size-Resolved Nano CPC Battery to Infer the Composition of Freshly Formed Atmospheric Nuclei in the Boreal Forest.** CHONGAI KUANG, Juha Kangasluoma, Daniela Wimmer, Katrianne Lehtipalo, Jian Wang, Markku Kulmala, Tuukka Petäjä, *Brookhaven National Laboratory*
3:30
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- 3NP.3**
4:00 **Chemical Ionization of Sulfuric Acid Clusters Containing Basic Molecules.** COTY JEN, Jun Zhao, Peter McMurry, David Hanson, *University of Minnesota*
- 3NP.4**
4:15 **Enhancement in the Production of Nucleating Clusters Due to Dimethylamine and Large Uncertainties in the Thermochemistry of Amine-enhanced Nucleation.** ALEXEY NADYKTO, Jason Herb, Fangqun Yu, Yisheng Xu, Moscow State University of Technology; *SUNY at Albany*
- 3NP.5**
4:30 **Novel Methods for Determining Free Energies of Molecular Clusters of Water and Sulphuric Acid.** Gabriel Lau, Jake Stinson, Shawn Kathmann, IAN FORD, *University College London*
- 3NP.6**
4:45 **New-particle Formation, Growth and Climate-relevant Particle Production in Egbert, Canada: Analysis from one Year of Size-distribution Observations.** JEFFREY PIERCE, Daniel Westervelt, Samuel Atwood, Elizabeth Barnes, Richard Leaitch, *Colorado State University*

3UA URBAN AEROSOLS *SEBASTIAN I 2*

Charles Stanier and Robert Bullard, chairs

- 3UA.1**
3:30 **How To Achieve Further PM_{2.5} Reductions in a Midwestern City? A Combined Modeling and Measurement-Based Analysis of Iowa City, IA.** ROBERT BULLARD, Elizabeth Stone, Charles Stanier, Ashish Singh, Can Dong, Chathurika Rathanyake, Thilina Jayarathne, Scott N. Spak, *University of Iowa*
- 3UA.2**
3:45 **Investigation of the Sources and Evolution Processes of Severe Haze Pollution in Beijing in January 2013.** YELE SUN, Qi Jiang, Zifa Wang, Pingqing Fu, Jie Li, Ting Yang, Yan Yin, *Institute of Atmospheric Physics, CAS*
- 3UA.3**
4:00 **Outdoor and Indoor Black Carbon at Multiple Schools in Salt Lake City, Utah.** Jennifer DeWinter, Steven Brown, David Vaughn, PAUL ROBERTS, *Sonoma Technology, Inc*



3UA.4 **Sources and Chemical Composition of Atmospheric Fine Particles in Rabigh, Saudi Arabia.**
4:15

HAIDER A KHWAJA, Omar S Abu-Rizaiza, Azhar Siddique, Shedrack R Nayebare, Mirza M Hussain, Jahan Zeb, *King Abdulaziz University, Saudi Arabia*

3UA.5 **Chemical Characterization of Time Resolved Haboob Samples from Phoenix, AZ.**
4:30

AURELIE MARCOTTE, Jershon Eagar, Denise Napolitano, Pierre Herckes, *Arizona State University*

3UA.6 **Silicon is a Nearly Ubiquitous Component of Ambient Nanoparticles.**
4:45

BRYAN R. BZDEK, M. Ross Pennington, Andrew J. Horan, Christopher A. Zordan, Murray Johnston, *University of Delaware*

Tuesday 5:00 PM - 6:00 PM
Working Group Meetings 1

Tuesday 6:00 PM - 8:00 PM
Welcome Reception

Wednesday 8:00 AM - 9:15 AM
Plenary II: AEESP Lecture

8:00 **AEESP Lecture: Fine Particulate Air Pollution and Human Health: Science, Public Policy, and Controversy** C. Arden Pope III, *Brigham Young University*

Moderator Robert Griffin, Rice University

9:00 **Sinclair Award Presentation, Mercer Award Announcement** Donald Dabub, *University of California, Irvine*

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 4: Platform

4AC AEROSOL CHEMISTRY
PANZACOLA H 4

Andrew Grieshop and Manish Shrivastava, chairs

Wednesday

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| 4AC.1
9:45 | Explicit Modeling of Multi-generational Aging of Organic Aerosol in an Air Quality Model. SHAN-TANU JATHAR, Anthony Wexler, Christopher Cappa, Michael Kleeman, <i>University of California, Davis</i> |
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| 4AC.2
10:00 | Modeling Secondary Organic Aerosol Formation via Partitioning and Aerosol Phase Reactions under Two Phase States: Liquid-liquid Phase Separated and Homogeneously Mixed. ROSS BEARDSLEY, Myoseon Jang, <i>University of Florida</i> |
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| 4AC.3
10:15 | Understanding the Sensitivity of SOA Formation to Various Uncertain Modeling Parameters Using a Variance-Based Statistical Approach. MANISHKUMAR SHRIVASTAVA, Chun Zhao, Yun Qian, Richard Easter, Alla Zelenyuk, Jerome Fast, <i>Pacific Northwest National Laboratory</i> |
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| 4AC.4
10:30 | 1D Nanodusty Pulsed Plasma Sectional Chemistry Model for the Study and Control of Particle Generation and Growth. CARLOS LARRIBA-ANDALUZ, Steven Girshick, <i>University of Minnesota</i> |
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| 4AC.5
10:45 | Modelling of Amines in the Global Atmosphere: Impacts of Oxidation and Aerosol Uptake. FANGQUN YU, Gan Luo, <i>University at Albany</i> |
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| 4AC.6
11:00 | Simulation of the Volatility-Oxygen Content Distribution of Organic Aerosol during the PEGASOS Campaigns. ELENI KARNEZI, Benjamin Murphy, Spyros Pandis, <i>Carnegie Mellon University</i> |
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| 4AC.7
11:15 | Dynamic Simulation of Atmospheric Chromium Speciation. MEHDI AMOUEI TORKMAHALLEH, Soudabeh Gorjinezhad, <i>Middle East Technical University Northern Cyprus Campus</i> |
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4AP AEROSOL PHYSICS

SEBASTIAN / 4

Chris Hogan and Matthew Berg, chairs

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| 4AP.1
9:45 | Classical Nucleation Theory Does Not Correctly Predict the Dependence of Nucleation Rate on Supersaturation. STEVEN GIRSHICK, <i>University of Minnesota</i> |
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| 4AP.2
10:00 | Resolving the Surface and Bulk Accommodation of Atmospherically Relevant Compounds with Molecular Dynamics Simulations. JAN JULIN, Paul M. Winkler, Neil Donahue, Paul E. Wagner, Ilona Riipinen, <i>Stockholm University</i> |
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| 4AP.3
10:15 | Experimental Study of Light Scattering from Irregularly Shaped Particles. YULI WANG, Amit Chakrabarti, Chris Sorensen, <i>Kansas State University</i> |
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| 4AP.4
10:30 | Surface Freezing of n-alkanes. VIRAJ MODAK, Mitchell Thayer, Barbara Wyslouzil, Sherwin Singer, <i>The Ohio State University</i> |
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| 4AP.5
10:45 | Experimental Bipolar Diffusion Charging of Spherical and Cylindrical Aerosol Particles with Detailed Characterization of the Charging Ions. Ranganathan Gopalakrishnan, Peter McMurry, CHRISTOPHER HOGAN JR., <i>University of Minnesota</i> |
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| 4AP.6
11:00 | Understanding the Drag Force and Mobility of Nonspherical Particles in the Free Molecular Regime. MINGDONG LI, George Mulholland, Michael Zachariah, <i>University of Maryland</i> |
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| 4AP.7
11:15 | Evaporation Loss of PM_{2.5} during Filter Sampling. CHUEN-JINN TSAI, Chun-Nan Liu, Sih-Fan Lin, Guo-Rui Lee, <i>National Chiao Tung University</i> |
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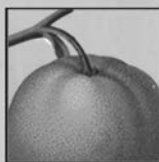


4AQ AIR QUALITY AND CLIMATE IN THE SOUTHEAST US: INSIGHTS FROM RECENT MEASUREMENT CAMPAIGNS *SEBASTIAN I 1*

Annmarie Carlton and Rob Griffin, chairs

Wednesday

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| 4AQ.1
9:45 | Overview of the NOAA SENEX Field Mission. JOOST DE GOUW, Aikaterini Bougiatioti, Jerome Brioude, Steven G. Brown, William P. Dube, Peter Edwards, David Fahey, Jessica Gilman, Timothy Gordon, Martin Graus, Tom Hanisco, John Holloway, Jennifer Kaiser, Frank Keutsch, Daniel Lack, Daniel Law, Ben Lee, Brian Lerner, Jin Liao, Jack Lin, Felipe Lopez-Hilfiker, Milos Markovic, Ann M. Middlebrook, Kyung-Eun Min, et al., <i>NOAA ESRL</i> |
| 4AQ.2
10:00 | DISCOVER-AQ Investigation of Aerosol Impacts on Air Quality over Houston. Richard Ferrare, James Crawford, Robert Griffin, Chris Hostetler, Bruce Anderson, SHARON P. BURTON, Brent Holben, Andreas Beyersdorf, Luke Ziemba, <i>NASA Langley Research Center</i> |
| 4AQ.3
10:15 | Highlights from the St. Louis Air Quality Regional Study (SLAQRS) 2013. BRENT WILLIAMS, Dhruv Mitroo, Raul Martinez, Yaping Zhang, Michael Walker, Christopher Oxford, Xiaochen Zuo, David Hagan, Steven Dhawan, Li Du, Jay Turner, Gavin McMeeking, Laura King, Hongyu Guo, Rodney Weber, Munkhbayar Baasandorj, Lu Hu, Dylan Millet, <i>Washington University in St. Louis</i> |
| 4AQ.4
10:30 | Comparison of the Observed Organosulfates (IEPOX Sulfate and GA Sulfate) in the Southeast US to the Western US during DC3 and SEAC4RS. JIN LIAO, Karl D. Froyd, Daniel Murphy, Frank Keutsch, Ge Yu, Paul Wennberg, Jason St. Clair, John Crounse, Armin Wisthaler, Tomas Mikoviny, Jose-Luis Jimenez, Pedro Campuzano-Jost, Douglas Day, <i>CU CIRES- NOAA ESRL</i> |
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4AQ.5
10:45 **Particle Formation in Power Plant Plumes in the Southeastern United States.** CHARLES BROCK, Steven G. Brown, Timothy Gordon, Joost de Gouw, John Holloway, Jin Liao, Ann M. Middlebrook, J. Andrew Neuman, John B. Nowak, Jeff Peischl, Ilana Pollack, Thomas Ryerson, Michael Trainer, Nick Wagner, Jeffrey Pierce, Robin Stevens, André Welter, *NOAA Earth System Research Laboratory, Boulder, CO*

4AQ.6
11:00 **Characterization of Nocturnal Aerosol Formation in Houston during DISCOVER-AQ.** H. William Wallace, Yu Jun Leong, Basak Karakurt Cevik, Madeline Camp, James Flynn, Barry Lefer, ROBERT GRIFFIN, *Rice University*

4AQ.7
11:15 **Organic Aerosol from Nocturnal Oxidation of Biogenic VOCs: Results from Night Flights in the Southeast U.S. during SENEX 2013.** STEVEN G. BROWN, Peter Edwards, Benjamin Ayres, Charles Brock, Joost de Gouw, Martin Graus, William P. Dube, Julianne L. Fry, Jessica Gilman, John Holloway, Ben H. Lee, Brian Lerner, Jin Liao, Felipe Lopez-Hilfiker, Ann M. Middlebrook, Kyung-Eun Min, J. Andrew Neuman, Ilana Pollack, James Roberts, Thomas Ryerson, Joel A. Thornton, Patrick Veres, Carsten Warneke, Robert Wild, Reed Wommack, *NOAA ESRL*

4HA HEALTH RELATED AEROSOLS SEBASTIAN / 3

Patrick O'Shaughnessy and James McDevitt, chairs

4HA.1
9:45 **Exposure of Workers to Mixed Aerosols.** EMANUELE CAUDA, Luca Stabile, Giorgio Buonanno, Teresa Barone, *NIOSH*

4HA.2
10:00 **Comparison of Personal Sampling and Robotic Sampling Platform to Estimate Personal Exposures in Young Children.** JESSICA SAGONA, Marta Hernandez, Zuocheng Wang, Maya Ramagopal, Stuart Shalat, Gediminas Mainelis, Rutgers, *The State University of New Jersey*

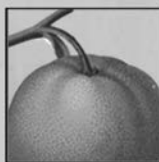


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- 4HA.3** **Internal Airway Percussion (IAP) for Lung Infection Diagnostics.** NIMA AFSHAR-MOHAJER, Chang-Yu Wu, Hsiu-Wen Tsai, Erin Silverman, Paul Davenport, Satyanarayan Hegde, *University of Florida*
- 10:15
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- 4HA.4** **The Association of National Air Toxics Assessment Exposures and the Risk of Childhood Autism Spectrum Disorder: A Case Control Study.** EVELYN TALBOTT, Lynne Marshall, Judith Rager, Vincent Arena, Ravi Sharma, *University of Pittsburgh*
- 10:30
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- 4HA.5** **Reformulation of Abandoned Wortmannin into Biodegradable Nanoparticles for Lung Cancer Treatment.** HSI-WEI YEH, Da-Ren Chen, *Virginia Commonwealth University*
- 10:45
-
- 4HA.6** **Variability of Lung Targeted Aerosol Delivery during High Flow Nasal Cannula Therapy.** ROSS WALENGA, Geng Tian, Michael Hindle, Worth Longest, *Virginia Commonwealth University*
- 11:00
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- 4HA.7** **Detecting Respiratory Infection by 3D Microbial Fingerprints from Exhaled Breath.** Fangxia Shen, Xiaoguang Li, Zhuanglei Zou, Jie Xu, Chang-Yu Wu, MAOSHENG YAO, *Peking University*
- 11:15
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4IM INSTRUMENTATION AND METHODS *PANZACOLA H 1-3*

Derek Oberreit and Chongai Kuang, chairs

- 4IM.1** **Liquid Atomization via a Newly Designed, Multi-notched Electrospray Head.** JINGJIE ZHANG, Da-Ren Chen, *Virginia Commonwealth University*
- 9:45
-
- 4IM.2** **A Non-Specific Monodisperse Aerosol Generation System.** JONATHAN ESHBAUGH, Francisco Romay, Shanna Ratnesar-Shumate, Paul Dabisch, *Johns Hopkins University Applied Physics Laboratory*
- 10:00
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- 4IM.3** **Performance Study of Miniature Cyclones with Multiple Inlets.** DI LIU, Zhenzhong Zhang, Ta-Chih Tsiao, Da-Ren Chen, *Virginia Commonwealth University*
- 10:15
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4IM.4 **Collection of Airborne Particles by a High-Gradient Permanent Magnetic Separator.** MENG-DAWN CHENG, Steve Allman, Larry Avens, Gerard Ludtka, *Oak Ridge National Laboratory*

4IM.5 **Performance of Inertial Impactor with Varying Geometries.** HUAN LI, William Faulkner, John Haglund, *Texas A&M University*

4IM.6 **Trapping of Individual Airborne Absorbing Particles Using a Counterflow Nozzle and Photophoretic Trap for Continuous Sampling and Analysis.** YONG-LE PAN, Chuji Wang, Steven Hill, Joshua Santarpia, *US Army Research Lab*

4IM.7 **Collection of Droplets by Centrifugal Filter.** HIROAKI MATSUHASHI, Shusuke Nakajima, Mikio Kumita, Takafumi Seto, Hidenori Higashi, Yoshio Otani, *Kanazawa University*

4UA URBAN AEROSOLS SEBASTIAN I 2

Derek Jason Price and Andrew Metcalf, chairs

4UA.1 **Contribution of Biomass Use for Renewable Energy to Particulate Matter Formation.** MARC CARRERAS-SOSPEDRA, Donald Dabdub, Jack Brouwer, Rob Williams, *University of California, Irvine*

4UA.2 **Atlanta Rail Yard Study (ARYS): Evaluation of Local-scale Air Pollution Trends and Emissions Quantification Using Stationary and Mobile Monitoring Strategies.** GAYLE HAGLER, Halley Brantley, Boris Galvis, Scott Herndon, Armistead Russell, Michael Bergin, Paola Massoli, Edward Fortner, Jonathan Franklin, Lu Xu, Nga Lee Ng, *ORD-US EPA, RTP, NC*

4UA.3 **Total Particulate Matter from Mobile Sources in Los Angeles.** TIMOTHY GORDON, Albert A. Presto, Andrew May, Mang Zhang, Christine Maddox, Hector Maldonado, William Robertson, Ngoc Nguyen, Eric Lipsky, Matti Maricq, Daniel S. Tkacik, Neil Donahue, Sulekha Chattopadhyay, Shantanu Jathar, John Massetti, Tin Truong, Pablo Cicero-Fernandez, Kwangsam Na, Paul Rieger, Keshav Sahay, Alvaro Gutierrez, Allen Robinson, *NOAA*



4UA.4
10:30
Atmospheric Intermediate-volatility Organic Compounds: A Small Fraction of Atmospheric Hydrocarbons and a Large Contribution to Secondary Organic Aerosol. YUNLIANG ZHAO, Allen Robinson, Christopher Hennigan, Andrew May, Joost de Gouw, Jessica Gilman, Bill Kuster, Agnes Borbon, *Carnegie Mellon University*

4UA.5
10:45
Assessing Aerosol Mixing State through Single Particle Mass Spectrometry and Particle-Resolved Modeling. NICOLE RIEMER, Swarnali Sanyal, Robert Healy, Greg J. Evans, John Wenger, *University of Illinois at Urbana-Champaign*

4UA.6
11:00
On the Importance of New Particle Formation Events as a Source for Cloud Condensation Nuclei in an Urban Environment. ANNA WONASCHUETZ, Julia Burkart, Anselm Demattio, Carmen Dameto de Espana, Robert Wagner, Georg Reischl, Gerhard Steiner, Regina Hitzemberger, *University of Vienna*

4UA.7
11:15
Influence of the Manaus Plume on Aerosol Size Distribution and Cloud Condensation Nuclei (CCN) during GoAmazon – Preliminary Results. FAN MEI, Jian Wang, Jason Tomlinson, Jennifer Comstock, John Hubbe, Mikhail Pekour, John Shilling, Chongai Kuang, Karla Longo, Scot Martin, Beat Schmid, *Pacific Northwest National Laboratory*

Wednesday 1:00 PM - 3:00 PM

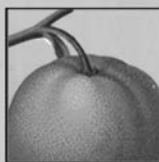
Session 5: Platform

5AC AEROSOL CHEMISTRY
PANZACOLA H 4

Lea Hildebrandt Ruiz and Jesse Kroll, chairs

5AC.1
1:00
Heterogeneous Reaction Kinetics of Isoprene-Derived Epoxides. THERAN P. RIEDEL, Cassandra Gaston, Sri Hapsari Budisulistiorini, Ying-Hsuan Lin, Zhenfa Zhang, Avram Gold, Joel A. Thornton, Jason Surratt, *University of North Carolina at Chapel Hill*

5AC.2
1:15
Reactions of Condensed Phase Alkoxy Radicals. ANTHONY CARRASQUILLO, Kelly Daumit, Jesse Kroll, *MIT*



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- 5AC.3** **Hydrolysis and Gas-particle Partitioning of Organic Nitrates Formed in Environmental Chamber Experiments.** JEFFREY BEAN, Lea Hildebrandt Ruiz, University of Texas at Austin
1:30
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- 5AC.4** **Reactions Between Water-Soluble Organic Acids and Nitrates in Atmospheric Aerosols: Recycling of Nitric Acid and Formation of Organic Salts.** BINGBING WANG, Alexander Laskin, *Pacific Northwest National Laboratory*
1:45
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- 5AC.5** **Organic Peroxide Formation from Photooxidation of Methylglyoxal in the Aqueous Phase.** Yong Lim, BARBARA TURPIN, *Rutgers University*
2:00
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- 5AC.6** **Uptake and Transformation of Glyoxal on Mineral Dust Particles.** Xiaoli Shen, Yue Zhao, Dao Huang, ZHONGMING CHEN, *Peking University*
2:15
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- 5AC.7** **Effect of Ammonia on Glyoxal SOA in Inorganic Aqueous Seed Particles.** ELEANOR WAXMAN, Alexander Laskin, Jay Slowik, Aurelia Maxut, Siyuan Wang, Jian Zhen Yu, Theodore Koenig, Julia Laskin, Andre Prévôt, Urs Baltensperger, Barbara Noziere, Josef Dommen, Rainer Volkamer, *University of Colorado*
2:30
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- 5AC.8** **Molecular Composition of Aged Secondary Organic Aerosol Generated from a Mixture of Biogenic Volatile Compounds Using Ultrahigh Resolution Mass Spectrometry.** IVAN KOURT-CHEV, Chiara Giorio, Brendan Mahon, Jean-François Doussin, Nicolas Maurin, Aline Gratien, Edouard Panqui, Sebastien Morales, Manuela Cirtog, Juho Aalto, Taina Ruuskanen, Markku Kulmala, Markus Kalberer, *University of Cambridge*
2:45
-

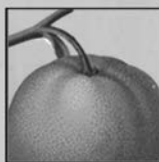


**5AQ AIR QUALITY AND CLIMATE IN THE SOUTHEAST US:
INSIGHTS FROM RECENT MEASUREMENT CAMPAIGNS**
SEBASTIAN I 1

Ann Middlebrook and Raul Martinez, chairs

Wednesday

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| 5AQ.1
1:00 | BVOC Oxidation Products Measured by SV-TAG Reveal Differences in Chemistry and Partitioning between Natural and Polluted Environments Forming Secondary Organic Aerosol (SOA). ALLEN H. GOLDSTEIN, Gabriel Isaacman, Lindsay Yee, Nathan Kreisberg, Suzane Simoes de Sa, Scot Martin, Lizabeth Alexander, Brett Palm, Weiwei Hu, Pedro Campuzano-Jost, Douglas Day, Jose-Luis Jimenez, Thien Khoi Nguyen, Annmarie Carlton, Juarez Viegas, Antonio O. Manzi, Rodrigo A. F. Souza, Maria Oliveira, Paulo Artaxo, Joel Brito, Eric Edgerton, Karsten Baumann, Susanne Hering, <i>University of California, Berkeley</i> |
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| 5AQ.2
1:15 | Processes Influencing the Organic Aerosol Mass during SENEX. ANN M. MIDDLEBROOK, Wayne Angevine, Jerome Brioude, Charles Brock, Joost de Gouw, Jessica Gilman, Martin Graus, John Holloway, Brian Lerner, Jin Liao, J. Andrew Neuman, Michael Trainer, Carsten Warneke, Jennifer Kaiser, Glenn Wolfe, Tom Hanisco, Frank Keutsch, Jingqiu Mao, Larry Horowitz, André Welti, <i>NOAA ESRL</i> |
| <hr/> | |
| 5AQ.3
1:30 | Seasonal Characterization of Atmospheric Organic Aerosol at the Look Rock Site, Great Smoky Mountains National Park during 2013 Using the Aerodyne Aerosol Chemical Speciation Monitor (ACSM). SRI HAPSARI BUDISULISTI-ORINI, Xinxin Li, Philip Croteau, Manjula Canagaratna, Solomon Bairai, Roger Tanner, Stephanie Shaw, Eladio Knipping, John Jayne, Zhenfa Zhang, Avram Gold, Jason Surratt, <i>University of North Carolina at Chapel Hill</i> |
| <hr/> | |
| 5AQ.4
1:45 | Sources of primary and secondary organic aerosol during the Southeast Atmosphere Study. ELIZABETH STONE, Anusha Priyadarshani Silva Hettiyadura, John Groenenboom, Thilina Jayarathne, <i>University of Iowa</i> |
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5AQ.5
2:00 **Chemical Characterization of Organic Aerosol during SOAS Using High Resolution Aerosol Mass Spectrometer.** LU XU, Hongyu Guo, Christopher Boyd, Kate Cerully, Aikaterini Bougiatioti, Laura King, Rodney Weber, Athanasios Nenes, Nga Lee Ng, *Georgia Institute of Technology*

5AQ.6
2:15 **Chemical Characterization of Isoprene- and Monoterpene-Derived SOA Tracers in PM_{2.5} Collected from Centerville, AL, during SOAS 2013.** MATTHIEU RIVA, Lindsay Yee, Sri Hapsari Budisulistiorini, Eric Edgerton, Stephanie Shaw, Eladio Knipping, Allen H. Goldstein, Zhenfa Zhang, Avram Gold, Jason Surratt, *University of North Carolina at Chapel Hill, Chapel Hill, NC*

5AQ.7
2:30 **Initial Field Deployments of a Volatility and Polarity Separator (VAPS) for Organic Aerosol Characterization.** RAUL MARTINEZ, David Hagan, Yaping Zhang, Dhruv Mitroo, Michael Walker, Lu Hu, Munkhbayar Baasandorj, Dylan Millet, Brent Williams, *Washington University in St. Louis*

5AQ.8
2:45 **Measurements of Atmospheric Amines and Ammonia with a Chemical Ionization Mass Spectrometer (CIMS).** SHANHU LEE, Yi You, Roxana Sierra-Hernández, Joost de Gouw, Abigail Koss, Karsten Baumann, Eric Edgerton, *Kent State University*

5BB BIOMASS BURNING AEROSOL: FROM EMISSIONS TO IMPACTS

SEBASTIAN I 2

Sonia Kreidenweis and Ryan Sullivan, chairs

5BB.1
1:00 **The Current State and Future of Wildfire Smoke and Air Quality Modeling.** TIMOTHY BROWN, Narasimhan (Sim) Larkin, Pete Lahm, *Desert Research Institute*

5BB.2
1:15 **Constraining Emissions from Open Burning Sources and Their Atmospheric Impacts.** CHRISTINE WIEDINMYER, Serena H. Chung, Robert J. Yokelson, Elena McDonald-Buller, Tomohiro Oda, Christopher Elvidge, Louisa Emmons, John Orlando, *National Center for Atmospheric Research*



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- 5BB.3** **Satellite Characterization of Biomass-Burning Aerosol Emissions for Regional Modeling.**
1:30 CHARLES ICHOKU, Luke Ellison, Jun Wang, Feng Zhang, *NASA Goddard Space Flight Center*
-
- 5BB.4** **Constraints on Smoke Injection Height, Source Strength, and Transports from MISR and MODIS.**
1:45 RALPH KAHN, Maria Val Martin, Mariya Petrenko, Mian Chin, *NASA Goddard Space Flight Center*
-
- 5BB.5** **Climate Change and Carbon Emissions from Wildland Fires in the Southern United States.**
2:00 SCOTT GOODRICK, *USDA Forest Service*
-
- 5BB.6** **Projecting the Impacts of Climate Change on Wildfire-driven Air Quality over the Southeastern U.S..** UMA SHANKAR, Jeffrey Prestemon, Aijun Xiu, Kevin Talgo, Bok Baek, Dongmei Yang, Mohammad Omary, *University of North Carolina at Chapel Hill*
-
- 5BB.7** **Quantify the Impact of Biomass Burning Aerosols on Regional Climate over the Southeastern USA.** PENG LIU, Yongtao Hu, Athanasios Nenes, Armistead Russell, *Georgia Institute of Technology*
-
- 5BB.8** **WRAP Fire Tools and Support for Smoke Management Programs, Land Managers, and Air Quality Planning in the Western U.S..** TOM MOORE, Chen Bin, *WRAP/WESTAR*
-

5CH CONTROL TECHNOLOGY
SEBASTIAN I 3

Lara Gundel and Nima Afshar-Mohajer, chairs

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- 5CH.1** **Unsteady Particle Loading Behavior of Filter Media.** QIANG WANG, Xiuli Lin, Da-Ren Chen, *Virginia Commonwealth University*
1:00
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- 5CH.2** **Effect of Nanofibers on Collection Performance of Air Filters.** HISASHI YUASA, Takashi Yoshitake, Takafumi Seto, Yoshio Otani, *Kanazawa university*
1:15
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- 5CH.3** **Artifacts in Filter Penetration Measurements Associated with Multiple Charging of Particles.** MEILU HE, Suresh Dhaniyala, Matthew Wagner, *Clarkson University*
1:30
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- 5CH.4**
1:45 **Evaluation of Metallic Filter Media for High Temperature Filtration Application.** QISHENG OU, James Warner, Matti Maricq, David Y. H. Pui, *University of Minnesota*
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- 5CH.5**
2:00 **Impact of Relative Humidity on HVAC Filters Loaded with Hygroscopic and Non-hygroscopic Particles.** JAMES MONTGOMERY, Sheldon Green, Steven Rogak, *University of British Columbia*
-
- 5CH.6**
2:15 **Electrostatic Collection of Tribocharged Lunar Dust Simulants at Elevated Vacuum Levels.** NIMA AFSHAR-MOHAJER, Chang-Yu Wu, Nicoleta Sorloacia-Hickman, *University of Florida*
-
- 5CH.7**
2:30 **Nanoparticle Penetration through Facepiece Respirators.** YUE ZHOU, Yung-Sung Cheng, *Lovelace Respiratory Research Institute*
-
- 5CH.8**
2:45 **How Small Can We Go: Exploring the Limitations and Scaling Laws of Air-Microfluidic Particulate Matter Sensors.** OMID MAHDAVIPOUR, Ben Gould, Dorsa Fahimi, David Liederman, Son Duy Nguyen, David Woolsey, Paul A. Solomon, Richard White, Lara Gundel, Igor Paprotny, *University of Illinois at Chicago*
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5IM INSTRUMENTATION AND METHODS *PANZACOLA H 1-3*

Fan Mei and Patrick O'Shaughnessy, chairs

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- 5IM.1**
1:00 **Effect of Upstream Flow Mixing on Charging Capability of Aerosol Neutralizers.** JAMES FARN-SWORTH, Hans-Georg Horn, *TSI Incorporated*
-
- 5IM.2**
1:15 **A New Device for Measuring Number Concentration of Solid Particulate Matter.** AARON AVENIDO, Jason Johnson, Brian Osmondson, Hans-Georg Horn, *TSI Incorporated*
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- 5IM.3**
1:30 **Statistical Comparison of Particle Counts.** PATRICK O'SHAUGHNESSY, *University of Iowa*
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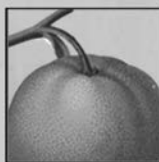
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- 5IM.4**
1:45 **Laboratory Characterization of an Ultrafine Condensation Particle Counter Using a Per-fluorinated Compound Working Fluid: Particle Size, Charge, and Composition Dependent Responses down to 1 nm.** CHONGAI KUANG, Juha Kangasluoma, Daniela Wimmer, Jian Wang, Markku Kulmala, Tuukka Petäjä, *Brookhaven National Laboratory*
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- 5IM.5**
2:00 **A Portable Water Condensation Particle Counter.** SUSANNE HERING, Steven Spielman, Gregory Lewis, *Aerosol Dynamics Inc.*
-
- 5IM.6**
2:15 **A Filter Sensor for Determining the Fractal Dimension of Nanosized Agglomerates and Fibrous Carbon Nanotubes.** SHENG-CHIEH CHEN, Jing Wang, Heinz Fissan, David Y. H. Pui, *University of Minnesota*
-
- 5IM.7**
2:30 **Accurate Control of Relative Humidity for HTD-MA Particle Growth Rate Measurements.** STEVEN CEVAER, Suresh Dhaniyala, *Clarkson University*
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- 5IM.8**
2:45 **Instrumental and Methodological Complex for Inhalation Intake Assessment of Radioactive Gas-Aerosol Mixtures.** ANDREW KAREV, Alexander Tsovanov, *FMBC*
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5PH LINKING AEROSOLS WITH PUBLIC HEALTH IN A CHANGING WORLD

SEBASTIAN I 4

R. Weber and Sherri Hunt, chairs

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- 5PH.1**
1:00 **Linking Air Pollution and Health Effects: The Role of Semi-volatile Components of Ultrafine Ambient Particles.** MICHAEL KLEINMAN, Andrew Keebaugh, David Herman, Vishal Verma, Payam Pakbin, Loyda Mendez, Constantinos Sioutas, *University of California, Irvine*
-
- 5PH.3**
1:30 **Sources of Reactive Oxygen Species (ROS) Generation Properties of Atmospheric Aerosols in Southeastern United States.** VISHAL VERMA, Ting Fang, Laura King, Hongyu Guo, Rodney Weber, *Georgia Institute of Technology*
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- 5PH.4**
1:45 **Isoprene-derived Secondary Organic Aerosol and Epoxide Intermediates Induce Altered Expression of Inflammation-associated Genes in Lung Cells.** YING-HSUAN LIN, Maiko Arashiro, Zhenfa Zhang, Avram Gold, Ilona Jaspers, Rebecca Fry, Jason Surratt, *University of North Carolina at Chapel Hill*
-
- 5PH.5**
2:00 **Investigating the Health Effects of Fresh and Aged Traffic Aerosols: Linking Particle Oxidative Potential to Chemical Composition.** NGA LEE NG, Matthew Kollman, Vasileios Papapostolou, Joy Lawrence, Sriram Suresh, Vishal Verma, Rodney Weber, Armistead Russell, Petros Koutrakis, *Georgia Institute of Technology*
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- 5PH.6**
2:15 **Linking Nitrogen Oxide Chemistry and Aerosol over the Last Decade in San Joaquin Valley, California.** SALLY PUSEDE, Ronald Cohen, *UC Berkeley*
-
- 5PH.7**
2:30 **Spatial – Temporal Variation of Residential Wood Combustion Pollutants in Rochester, New York.** NICHOLE BALDWIN, David Rich, Kristin Evans, Philip Hopke, *Clarkson University*
-
- 5PH.8**
2:45 **Mutagenicity of PAH and Nitro-Derived: An Assessment of Respirable Particulate Matter in Rio de Janeiro, Brazil.** Claudia Rainho, SERGIO CORREA, Jose Mazzei, Claudia Aiub, Israel Felzenszwalb, *Rio de Janeiro State University*
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Wednesday 3:00 PM - 3:30 PM
Coffee Break

Wednesday 3:30 PM - 5:00 PM
Session 6: Platform

6AC AEROSOL CHEMISTRY PANZACOLA H 4

Leah Williams and Arthur Chan, chairs

- 6AC.1**
3:30 **A Smog Chamber-Flow Tube Study of the Direct Photolysis of Model Biogenic and Anthropogenic SOA.** SANDRA BLAIR, Scott A. Epstein, Amanda MacMillan, Sergey Nizkorodov, *University of California, Irvine*
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- 6AC.2**
3:45 **A Real-Time Fast-Flow Tube Study of VOC and Particulate Emissions from Electronic, Reduced-Harm, Conventional, and Reference Cigarettes.** SANDRA BLAIR, Scott A. Epstein, Sergey Nizkorodov, Rufus Edwards, Ralph J. Delfino, Michael Kleinman, Nosratola Vaziri, Norbert Staimer, *University of California, Irvine*
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- 6AC.3**
4:00 **Measurements of Oxidized Organic Compounds during SOAS 2013 Using Nitrate Ion Chemical Ionization Coupled with High Resolution Time-of-Flight Mass Spectrometry.** PAOLA MASSOLI, Harald Stark, Manjula Canagaratna, Heikki Junninen, Jani Hakala, Roy Lee III Mauldin, Mikael Ehn, Mikko Sipilä, Jordan Krechmer, Joel Kimmel, John Jayne, Jose-Luis Jimenez, Douglas Worsnop, *Aerodyne Research, Inc.*
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- 6AC.4**
4:15 **Sources of Black Carbon Particles at a Rural Site Southeast of London, UK during ClearFlo (Winter 2012).** LEAH WILLIAMS, Scott Herndon, John Jayne, Andrew Freedman, William Brooks, Jonathan Franklin, Paola Massoli, Edward Fortner, Puneet Chhabra, Mark Zahniser, Timothy Onasch, Manjula Canagaratna, Douglas Worsnop, Nga Lee Ng, Lu Xu, Berk Knighton, Manvendra Dubey, Allison Aiken, Kyle Gorkowski, Shang Liu, Dominique Young, Dantong Liu, James Allan, *Aerodyne Research, Inc.*
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- 6AC.5**
4:30 **Organosulfates from Pinene and Isoprene over the Pearl River Delta, South China.** XIANG DING, Quanfu He, Xinming Wang, Jian Zhen Yu, Neil Donahue, *Guangzhou Institute of Geochemistry, CAS*
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- 6AC.6**
4:45 **Chemical Composition of Marine Emissions from Mediterranean Seawaters: Results from a Mesocosm Study.** JORGE PEY, H. Langley DeWitt, Brice Temime-Roussel, Aurelie Mème, Bruno Charriere, Richard Sempere, Anne Delmont, Sébastien Mas, David Parin, Clemence Rose, Allison Schwier, Badr Rmili, Karine Sellegri, Barbara D'Anna, Nicolas Marchand, *Aix-Marseille Université, CNRS, LCE FRE 3416*
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6AQ AIR QUALITY AND CLIMATE IN THE SOUTHEAST US: INSIGHTS FROM RECENT MEASUREMENT CAMPAIGNS

SEBASTIAN I 1

Karsten Baumann and Neha Sareen, chairs

6AQ.1 **Identifying Precursors and Aqueous Organic Aerosol Formation Pathways in the Humid, Photochemically-Active Southeastern US during the SOAS Campaign.** NEHA SAREEN, Annmarie Carlton, Barbara Turpin, *Rutgers University*
3:30

6AQ.2 **Particle Water and pH in the Southeastern US.** HONGYU GUO, Lu Xu, Kate Cerully, Aikaterini Bougiatioti, Shannon Capps, Annmarie Carlton, Shanhu Lee, Nga Lee Ng, Michael Bergin, Athanasios Nenes, Rodney Weber, *Georgia Institute of Technology*
3:45

6AQ.3 **On the Link Between Hygroscopicity, Volatility, and Oxidation State of Ambient and Water-soluble Aerosol in the Southeastern United States.** KATE CERULLY, Aikaterini Bougiatioti, Lu Xu, Hongyu Guo, James Hite, Nga Lee Ng, Rodney Weber, Athanasios Nenes, *TSI, Inc.*
4:00

6AQ.4 **Estimation of Organo-Sulfur in PM_{2.5} via Isotope Dilution ICPMS and Ion Chromatography.** ERIC EDGERTON, Karsten Baumann, Mike Fort, Stephanie Shaw, John Jansen, *Atmospheric Research & Analysis*
4:15

6AQ.5 **Constraints on the Parameters Dictating Organic Aerosol Volatility from Dual Thermodenuder Field Measurements in the Southeastern US.** PROVAT SAHA, Andrey Khlystov, Andrew Grieshop, *North Carolina State University*
4:30

6AQ.6 **Aqueous Sources of Secondary Organic Aerosol in the Southeast Atmosphere Study (SAS).** V. FAYE MCNEILL, Jason Surratt, Annmarie Carlton, Havala Pye, *Columbia University*
4:45



6BB BIOMASS BURNING AEROSOL: FROM EMISSIONS TO IMPACTS

SEBASTIAN I 2

Allison Aiken and Lindsay Hatch, chairs

Wednesday

- | | |
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| 6BB.1
3:30 | How Well Do Laboratory Studies Represent Microphysical Properties of Soot Emitted from Wildfires? RAJAN K. CHAKRABARTY, Nicholas Beres, Hans Moosmuller, Swarup China, Claudio Mazzoleni, Manvendra Dubey, Li Liu, Michael I Mishchenko, <i>Desert Research Institute</i> |
| 6BB.2
3:45 | Optical and Physical Properties of Biomass Burning Aerosols – Linking Laboratory and Field Measurements. ALLISON AIKEN, Manvendra Dubey, Shang Liu, Claudio Mazzoleni, Gavin McMeeking, Ezra Levin, Paul DeMott, Sonia Kreidenweis, Robert J. Yokelson, Allen Robinson, Neil Donahue, Christopher Cappa, Leah Williams, Nga Lee Ng, Douglas Worsnop, Timothy Onasch, <i>Los Alamos National Lab</i> |
| 6BB.3
4:00 | Real-time Evolution of the Gas-phase Precursors for Secondary Organic Aerosol from Biomass Burning. Adam Ahern, Patrick Veres, Daniel S. Tkacik, Ellis Shipley Robinson, Rawad Saleh, Albert A. Presto, Allen Robinson, Robert J. Yokelson, Neil Donahue, RYAN SULLIVAN, <i>Carnegie Mellon University</i> |
| 6BB.4
4:15 | Fluoride Emissions from Biomass Burning. Thilina Jayarathne, Chelsea Stockwell, Robert J. Yokelson, Shunsuke Nakao, ELIZABETH STONE, <i>University of Iowa</i> |
| 6BB.5
4:30 | Smoke Marker Ratios from Controlled Laboratory Burns, Prescribed Burns, and Wildfires. AMY P. SULLIVAN, Sonia Kreidenweis, Bret Schichtel, Jeffrey Collett, <i>Colorado State University</i> |
| 6BB.6
4:45 | Impacts of Transboundary Peatland Burning Smoke on In Situ Acidity of Urban Aerosols. Shiguo Jia, Wei Hong Fan, Choon Nam Ong, Jeffrey Reid, LIYA YU, <i>National University of Singapore</i> |
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6EP AEROSOL SOURCES FROM EMERGING ENERGY TECHNOLOGIES AND PRODUCTION

SEBASTIAN / 3

Akua Asa-Awuku and David Cocker, chairs

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- 6EP.1**
3:30 **Airborne Measurements of Biogenic and Anthropogenic Secondary Organic Aerosol Formation in the Oil Sands Region of Alberta.** JOHN LIGGIO, Katherine Hayden, Peter Liu, Amy Leithead, Samar Moussa, Jason O'Brien, Shao-Meng Li, *Environment Canada*
-
- 6EP.2**
3:45 **Winter Fine Particle Haze Episodes in the Bakken Oil and Gas Production Region.** ASHLEY EVANOSKI-COLE, Anthony Prenni, Derek Day, Misha Schurman, Amy P. Sullivan, Yi Li, Barkley Sive, Yong Zhou, Jenny Hand, Kristi Gebhart, Bret Schichtel, Jeffrey Collett, *Colorado State University*
-
- 6EP.3**
4:00 **Amines and Their Degradation Products from Post-Combustion Carbon Capture.** STEPHANIE SHAW, Annette Rohr, Eladio Knipping, *Electric Power Research Institute*
-
- 6EP.4**
4:15 **Effects of Global Warming Mitigation Strategies in Major Energy Sectors on Primary and Secondary Aerosol.** Michael MacKinnon, MARC CARRAS-SOSPEDRA, Jack Brouwer, Donald Dabdub, *University of California, Irvine*
-
- 6EP.5**
4:30 **Detailed Characterization of Particulate Matter (PM) Emitted by Pre-commercial High-Efficiency Spark Ignition Direct Injection Gasoline Engine.** ALLA ZELENYUK, Paul Reitz, Mark Stewart, Dan Imre, David Rothamer, David Foster, Mitchell Hageman, Axel Maier, Stephen Sakai, Michael Andrie, Roger Krieger, Kushal Narayanaswamy, Paul Najt, Arun Solomon, *Pacific Northwest National Laboratory*
-
- 6EP.6**
4:45 **Modeling Aerosol Release from Explosion-Induced Vessel Ruptures for Nuclear Fuel Reprocessing.** FRED GELBARD, Alexander Brown, David L. Y. Louie, Chengcheng Feng, Nathan E. Bixler, *Sandia National Laboratories*
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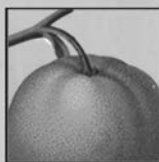
6IM INSTRUMENTATION AND METHODS

PANZACOLA H 1-3

Fred Bretchel and Hagen Telg, chairs

Wednesday

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|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6IM.1
3:30 | Design and Testing of an Inhalable Particle Spectrometer. KIMBERLY ANDERSON, Mwangi Ndonga, David Leith, Jordan Rath, Azer Yalin, John Volckens, <i>Colorado State University</i> |
| <hr/> | |
| 6IM.2
3:45 | A Small, Sensitive, Light-weight, and Disposable Aerosol Spectrometer for Balloon and UAV Applications. Ru-Shan Gao, HAGEN TELG, Timothy Bates, Richard McLaughlin, Laurel Watts, Steven Ciciora, James Johnson, Joshua P. Schwarz, Anne Perring, Andrew Rollins, Troy Thornberry, David Fahey, <i>NOAA/CIRES</i> |
| <hr/> | |
| 6IM.3
4:00 | High Speed Size Distribution Measurements of Aerosol Particles. Michael Pikridas, Chongai Kuang, Steven Spielman, Susanne Hering, JIAN WANG, <i>Brookhaven National Laboratory</i> |
| <hr/> | |
| 6IM.4
4:15 | A Liquid Nebulization / Differential Mobility Analysis / Transmission Electron Microscopy Approach to Evaluate Nanoparticles in Environmentally-Relevant Water Matrices. BRIAN MADER, Mark Ellefson, Sue Wolf, <i>3M Company</i> |
| <hr/> | |
| 6IM.5
4:30 | Development of a Miniature Plate Differential Mobility Analyzer (Mini-plate DMA). QIAOLING LIU, Da-Ren Chen, <i>Virginia Commonwealth University</i> |
| <hr/> | |
| 6IM.6
4:45 | Initial Field Deployment of a Custom Multi-Channel Tandem Differential Mobility Analyzer (mc-TDMA). CHRISTOPHER OXFORD, Yang Wang, Steven Dhawan, David Hagan, Dhruv Mitroo, Pratim Biswas, Brent Williams, <i>Washington University in St. Louis</i> |
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6PH LINKING AEROSOLS WITH PUBLIC HEALTH IN A CHANGING WORLD

SEBASTIAN / 4

V. Verma and Nga Lee (Sally) Ng, chairs

6PH.1 **SPARTAN: An Emerging Global Aerosol Network.**
3:30 GRAYDON SNIDER, Crystal Weagle, Randall Martin, Aaron van Donkelaar, Clement Akoshile, Paulo Artaxo, Jeff Brook, Brent Holben, Ralph Kahn, Nofel Lagrosas, Puji Lestari, Vanderlei J. Martins, Eduardo J. Quel, Yinon Rudich, Abdus Salam, S.N. Tripathi, Zhang Qiang, Michael Brauer, Aaron Cohen, Mark D. Gibson, Yang Liu, *Dalhousie University*

6PH.2 **Balancing Health and Climate Impacts of Aerosols in a Changing World using GEOS-Chem Adjoint Sensitivities.** FORREST LACEY, Daven Henze, *University of Colorado, Boulder*

6PH.3 **A Reduced-Complexity, Variable Grid Resolution Model for PM_{2.5} Transport and Transformation.** CHRISTOPHER TESSUM, Jason Hill, Julian Marshall, *University of Minnesota*

6PH.4 **Linking Air Quality Health Impacts and Electricity Capacity Planning.** PAUL KERL, Wenxian Zhang, Juan Moreno-Cruz, Athanasios Nenes, Matthew Realf, Armistead Russell, Joel Sokol, Valerie Thomas, *Georgia Institute of Technology*

6PH.5 **Reducing Global Mortality from PM_{2.5}.** JOSHUA APTE, Julian Marshall, *Lawrence Berkeley National Laboratory*

6PH.6 **Development and Application of a Markov Chain Model for Predicting Influenza Risk and Control in an Office Environment.** PARHAM AZIMI, Brent Stephens, *Illinois Institute of Technology*

Wednesday 5:00 PM - 6:00 PM
Working Group Meetings 2

Wednesday 6:00 PM - 7:00 PM
Annual Business Meeting



Thursday 8:00 AM - 9:15 AM

Plenary III: Friedlander Lecture

8:00 **Friedlander Lecture: Linking Tailpipe to Ambient:
Atmospheric Evolution of Combustion Emissions**
Allen L. Robinson, *Carnegie Mellon University*

Moderator Sonia Kreidenweis, *Colorado State University*

9:00 **Friedlander Award Presentation, AAAR Fellows,
IARA Fellows** James Schauer, *University of Wisconsin*

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

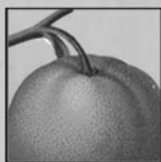
Session 7: Platform

**7AQ AIR QUALITY AND CLIMATE IN THE SOUTHEAST US:
INSIGHTS FROM RECENT MEASUREMENT CAMPAIGNS**
SEBASTIAN I 1

Steve Brown and Alexis Attwood, chairs

7AQ.1
9:45 **Changes in Visibility and Local Radiative Forcing in the Southeast U.S. Linked to Decreased Aerosol Sulfate Mass.** ALEXIS ATTWOOD, Rebecca Washenfelter, Weiwei Hu, Nick Wagner, Allison McComiskey, Pedro Campuzano-Jost, Douglas Day, Brett Palm, Suzane Simoes de Sa, Charles Brock, Eric Edgerton, Karsten Baumann, Jose-Luis Jimenez, Steven G. Brown, *CU CIRES- NOAA ESRL*

Thursday



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- 7AQ.2**
10:00
Cloud Condensation Nuclei, Cloud Droplet Number, and the Radiative Balance over the Southeastern United States: Measurement and Modeling Results from the NOAA SENEX Campaign. JACK LIN, Ricardo Morales Betancourt, Aikaterini Bougiatioti, Petros Vasilakos, Athanasios Nenes, Charles Brock, Nick Wagner, Daniel Lack, Daniel Law, Timothy Gordon, Mathews Richardson, Milos Markovic, Joshua P. Schwarz, Ann M. Middlebrook, Jin Liao, André Welts, Joost de Gouw, *Georgia Institute of Technology*
-
- 7AQ.3**
10:15
Multivariate Analysis of Historical Trends in Condensed Phase Liquid Water in the Southeastern United States. THIEN KHOI NGUYEN, Annmarie Carlton, Shannon Capps, *Rutgers University*
-
- 7AQ.4**
10:30
Vertical Profiles of Aerosol Extinction Over the Southeastern US during the Summer. NICK WAGNER, Charles Brock, Timothy Gordon, Daniel Lack, Mathews Richardson, Daniel Law, André Welts, Ann M. Middlebrook, Jin Liao, John Holloway, Jeff Peischl, Ilana Pollack, Thomas Ryerson, Martin Graus, Carsten Warneke, *NOAA Earth System Research Laboratory, Boulder, CO*
-
- 7AQ.5**
10:45
HSRL-2 Observations of Aerosol Variability and Mixing During Boundary Layer Evolution in Houston. SHARON P. BURTON, Amy Jo Scarino, Raymond R. Rogers, Chris Hostetler, Richard Ferrare, Timothy A. Berkoff, David B. Harper, Anthony L. Cook, Pablo Saide, *NASA Langley Research Center*
-
- 7AQ.6**
11:00
Chemical Climatology of the Southeastern United States, 1999-2013. George Hidy, CHARLES BLANCHARD, Karsten Baumann, Eric Edgerton, Stephanie Shaw, Eladio Knipping, John Jansen, Shelley Tanenbaum, Justin Walters, Ivar Tombach, *Envair*
-
- 7AQ.7**
11:15
Aerosol Optical Properties in the Ultraviolet Spectral Region during the Southern Oxidant and Aerosol Study. REBECCA WASHENFELDER, Alexis Attwood, Charles Brock, Steven G. Brown, *University of Colorado and NOAA*
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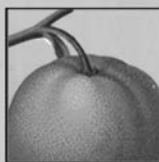


7BA BIOAEROSOLS AND HOMELAND SECURITY

SEBASTIAN I 4

Sergey Grinshpun and Vera Samburova, chairs

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| 7BA.1
9:45 | Development of a Novel Microscope Spectrofluorometer for Individual Bioparticle Characterization. DONALD R. HUFFMAN, J. Alex Huffman, <i>University of Arizona and University of Denver</i> |
| 7BA.2
10:00 | Physico-chemical qualification and refinements of a new portable bio aerosols collector: BIODOSI. ROLAND SARDA-ESTEVE, Jean-Maxime Roux, <i>CEA</i> |
| 7BA.3
10:15 | International Inter-comparison of Laser/Light-induced Fluorescence (L/LIF) Methods for the Real-time Detection of Bioaerosols: BIODTECT 2014 Campaign at CEA/LSCE ACTRIS SUPERSITE (Saclay, France). Roland Sarda-Esteve, Martin Gallagher, J. ALEX HUFFMAN, Ulrich Poeschl, Hang Su, Denis Kiselev, Sampo Saari, John Sodeau, David O'Connor, Gavin McMeeking, Greg Kok, Michel Thibaudon, Dominique Baisnee, Jean Sciare, Olivier Favez, Jean-Maxime Roux, Marie-Helene Nadal, Christophe Bossuet, Laurent Olmedo, <i>CEA</i> |
| 7BA.4
10:30 | Airborne Measurements of Bioaerosol Across the Southern U.S.. ANNE PERRING, Darrel Baumgardner, Mark T. Hernandez, Joshua P. Schwarz, Ru-Shan Gao, Greg Kok, Gavin McMeeking, David Fahey, <i>CU CIRES- NOAA ESRL</i> |
| 7BA.5
10:45 | Analysis of Atmospheric Biological Particles with High-Resolution Microscopy Techniques. VERA SAMBUROVA, Alison Murray, Anna Gannet Hallar, Xufei Yang, Barbara Zielinska, <i>Desert Research Institute</i> |
| 7BA.6
11:00 | Development of a Passive Bioaerosol Sampler Using Piezoelectric Polymer. JENNIFER THERKORN, Jerry Scheinbeim, Gediminas Mainelis, Rutgers, <i>The State University of New Jersey</i> |
| 7BA.7
11:15 | Efficiency of Virus Collection with the Novel G-II Bioaerosol Collector. Jovan Pantelic, Michael Grantham, JING YAN, Fengjie Liu, Sheryl Ehrman, Donald Milton, <i>University of Maryland School of Public Health</i> |
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7BB BIOMASS BURNING AEROSOL: FROM EMISSIONS TO IMPACTS

SEBASTIAN I 2

Betsy Stone and Andrew May, chairs

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- 7BB.1** **Observations of Wildfire Smoke and Ozone at the Mt. Bachelor Observatory in Central Oregon.**
9:45 DAN JAFFE, Nicole Wigder, Pao Baylon, Jon Hee, Qi Zhang, Shan Zhou, Sonya Collier, Lawrence Kleinman, Arthur J. Sedlacek, *University of Washington, Bothell, WA*
-
- 7BB.2** **Aerosol Chemistry and Processing at Mt. Bachelor Summit: Influences from Wildfire Plumes.**
10:00 SHAN ZHOU, Sonya Collier, Jon Hee, Nicole Wigder, Dan Jaffe, Lawrence Kleinman, Arthur J. Sedlacek, Qi Zhang, *University of California, Davis*
-
- 7BB.3** **Aged Biomass Burning Size Distributions from BORTAS 2011.** KIMIKO SAKAMOTO, James Allan, Hugh Coe, Jonathan Taylor, Thomas Duck, Jeffrey Pierce, *Colorado State University*
-
- 7BB.4** **Lagrangian Photochemical Modeling of Aerosol Evolution in Biomass Burning Plumes.** MATTHEW ALVARADO, Chantelle Lonsdale, Robert J. Yokelson, Sheryl K. Akagi, Emily Fischer, Katherine Travis, Jill Craven, Jonathan Taylor, Gavin McMeeking, Ian Burling, Shawn P. Urbanski, Cyle Wold, John Seinfeld, Hugh Coe, David R. Weise, *AER*
-
- 7BB.5** **Investigation of Chemical and Physical Perturbations to Organic Aerosol Present in Biomass Burning Plumes over Prescribed Fires in South Carolina.** ANDREW MAY, Taehyoung Lee, Gavin McMeeking, Sheryl K. Akagi, Amy P. Sullivan, Shawn P. Urbanski, Robert J. Yokelson, Sonia Kreidenweis, *Colorado State University*
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- 7BB.6** **Observations on Aging of Biomass Burning Aerosols in Southern Africa.** VILLE VAKKARI, Veli-Matti Kerminen, Johan Paul Beukes, Petri Tiitta, Pieter G. van Zyl, Miroslav Josipovic, Andrew D. Venter, Kerneels Jaars, Douglas Worsnop, Markku Kulmala, Lauri Laakso, *Finnish Meteorological Institute, Helsinki, Finland*
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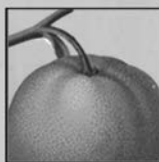


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- 7BB.7** **Polluted vs Clean: Chronic Nitrogen Deposition**
11:15 **Affects on Emissions from Burning of Forest**
 Litter. Michael Giordano, David R. Weise, AKUA ASA-
 AWUKU, *University of California, Riverside*
-

7CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE
PANZACOLA H 1-3

Shane Murphy and James Radney, chairs

- 7CA.1** **Secondary Organic Aerosol Formation at an**
9:45 **Urban Downwind Location in Long Island, New**
 York. SHAN ZHOU, Sonya Collier, Jianzhong Xu, Fan
 Mei, Jian Wang, Yin-Nan Lee, Arthur J. Sedlacek,
 Stephen Springston, Qi Zhang, *University of Califor-*
 nia, Davis
-
- 7CA.2** **Evidence of Ambient Aqueous SOA Formation**
10:00 **in the Po Valley, Italy.** AMY P. SULLIVAN, Natasha
 Hodas, Barbara Turpin, Kate Skog, Frank Keutsch,
 Stefano Decesari, M. Cristina Facchini, Jeffrey Col-
 lett, *Colorado State University*
-
- 7CA.3** **Examining New Pathways of Secondary Or-**
10:15 **ganic Aerosol Formation in a 3D Model: Role**
 of Absorbed Water, Multi-generational Aging,
 Intermediate-Volatility Organics and Aqueous
 Chemistry. SHANTANU JATHAR, Christopher Cappa,
 V. Faye McNeill, Michael Kleeman, *University of*
 California, Davis
-
- 7CA.4** **Modeling Regional Secondary Organic Aerosol**
10:30 **from Isoprene in Southeast United States Using**
 the Master Chemical Mechanism. Jingyi Li, QI
 YING, *Texas A&M University*
-
- 7CA.5** **Characterization of Organic Aerosol in Severe**
10:45 **Haze Episodes Using FTIR during Fall 2013 in**
 Beijing, China. Xiaoying Li, Kathryn George, Caiq-
 ing Yan, MEI ZHENG, Ann Dillner, *Peking University*
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7CA.6
11:00
Instrument Intercomparison of Black Carbon Measurements and Correlations with Gas and Aerosol Composition during an Urban Field Study. MICHAEL WALKER, Brent Williams, Raul Martinez, Yaping Zhang, Dhruv Mitroo, David Hagan, Steven Dhawan, Li Du, Jay Turner, Hongyu Guo, Laura King, Rodney Weber, Lu Hu, Munkhbayar Baasandorj, Dylan Millet, Gavin McMeeking, *Washington University in St. Louis*

7CA.7
11:15
Black and Elemental Carbon in Two European Urban Areas – Temporal Trends, Site and Seasonal Similarities and Differences. Regina Hitzenberger, Jaroslav Schwarz, Isabella Aschauer, Richard Haindl, Wolfgang Ludwig, Robert Wagner, ANNA WONASCHUETZ, Gudrun Zecha, Petr Vodicka, Zdenek Wagner, Nadezda Zikova, Vladimir Zdimal, *University of Vienna*

7NM NANOPARTICLES AND MATERIALS SYNTHESIS SEBASTIAN I 3

Mark Swihart and David Cocker, chairs

7NM.1
9:45
Collisional Growth Below 2 nm in Flame Aerosol Reactors. JIAXI FANG, Yang Wang, Pai Liu, Pratim Biswas, *Washington University in St Louis*

7NM.2
10:00
Flame-driven Aerosol Synthesis of Multicomponent Metal and Non-Oxide Semiconductor Nanoparticles. Di Qi, Singh Saurabh, Munish Sharma, MARK SWIHART, *University at Buffalo (SUNY)*

7NM.3
10:15
Kinetics of Sub 3 nm Titanium Dioxide Particle Formation in an Aerosol Reactor during the Thermal Decomposition of Titanium Isopropoxide (TTIP). YANG WANG, Pai Liu, Tandeep Chadha, Jiaxi Fang, Pratim Biswas, *Washington University in St Louis*

7NM.4
10:30
Lanthanide Doped Silica Nanospheres – Surface Sampling in Deposition Studies. ERIN M. DURKE, Wesley Gordon, Amanda Jenkins, Jason Edmonds, *Edgewood Chemical Biological Center*



7NM.5
10:45
Near-road Modeling and Measurement of Cerium-containing Aerosol Generated by Nanoparticle Diesel Fuel Additive Use. BRETT GANTT, Shamia Hoque, Robert Willis, Kathleen Fahey, Juana Delgado-Saborit, Roy M. Harrison, Garnet Erdakos, Prakash Bhawe, K. Max Zhang, Kasey Kovalcik, Havala Pye, *U.S. EPA*

7NM.6
11:00
A Liquid Nebulization / Differential Mobility Analysis (LN/DMA) Based Method for the Quantification of Nanomaterials in Environmentally-Relevant Water Matrices. BRIAN MADER, Mark Ellefson, Sue Wolf, *3M Company*

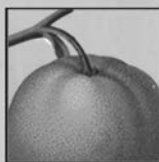
7NM.7
11:15
Aminated Reduced Graphene Oxide-Titanium Dioxide Nanocomposites (AGOTi) for Carbon Dioxide Capture and Photoreduction. YAO NIE, Wei-Ning Wang, Yi Jiang, John Fortner, Pratim Biswas, *Washington University in St. Louis*

7NP ADVANCES IN THE PHYSICS AND CHEMISTRY OF NEW PARTICLE FORMATION AND GROWTH
PANZACOLA H 4

Ilona Riipinen and Coty Jen, chairs

7NP.1
9:45
Effect of Chemical Structure on the Rapid Formation of Extremely Low Volatility Organic Compounds from BVOC Oxidation. MIKKO SIPIÄ, Tuija Jokinen, Torsten Berndt, Mikael Ehn, Heikki Junninen, Pauli Paasonen, Stefanie Richters, Frank Stratmann, Hartmut Herrmann, Douglas Worsnop, Markku Kulmala, Veli-Matti Kerminen, *University of Helsinki*

7NP.3
10:15
Chemical Mechanisms Behind the Isoprene Suppression of Biogenic New Particle Formation. SHANHU LEE, Yi You, Janek Uin, Alex Guenther, Joost de Gouw, William Brune, Paul Wennberg, Alex Teng, Tran Nguyen, Jason St. Clair, John Crounse, Pawel Misztal, Gabriel Isaacman, Allen H. Goldstein, Karsten Baumann, Eric Edgerton, *Kent State University*



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- 7NP.4** **Atmospheric Nanoparticle Growth, Particle Phase Reactions and Particle Phase State.** TAINA YLI-JUUTI, Ilona Riipinen, Ulrich Poeschl, Manabu Shiraiwa, *Max Planck Institute for Chemistry*
- 10:30
-
- 7NP.5** **Observation of Water Vapor Uptake by Dimethylamine-Sulfuric Acid Cluster Ions in the Sub 2 nm Size Range via Ion Mobility Spectrometry-Mass Spectrometry.** Jikku Thomas, Siqin He, Joseph DePalma, Carlos Larriba-Andaluz, Murray Johnston, CHRISTOPHER HOGAN JR., *University of Minnesota*
- 10:45
-
- 7NP.6** **Particle Formation from Methanesulfonic Acid and Ammonia/Amines via Laboratory Experiments, Ab Initio Calculations, and Modeling Studies.** HAIHAN CHEN, Mychel E. Varner, Andrew Martinez, Veronique Perraud, Micheal, J. Ezell, Kristine Arquero, Jeremy Horne, Benny Gerber, Donald Dabdub, Barbara J. Finlayson-Pitts, *University of California, Irvine*
- 11:00
-
- 7NP.7** **New Particle Formation in the Volatility Basis Set.** NEIL DONAHUE, Wayne Chuang, Ismael Kenneth Ortega Colomer, *Carnegie Mellon University*
- 11:15
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Thursday 11:30 AM - 12:15 PM
Light Take-Away Lunch

Thursday 12:15 PM - 1:45 PM
Session 8: Poster

8AC AEROSOL CHEMISTRY

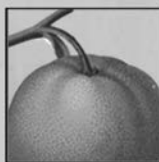
PANZACOLA F/G

Kate Cerully, chair

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- 8AC.1** **Chlorine-initiated SOA Formation from Biogenic VOCs.** CHRISTOPHER LIM, Kelsey Boulanger, Jesse Kroll, *MIT*
- 12:15
-
- 8AC.2** **Products Formed during the Heterogeneous Oxidation of Polycyclic Aromatic Hydrocarbons in an Atmospheric Chamber.** KLARA ONDRUSOVA, Richard E. Cochran, Haewoo Jeong, Alena Kubatova, *University of North Dakota*
- 12:15
-



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- 8AC.3**
12:15 **Molecular Composition and Photochemical Aging of Alpha-Pinene SOA and Alpha-Humulene SOA Generated Under Nocturnal and Diurnal Conditions.** DIAN ROMONOSKY, Sergey Nizkorodov, Julia Laskin, Alexander Laskin, *University of California, Irvine*
-
- 8AC.4**
12:15 **Characterization of Organic Precursors and Products during Aqueous Hydroxyl Radical Oxidation of Po Valley, Italy and Fresno, CA Fog Water.** Jeffrey R. Kirkland, Yong Lim, Lynn Mazzoleni, Jeffrey Collett, Stefano Decesari, M. Cristina Facchini, Amy P. Sullivan, Frank Keutsch, BARBARA TURPIN, *Rutgers University*
-
- 8AC.5**
12:15 **Secondary Organic Aerosol from Gas Phase Methylsiloxane Oxidation: Products and Reaction Mechanisms.** YUE WU, Murray Johnston, *University of Delaware*
-
- 8AC.6**
12:15 **Effect of Ambient Primary Organic Aerosols on Secondary Organic Aerosol Formation.** JIAN-HUAI YE, Bruce Urch, Greg J. Evans, Arthur Chan, *University of Toronto*
-
- 8AC.7**
12:15 **Spectroscopy of Cloud-Processed Aerosols: Glyoxal Oligomers.** SARAH D. BROOKS, Elena Avzianova, *Texas A&M University*
-
- 8AC.8**
12:15 **A Study of the Aqueous Phase Processing of Organic Aerosols through Compound Specific Stable Isotope Analysis.** DENISE NAPOLITANO, Pierre Herckes, *Arizona State University*
-
- 8AC.9**
12:15 **Optical Properties of Water Soluble Organic Carbon (WSOC) in Atmospheric Aerosols and Fog Waters.** JINWEI ZHANG, David Hanigan, Paul Westerhoff, Pierre Herckes, *Arizona State University*
-
- 8AC.10**
12:15 **Surface-specific Chemical Reactions for Atmospheric Surfactants Observed Directly with Synchrotron-based XPS.** NONNE PRISLE, Gunnar Öhrwall, Josephina Werner, Olle Björneholm, *University of Helsinki, Helsinki, Finland*
-



8AC.11
12:15 **Identification and Characterization of Visible Absorption Components in Methylglyoxal-Ammonium Sulfate Mixtures.** W. SEAN MCGIVERN, Thomas C. Allison, James Radney, Christopher Zangmeister, *National Institute of Standards and Technology*

8AC.12
12:15 **Gas-phase Oxidation of Naphthalene, Acenaphthylene and Acenaphthene Initiated by the Nitrate Radical: Mechanistic Study and SOA Formation.** MATTHIEU RIVA, Manuela Cirtog, Emilie Perraudin, Bénédicte Picquet-Varrault, Eric Villenave, EPOC, *Université Bordeaux, France*

8AC.13
12:15 **Chemical Characterization of Gas- and Aerosol-Phase Products from Isoprene Ozonolysis in Presence of Acidic Aerosol: Re-examination of Secondary Organic Aerosol Formation.** Matthieu Riva, SRI HAPSARI BUDISULISTIORINI, Tashana Detwiler, Zhenfa Zhang, Avram Gold, Jason Surratt, *University of North Carolina at Chapel Hill, Chapel Hill, NC*

8AQ AIR QUALITY AND CLIMATE IN THE SOUTHEAST US: INSIGHTS FROM RECENT MEASUREMENT CAMPAIGNS PANZACOLA F/G

Rob Griffin, chair

8AQ.1
12:15 **Exploring Differences in Simulated PM_{2.5} Between CMAQ and CAMx during the 2013 Southeast Atmosphere Study.** RICK SAYLOR, Barry Baker, Pius Lee, Li Pan, *NOAA Air Resources Laboratory*

8AQ.2
12:15 **Investigating Chemical Reaction Pathways in the SE US Using Comprehensive Gas Chromatography.** KELLEY C. BARSANTI, Melissa J. Roskamp, Wentai Luo, Lindsay E. Hatch, James F. Pankow, *Portland State University*

8AQ.3
12:15 **Representativeness of Aggregate Vertical Profiles and Influencing Factors from NASA DISCOVER-AQ.** MICHAEL SHOOK, Gao Chen, James Crawford, Bruce Anderson, Andreas Beyersdorf, Richard Moore, Amy Jo Scarino, Kenneth Thornhill, Edward Winstead, Luke Ziemba, *SSAI*

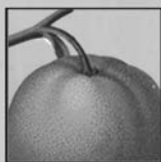


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- 8AQ.4**
12:15 **Minimizing Cloud Shattering Effects: Comparing Aerosol Measurements Made during the 2013 SEAC4RS Campaign Behind Two Types of Airborne Sampling Inlets.** KENNETH THORNHILL, Michael Shook, Luke Ziemba, Bruce Anderson, Andreas Beyersdorf, Gao Chen, Edward Winstead, Richard Moore, *SSAI*
-
- 8AQ.5**
12:15 **Southern Oxidant and Aerosol Study (SOAS); A Modelling Perspective.** PETROS VASILAKOS, Yongtao Hu, Jack Lin, Lu Xu, Nga Lee Ng, Armistead Russell, Athanasios Nenes, *Georgia Institute of Technology*
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8BA BIOAEROSOLS AND HOMELAND SECURITY
PANZACOLA F/G

Alex Huffman, chair

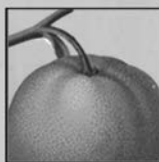
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- 8BA.1**
12:15 **Characterization of a Rotating Drum System for Bioaerosol Studies in Biocontainment.** MICHAEL SCHUIT, Shanna Ratnesar-Shumate, Jamie Kline, John Yeager, Kristin Bower, Paul Dabisch, *NBACC*
-
- 8BA.2**
12:15 **Preferential Aerosolization of Different Strains of a Swine Pathogen: Streptococcus Suis.** LÉA GAUTHIER-LEVESQUE, Laetitia Bonifait, Phillipa Perrott, Nathalie Turgeon, Marc Veillette, Caroline Duchaine, *Université Laval, Canada*
-
- 8BA.4**
12:15 **Emissions and Dispersion Bioaerosol in Four Sites During Spring-Summer at Tijuana, Mexico.** LILIA HURTADO, Guillermo Rodriguez, Miguel Zavala, Penelope Quintana, Luisa Molina, Bertha Landeros, Mirna Brito, *Universidad Autonoma de Baja California, Tijuana, Mexico*
-
- 8BA.5**
12:15 **Investigation of Bioaerosol Sampling Efficiency with the Steam Jet-Aerosol Collector.** Wei-Ting Chen, Andrey Khlystov, Huey-Jen Su, Nai-Tzu Chen, Wei-Yen Tu, MING-YENG LIN, *National Cheng Kung University*
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- 8BA.6**
12:15 **In Vitro Aerosolized Antigen Dosimetry Lung Models.** AYESHA MAHMOOD, John Dye, *US Army Medical Research Institute for Infectious Disease*
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- 8BA.7**
12:15 **Evaluation of a Low-cost Micro-Channel Aerosol Collector for Bioaerosols in a Pilot Study.**
IGOR NOVOSSELOV, *Enertech Inc*
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- 8BA.8**
12:15 **Viral and Bacterial Microbiome of Air in a Daycare Center.** AARON PRUSSIN II, Kyle Bibby, Linsey Marr, *Virginia Tech*
-
- 8BA.9**
12:15 **Fluorophore-Tagged Reagents for Aerosol Experiments.** CYNTHIA J. KAESER, Elizabeth K. Wheeler, Joanne J. Osburn, A. Daniel Jones, George R. Farquar, *Lawrence Livermore National Laboratory*
-
- 8BA.10**
12:15 **Generation and Characterization of Large Particle Aerosols Using the Center Flow Tangential Aerosol Generator for Nonhuman Primate Aerosol Models.** KYLE BOHANNON, Matthew Lackemeyer, Jens Kuhn, Jiro Wada, Lisa Hensley, Peter Jahrling, Reed Johnson, *NIAID*
-
- 8BA.11**
12:15 **Non-Human Primate Model Development Using Large Particle Aerosolized Cowpox Virus.** MATTHEW LACKEMEYER, Kyle Bohannon, Amy Papaneri, Gary Sparks, Reed Johnson, Peter Jahrling, *NIAID*
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- 8BA.12**
12:15 **Quantum Cascade Laser Cavity Ring Down Spectroscopy: New Method for the Characterization and Detection of Aerosols.** Erin M. Durke, ANGELA M. BUONAUGURIO, Jason Edmonds, *Edgewood Chemical Biological Center*
-
- 8BA.13**
12:15 **Simultaneous Real-time Fluorescence and Microscopy Measurements of Bioaerosols during the BIODTECT 2014 Campaign in Paris Area.** DOMINIQUE BAISNEE, Michel Thibaudon, Raphaëlle Baumier, Gavin McMeeking, Greg Kok, David O'Connor, John Sodeau, J. Alex Huffman, Walfried Lassar, Kyle Pierce, Martin Gallagher, Ian Crawford, Georges Salines, Roland Sarda-Esteve, *CEA*
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- 8BA.14**
12:15
BIODETECT 2014 Campaign in Paris Area: Overview of the Experimental Strategy and Preliminary Results. ROLAND SARDA-ESTEVE, J. Alex Huffman, Martin Gallagher, Michel Thibaudon, Dominique Baisnee, Raphaele Baumier, Gavin McMeeking, Greg Kok, John Sodeau, David O'Connor, Ian Crawford, Michael Flynn, Sampo Saari, Ulrich Poeschl, Olivier Favez, Tanguy Amodeo, Jean Sciare, Nicolas Bonnaire, Walfried Lassar, Kyle Pierce, Cédric Chou, Allan Bertram, Georges Salines, Jean-Maxime Roux, et al., *CEA*
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- 8BA.15**
12:15
BIODETECT 2014: Ambient Observations by a Comprehensive Suite of Light-induced Fluorescence Techniques during Summer Near Paris, France. WALFRIED LASSAR, Roland Sarda-Estève, Kyle Pierce, Martin Gallagher, Ian Crawford, John Sodeau, David O'Connor, Gavin McMeeking, Greg Kok, Ulrich Poeschl, Jean Sciare, Dominique Baisnee, Sampo Saari, J. Alex Huffman, *University of Denver, CO*
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- 8BA.16**
12:15
A Global Overview of Measurements of Fluorescent Biological Particles Using Ultraviolet Aerodynamic Particle Sizer (UVAPS) and Wideband Integrated Bioaerosol Sensor (WIBS). KYLE PIERCE, Niall Robinson, Ian Crawford, Martin Gallagher, David Healy, David O'Connor, John Sodeau, Miia Hiltunen, Markku Kulmala, Warren Stanley, Paul Kaye, Carolyn J. Schumacher, Paulo Artaxo, Meinrat O Andreae, J. Alex Huffman, *University of Denver*
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- 8BA.17**
12:15
Seasonal and Spatial Variation of Bioaerosols in Midwestern United States. CHATHURIKA RATHANYAKE, Nervana Metwali, Zach Baker, Peter Thorne, Patrick O'Shaughnessy, Thilina Jayarathne, Pam Kistle, Elizabeth Stone, *University of Iowa*
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- 8BA.18**
12:15
Evaluation of the WIBS-4A for Biodefense-Related Applications. ELIZABETH CORSON, Jonathan Eshbaugh, David Drewry, Johns Hopkins *University Applied Physics Laboratory*
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- 8BA.19** **Leveraging Real Time Fluorescence Pattern Recognition of Airborne Biological Particles a National Reconnaissance and Database of Water Damaged Buildings.** Darrel Baumgardner, Kevin McCabe, Greg Kok, Gary Granger, Matthew Coghill, MARK T. HERNANDEZ, *University of Colorado Boulder*
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8BB BIOMASS BURNING AEROSOL: FROM EMISSIONS TO IMPACTS

PANZACOLA F/G

Ryan Sullivan and Sonia Kreidenweis, chairs

- 8BB.1** **Contribution of Biomass Burning to the Total Organic Aerosol in the Eastern Mediterranean.** AIKATERINI BOUGIATIOTI, Iasonas Stavroulas, Evangelia Kostenidou, Francesco Canonaco, Spyros Pandis, Athanasios Nenes, Nikolaos Mihalopoulos, *Georgia Institute of Technology*
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- 8BB.2** **Assessment of Alternatives to Indoor Stove Use on the Navajo Nation.** WYATT CHAMPION, Barbara Klein, Perry Charley, Avery Denny, James McKenzie, Kathleen Stewart, Paul A. Solomon, Lupita Montoya, *University of Colorado Boulder*
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- 8BB.3** **Photochemical Processing of Secondary Organic Aerosol Precursors in Biomass Burning Smoke Measured by Comprehensive Two-Dimensional Gas Chromatography.** LINDSAY E. HATCH, Wentai Luo, James F. Pankow, Daniel S. Tkacik, Adam Ahern, Rawad Saleh, Ellis Shipley Robinson, Allen Robinson, Ryan Sullivan, Neil Donahue, Robert J. Yokelson, Anton Rusanen, Ditte Mogensen, Sampo Smolander, Michael Boy, Kelley C. Barsanti, *Portland State University*
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- 8BB.4** **Climatic Implications of Peat Fire Emissions.** Adam Watts, Rajan K. Chakrabarty, Vera Samburova, HANS MOOSMULLER, *Desert Research Institute*
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8BB.5
12:15 **Hygroscopicity and Cloud Condensation Nucleation Activity of Fresh Biomass Burning Aerosol: Black Carbon Mixing States.** SHUNSUKE NAKAO, Ezra Levin, Gavin McMeeking, Christian Carrico, Thilina Jayarathne, Elizabeth Stone, Sonia Kreidenweis, *Colorado State University*

8BB.6
12:15 **Characterization of Emissions from the Combustion of Solid Fuels Used in the Navajo Nation and Others relevant to Developing Communities.** Charles James, Sandra Garcia-Fine, Barbara Ward, WYATT CHAMPION, Lupita Montoya, *University of Colorado Boulder*

8CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE
PANZACOLA F/G

Shuka Schwarz, chair

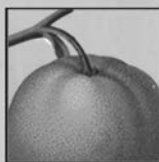
8CA.1
12:15 **Measured Optical Absorption and Scattering Coefficients of Agglomerates of Coal Fly Ash and Powdered Activated Carbon.** TIAN XIA, Akosua Miller, Herek Clack, *University of Michigan*

8CA.2
12:15 **Predicting Ambient Aerosol Thermal Optical Reflectance OC, EC and TC Measurements from Infrared Spectra.** ANN DILLNER, Satoshi Takahama, *University of California, Davis*

8CA.3
12:15 **Uncertainties in Global Aerosol and Climate Forcings from Biofuel Emissions.** JOHN KODROS, Catherine Scott, Salvatore Farina, Jeffrey Pierce, *Colorado State University*

8CA.4
12:15 **Laboratory Evaluation of Black Carbon Aerosol Deposition to Snow.** Larry Hermanson, JOSHUA P. SCHWARZ, Anne Perring, Milos Markovic, David Fahey, *NOAA/CIRES*

8CA.5
12:15 **Primary and Secondary Organic Aerosol during Severe Haze Episodes in January 2013 in Beijing, China.** CAIQING YAN, Mei Zheng, Xiaoying Li, Huaiyu Fu, Xiang Ding, Quanfu He, Xinming Wang, *Peking University*



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- 8CA.8**
12:15 **Evaluation of Black Carbon and Carbon Monoxide Levels at Low Traffic Sites in Tijuana-Tecate, Mexico Air Basin.** Jesus Guerrero-García, Guillermo Rodríguez-Ventura, JAVIER EMMANUEL CASTILLO-QUIÑONES, Lilia Hurtado, Penelope Quintana, Miguel Zavala, Luisa Molina, *Universidad Autónoma de Baja California*
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- 8CA.9**
12:15 **Global Modeling of SOA: The Use of Different Mechanisms for Aqueous Phase Formation.** GUANGXING LIN, Joyce Penner, Sanford Sillman, Akinori Ito, *University of Michigan*
-
- 8CA.10**
12:15 **Mass and Energy-Based Emission Factors and Gas-Particle Partitioning of Intermediate-Volatility and Semi-Volatile Organic Compounds from Laboratory Combustion of Boreal and Sub-Tropical Peat.** LAXMI NARASIMHA YATAVELLI, L.-W. Antony Chen, Joseph Knue, Vera Samburova, Madhu Gyawali, Adam Watts, Rajan K. Chakrabarty, Hans Moosmuller, Xiaoliang Wang, Barbara Zielinska, Judith Chow, John Watson, Anna Tsibart, *Desert Research Institute, Reno*
-
- 8CA.11**
12:15 **Molecular Characterization of Optically Active Organo-Nitrogen Species in Organic Aerosol.** CHRIS STANGL, Murray Johnston, *University of Delaware*
-
- 8CA.12**
12:15 **Absorption Enhancement of Monodisperse Cook Stove Soot Coated with alpha-Pinene SOA: Measurements and Modeling.** Georges Saliba, Adam Ahern, Rawad Saleh, James Liacos, Eric Lipsky, Ryan Sullivan, Allen Robinson, R. SUBRAMANIAN, *Carnegie Mellon University*
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- 8CA.13**
12:15 **Emissions from Burning Incense and Dung: Two Unregulated Sources of Brown Carbon in Asia.** LAXMI NARASIMHA YATAVELLI, Rajan K. Chakrabarty, Joseph Knue, Madhu Gyawali, Guenter Engling, Hans Moosmuller, David Rhode, L.-W. Antony Chen, Xiaoliang Wang, Judith Chow, John Watson, *Desert Research Institute*
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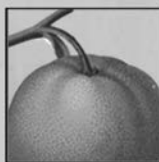
8CO COMBUSTION

PANZACOLA F/G

Matti Maricq, chair

Thursday

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| 8CO.1
12:15 | Measured and Modeled Biodiesel Exhaust from Diesel Vehicles: A MOVES2010b Evaluation. JIM DUNSHEE, Britt Holmén, <i>University of Vermont</i> |
| <hr/> | |
| 8CO.2
12:15 | Emissions of IVOC and SVOC from Mobile Sources Using Online Electron Impact Mass Spectrometry. JONATHAN FRANKLIN, Eben Cross, Jesse Kroll, <i>Massachusetts Institute of Technology</i> |
| <hr/> | |
| 8CO.3
12:15 | In-Situ Measurements of Contrail Properties Measured during the 2013-2014 ACCESS Project. RICHARD MOORE, Bruce Anderson, Edward Winstead, Kenneth Thornhill, Andreas Beyersdorf, Charles Hudgins, Robert Martin, Michael Shook, Luke Ziemba, ACCESS Science Team, <i>NASA</i> |
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| 8CO.4
12:15 | Predicting Particle Number Emissions from Hybrid-Electric Vehicle Engine Restart Events. KAREN SENTOFF, Britt Holmén, Matt Conger, <i>University of Vermont</i> |
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| 8CO.5
12:15 | Physicochemical Assessment of Exhaust Emissions from a Light-duty Gasoline Direct Injection Engine Operated with Conventional and Ethanol-blended Fuels. NAOMI ZIMMERMAN, Manuel Ramos, Cheol-Heon Jeong, Krystal J. Godri-Pollitt, James S. Wallace, Greg J. Evans, SOCAAR, <i>University of Toronto</i> |
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| 8CO.6
12:15 | Physical and Chemical Characterization of Fine Particles from Biomass Burning Process (Woods and Rice Straw). HEE-JOO CHO, Shila Maskey, Arom Seo, Kihong Park, <i>GIST</i> |
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8EP AEROSOL SOURCES FROM EMERGING ENERGY TECHNOLOGIES AND PRODUCTION

PANZACOLA F/G

Akua Asa-Awuku, chair

8EP.1 **Development of New PM Test Protocol and Characterization of PM Formation and Growth from Natural Gas Turbines.** NICHOLAS GYSEL, William A. Welch, Chia-Li Chen, J. Wayne Miller, David R. Cocker III, *University of California Riverside*

8EP.2 **Particle Number and Composition Differences From Conventional and Emerging Vehicle Technology on Varying Aromatic and High Octane Fuels.** DANIEL SHORT, Diep Vu, Tyler Berte, Georgios Karavalakis, Thomas D. Durbin, Akua Asa-Awuku, *University of California, Riverside*

8EP.3 **The Impact of Radioactive Charging on the Microphysical Evolution and Transport of Radioactive Aerosols.** PETROS VASILAKOS, Yong-Ha Kim, Sotira Yiaccoumi, Costas Tsouris, Jeffrey Pierce, Athanasios Nenes, *Georgia Institute of Technology*

8IM INSTRUMENTATION AND METHODS

PANZACOLA F/G

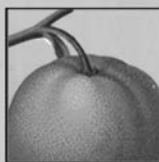
Igor Paprotny and Brent Williams, chairs

8IM.1 **Evaluating Elemental and Organic Carbon composition of Size-Segregated Combustion Particles Using the Electrical Low Pressure Impactor.** PATRICIA FRITZ, Shida Tang, David Guerrieri, Brian P. Frank, Marilyn Wurth, Daniel Hershey, *New York State Dept. of Environmental Conservation*

8IM.2 **Design of a Novel Open-path Aerosol Extinction Cavity Ringdown Spectrometer and Initial Data from Deployment at NOAA's Atmospheric Observatory.** TIMOTHY GORDON, Nick Wagner, Mathews Richardson, Daniel Law, Daniel Wolfe, Charles Brock, Frank Erdesz, Daniel Murphy, *NOAA*



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- 8IM.3**
12:15
Advances in Speciating Highly Oxygenated Organic Aerosol Using In-situ Thermal Desorption Semi-volatile Aerosol Gas Chromatography (SV-TAG) with On-line Derivatization. Gabriel Isaacman, NATHAN KREISBERG, Lindsay Yee, David Worton, Rebecca Wernis, Susanne Hering, Allen H. Goldstein, *University of California, Berkeley*
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- 8IM.4**
12:15
Inversion of Multi-channel Light Scattering Data for Particle Size Distribution Measurements. MARK KANAPARTHI, Ishara Jayasuriya, Suresh Dhaniyala, *Clarkson University*
-
- 8IM.5**
12:15
Real-time and On-line Screening Method for Outgassing-materials Using Soft X-ray. CHANG HYUK KIM, Young Tae Sul, David Y. H. Pui, *University of Minnesota*
-
- 8IM.6**
12:15
Evaluation of Nano-sized Silica Size Standards. SHIGERU KIMOTO, William Dick, David Y. H. Pui, Daryl Roberts, *University of Minnesota*
-
- 8IM.7**
12:15
Design and Operational Optimisation of Pneumatic Sampler for Resuspension Chamber. MIROSLAV KLÁN, Jan Hovorka, Martin Civiš, *Charles University in Prague*
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- 8IM.8**
12:15
Online Particle Separation and Shape Measurement Using Pulsed-Field DMA. MINGDONG LI, George Mulholland, Michael Zachariah, *University of Maryland*
-
- 8IM.9**
12:15
Characterization of an Humidified Tandem DMA System: Size and Humidity Dependent Efficiencies and Dispersion. XERXES LOPEZ-YGLESIAS, Ming Chee Yeung, Fred Brechtel, Chak K. Chan, *Brechtel Manufacturing Inc.*
-
- 8IM.10**
12:15
Development of a High Throughput Wind Tunnel Evaluation Method for Ultra-Coarse Inlet Testing. QUENTIN MALLOY, Andrew Dart, Jonathan Thornburg, Carlton Witherspoon, Zora Drake-Richmon, Jonathan Krug, Robert Vanderpool, *RTI International*
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- 8IM.11**
12:15 **Evaluation of Granular Bed with Glass Beads for Use in a Nanoparticle Respiratory Deposition (NRD) Sampler.** JAE HONG PARK, Levi Mines, Imali Mudunkotuwa, T. Renee Anthony, Vicki Grasian, Thomas Peters, *University of Iowa*
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- 8IM.12**
12:15 **Development Of An Online Measurement For Soluble And Total Cu In PM_{2.5}.** DONGBIN WANG, Martin Shafer, James Schauer, Constantinos Sioutas, *University of Southern California*
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- 8IM.13**
12:15 **Charge Distributions of Arbitrary Shaped Particles Charged by the Unipolar Diffusion Charger in the EAD and NSAM.** DREW THOMPSON, David Y. H. Pui, *University of Minnesota*
-
- 8IM.14**
12:15 **Generation of Monodisperse Aerosols by Aerodynamic Flow Focusing.** HONGXU DUAN, Amir Naqwi, Francisco Romay, Benjamin Liu, *MSP Corporation*
-
- 8IM.15**
12:15 **Particle Losses with a Large Diameter Nafion Air Sample Dryer.** Alfred Wiedensohler, EUGENE BOHENSKY, Paul Smith, Craig Sunada, *Perma Pure LLC*
-
- 8IM.16**
12:15 **Cleanable, High-Flow Aerosol Concentrator.** STEVEN SPIELMAN, Nathan Kreisberg, Susanne Hering, *Aerosol Dynamics Inc.*
-
- 8IM.17**
12:15 **A Nanoparticle Nebulizer for Generation of Aerosolized Colloid Particles with Reduced Interference from Non-Volatile Residue.** DEREK OBERREIT, Gary Van Schooneveld, David Blackford, *Fluid Measurement Technologies, Inc.*
-
- 8IM.18**
12:15 **Measuring Aerosol Scattering and Absorption - Limitations of the Extinction-Minus-Scattering Method.** SUJEETA SINGH, Damon Smith, Marc Fiddler, Solomon Bililign, *North Carolina A&T State University*
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- 8IM.19**
12:15 **Development and Evaluation of Real-time Nano-particle Counter.** KANG-HO AHN, Hong-Ku Lee, *Hanyang University, R. of Korea*
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8NM NANOPARTICLES AND MATERIALS SYNTHESIS

PANZACOLA F/G

David Cocker, chair

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| 8NM.1
12:15 | 3D Label-Free Prostate Specific Antigen Immunosensor Based on Graphene-Gold Nanocomposites. HEE DONG JANG, Sun Kyung Kim, Hankwon Chang, <i>Korea Institute of Geoscience and Mineral Resources</i> |
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| 8NM.4
12:15 | Modelling of Fluid-Dynamic Transport of Growing Nanoparticles with a Turbulent-Like Plasma Jet. MASAYA SHIGETA, <i>Osaka University</i> |
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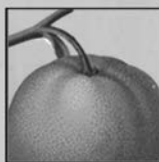
8PH LINKING AEROSOLS WITH PUBLIC HEALTH IN A CHANGING WORLD

PANZACOLA F/G

R. Weber and V. Verma, chairs

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| 8PH.1
12:15 | Vibrational Spectra of Individual Dust Particles Obtained from the International Space Station and New York 9/11 Disaster. ANTRIKSH LUTHRA, Aruna Ravi, James Coe, <i>The Ohio State University</i> |
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| 8PH.2
12:15 | Development of a Microfluidic Instrument for the Real-time Measurement of Aerosol Oxidative Potential Using DTT (Dithiothreitol) Assay. TING FANG, Vishal Verma, Rodney Weber, <i>Georgia Institute of Technology</i> |
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| 8PH.3
12:15 | Distribution of Ambient Atmospheric Water-soluble Metals in the Southeastern United States and Insights into Their Complexation States. TING FANG, Vishal Verma, Richard E. Peltier, Hongyu Guo, Laura King, Rodney Weber, <i>Georgia Institute of Technology</i> |
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| 8PH.4
12:15 | Spatial and Seasonal Variation in the Molecular Composition of the Humic-Like-Substances (HULIS) Fraction of Ambient Aerosols: Clue for the Sources of Aerosol Oxidative Potential. YING WANG, Vishal Verma, Ting Fang, Rodney Weber, <i>Georgia Institute of Technology</i> |
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Thursday



8PH.5 **Estimating the Public Health Impacts of Ultra-**
12:15 **fine Particulate Matter in the San Francisco**
Bay Area. CUONG TRAN, Saffet Tanrikulu, David
Fairley, Su-tzai Soong, Yiqin Jia, Jeffery Matsuoka,
Eric Stevenson, Henry Hilken, *Bay Area Air Quality*
Management District

8RA REMOTE AND REGIONAL ATMOSPHERIC AEROSOLS PANZACOLA F/G

Lynn Russell, chair

8RA.1 **Characterization of Arctic Aerosol Particles dur-**
12:15 **ing the Arctic Ocean Expedition in 2013.** GIBAEK
KIM, Young Jun Yoon, Hee-joo Cho, Kihong Park,
Gwangju Institute of Science and Technology

8RA.2 **The Characteristics of Long-range Transbound-**
12:15 **ary Inorganic Secondary Aerosols in Northeast**
Asia. YOO JUNG KIM, Gregory Carmichael, Jung-
Hun Woo, Zhang Qiang, Young Sunwoo, Young-il Ma,
University of Iowa

8RA.3 **Frost Flower Aerosol Effects on Arctic Winter-**
12:15 **time Longwave Cloud Radiative Forcing.** Li Xu,
LYNN RUSSELL, Richard Somerville, Patricia Quinn,
Scripps Institution of Oceanography

8RA.4 **Source Attribution of Aerosol Size Distributions**
12:15 **and Model Evaluation Using Whistler Moun-**
tain Measurements and GEOS-Chem-TOMAS
Simulations. STEPHEN D'ANDREA, Jessica Ng,
Michael Wheeler, Annie-Marie Macdonald, Richard
Leaitch, Jeffrey Pierce, John Kodros, *Colorado State*
University

8RA.5 **Individual Particle Chemistry during the Sum-**
12:15 **mer in Remote Northern Michigan.** MATTHEW
GUNSCH, Nathaniel May, Daniel Gardner, Stepha-
nie Schmit, Andrew Ault, Kerri Pratt, *University of*
Michigan



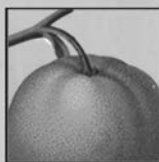
8SA SOURCE APPORTIONMENT

PANZACOLA F/G

Paul Solomon, chair

Thursday

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| 8SA.1
12:15 | Elemental and Individual Particle Analysis of Atmospheric Aerosols from New Delhi, India. HONGRU SHEN, Thomas Peters, Gary Casuccio, Naresh Kumar, Andrew Ault, <i>University of Michigan</i> |
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| 8SA.2
12:15 | Investigation of Sources of Particulate Matter through Trace Metal Measurements Near the Oil Sands Field in the Athabasca Region, Alberta. CATHERINE PHILLIPS-SMITH, Cheol-Heon Jeong, Robert Healy, Ewa Dabek-Zlotorzynska, Valbona Celo, Jeff Brook, Greg J. Evans, SOCAAR, <i>University of Toronto</i> |
| <hr/> | |
| 8SA.3
12:15 | Novel Approach for Estimating Light Duty Gasoline and Heavy Duty Diesel Mobile Source Impacts Based on Mobile Source Emissions and Fused Observation-CMAQ Data. XINXIN ZHAI, Mariel Friberg, Heather Holmes, Yongtao Hu, James Mulholland, Armistead Russell, <i>Georgia Institute of Technology</i> |
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| 8SA.4
12:15 | Relating Stack Height to Regional Pollutant Exposures. KRISTINA WAGSTROM, Fatema Parvez, <i>University of Connecticut</i> |
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| 8SA.5
12:15 | Estimating the Impact of Air Pollution Controls on Ambient Concentrations. LUCAS HENNEMAN, David Lavoue, Heather Holmes, James Mulholland, Armistead Russell, <i>Georgia Institute of Technology</i> |
| <hr/> | |
| 8SA.6
12:15 | Seasonal Variations and Regional Sources of Ultrafine Particulate Matter at a Semi-Rural Site on the Olympic Peninsula. LAUREN WHYBREW, Cassandra Gaston, Felipe Lopez-Hilfiker, Odelle Hadley, Honglian Gao, Fran McNair, Dan Jaffe, Joel A. Thornton, <i>University of Washington, Seattle, WA</i> |
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8UA URBAN AEROSOLS PANZACOLA F/G

Tran B. Nguyen and Paul A. Solomon, chairs

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| 8UA.1
12:15 | Impact of Land Use on Atmospheric Quasi-Ultrafine Particles in Houston TX. INKYU HAN, Yuncan Guo, Masoud Afshar, <i>University of Texas School of Public Health</i> |
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| 8UA.2
12:15 | Contribution of Tailpipe Emissions of Gas Phase Precursors to Secondary Aerosol Formation. BEHDAD YAZDANI BOROUJENI, Chance Spencer, Don Collins, <i>Texas A&M University</i> |
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| 8UA.3
12:15 | Elucidating Emission Sources and Atmospheric Processes of Aerosols in Fresno, CA: Results from 2013 Winter NASA DISCOVER-AQ Study. CAROLINE PARWORTH, Hwajin Kim, Shan Zhou, Sonya Collier, Xiaolu Zhang, Christopher Cappa, Qi Zhang, <i>University of California, Davis</i> |
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| 8UA.4
12:15 | Monitoring Stations to Assess Near-Road Air Pollution. NATHAN HILKER, Cheol-Heon Jeong, Jon M Wang, Naomi Zimmerman, Robert Healy, Kelly Sabaliauskas, Greg J. Evans, Tony Munoz, Al Melanson, Andrew Warner, Michael Noble, Jerzy Debosz, Yushan Su, Dennis Herod, Celine Audette, Luc White, Daniel Wang, Dave Henderson, SOCAAR, <i>University of Toronto</i> |
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| 8UA.5
12:15 | Vertical and Horizontal Aerosol Profiling Over Residential Areas. VERONIKA DOCEKALOVA, Jan Hovorka, Filip Kobrzek, Petr Marecek, Charles <i>University in Prague</i> |
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| 8UA.6
12:15 | Long-term Trends in Criteria Pollutant Concentrations within the South Coast Air Basin of California. SCOTT A. EPSTEIN, Kalam Cheung, Sang-Mi Lee, <i>South Coast Air Quality Management District</i> |
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| 8UA.7
12:15 | Modeling the Spatial Variability of Traffic Related Pollutants and the Contribution of High Emitting Vehicles in Pittsburgh, PA. YI TAN, Timothy Dallmann, Allen Robinson, Albert A. Presto, <i>Carnegie Mellon University</i> |
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- 8UA.8** **High-spatial Resolution Profiling of Aerosol Size Distribution Aloft a Highway.** VERONIKA DOCEKALOVA, Jan Hovorka, Filip Kobrzek, Petr Marecek, Jan Bendl, *Charles University in Prague*
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Thursday 1:45 PM - 3:00 PM
Session 9: Platform

9AC AEROSOL CHEMISTRY
SEBASTIAN I 4

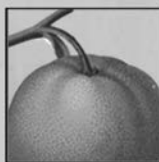
Chris Hennigan and Cari Dutcher, chairs

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- 9AC.1** **Vapor Wall Loss of Semi-Volatile Organic Compound in Smog Chamber.** PENGLIN YE, Xiang Ding, Ellis Shipley Robinson, Neil Donahue, *Carnegie Mellon University*
-
- 9AC.2** **Parameterizing Vapor Wall Loss Rate in a Teflon Chamber.** XUAN ZHANG, Rebecca Schwantes, Hanna Lignell, Matthew Coggon, Richard Flagan, John Seinfeld, *Caltech*
-
- 9AC.3** **Main Parameters Controlling Equilibration Time Scales of Atmospheric Semi-Volatile Aerosols.** ANDREY KHLYSTOV, *Desert Research Institute*
-
- 9AC.4** **A Critical Evaluation of Proxy Methods used to Estimate the Acidity of Atmospheric Particles.** CHRISTOPHER HENNIGAN, Jessica Izumi, *University of Maryland, Baltimore County*
-
- 9AC.5** **Probing Aerosol Particle Interfaces with Biphasic Microfluidics.** CARI DUTCHER, Andrew Metcalf, *University of Minnesota, Twin Cities*
-

9BA BIOAEROSOLS AND HOMELAND SECURITY
SEBASTIAN I 3

Jordan Peccia and Gedi Mainellis, chairs

-
- 9BA.1** **Effect of Sampling Flow Rates on Virus Collection Efficiencies of a BioSampler vs. an All-Glass Impinger.** John Lednický, Julia Loeb, Kevin Fennelly, Diandra Anwar, Sewon Oh, CHANG-YU WU, *University of Florida*
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- 9BA.2** **Application of ATP-based Bioluminescence for Bioaerosol Quantification: Effect of Sampling Method.** TAEWON HAN, Gediminas Mainelis, Rutgers, *The State University of New Jersey*
2:00
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- 9BA.3** **Characterization of Gelatin Filters for Sampling Bacillus Anthracis.** KRISTIN BOWER, John Yeager, Paul Dabisch, *NBACC*
2:15
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- 9BA.4** **Effect of Bioaerosol Sampling Stress on 16S rRNA/rRNA-gene Ratio of Airborne Bacteria.** HUAJUN ZHEN, Valdis Krumins, Donna Fennell, Gediminas Mainelis, Rutgers, *The State University of New Jersey*
2:30
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- 9BA.5** **Genomic RNA as a Physical Tracer in Filovirus Aerosol Studies.** TAMIKA KNIGHT, Michael Schuit, Shanna Ratnesar-Shumate, Paul Dabisch, *NBACC*
2:45
-

9IM INSTRUMENTATION AND METHODS *PANZACOLA H 1-3*

Susanne Herring and Suresh Dhaniyala, chairs

- 9IM.1** **Determining the Absolute Concentration of Proteins Using ES-DMA.** MINGDONG LI, Jiaojie Tan, Michael Tarlov, Michael Zachariah, *University of Maryland*
1:45
-
- 9IM.2** **Bio-nanoparticles as Candidate Reference Materials for Mobility Analysis of Nanoparticles.** RIAN YOU, Mingdong Li, Suvajyoti Guha, George Mulholland, Michael Zachariah, *University of Maryland*
2:00
-
- 9IM.3** **A New Paradigm for Size Distribution Measurements Relevant to Aerosol Health Studies.** AMANDA GRANTZ, Johannes Leppä, Richard Flagan, *California Institute of Technology*
2:15
-
- 9IM.4** **Concentrated Particle Collection in to Liquid for Toxicological Studies.** GREGORY LEWIS, Steven Spielman, Arantzazu Eiguren Fernandez, Susanne Hering, *Aerosol Dynamics Inc.*
2:30
-
- 9IM.5** **A New Instrument for Direct Cellular Exposure to Ambient Aerosols.** ARANTZAZU EIGUREN FERNANDEZ, Ning Li, Steven Spielman, Susanne Hering, *Aerosol Dynamics Inc.*
2:45
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9NP ADVANCES IN THE PHYSICS AND CHEMISTRY OF NEW PARTICLE FORMATION AND GROWTH

PANZACOLA H 4

Jeff Pierce and Taina Yli-Juuti, chairs

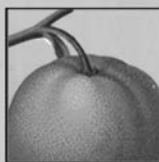
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| 9NP.1
1:45 | Atmospheric Nanoparticle Growth: From Nano- to Global Scale. ILONA RIIPINEN, Jan Julin, Taina Yli-Juuti, Silja Häkkinen, Lars Ahlm, Juan-Camillo Acosta Navarro, Ivica Crljenica, Katrianne Lehtipalo, Stephen D'Andrea, Jeffrey Pierce, <i>Stockholm University</i> |
| <hr/> | |
| 9NP.3
2:15 | The Contribution of Sub-Grid, Plume-Scale Nucleation to Global CCN Concentrations. ROBIN STEVENS, Jeffrey Pierce, <i>Dalhousie University</i> |
| <hr/> | |
| 9NP.4
2:30 | Difference in Particle Formation at a Mountain-top Location in Colorado during the Spring and Summer: Modeling and Comparison with Observations. FANGQUN YU, Anna Gannet Hallar, <i>University at Albany</i> |
| <hr/> | |
| 9NP.5
2:45 | Simulation of Nucleation in the Global Atmosphere Based on CERN CLOUD Chamber Measurements. KEN CARSLAW, Eimear Dunne, Andreas Kuerten, Francesco Riccobono, Kamalika Sengupta, Catherine Scott, Joao Almeida, <i>University of Leeds</i> |
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9PH LINKING AEROSOLS WITH PUBLIC HEALTH IN A CHANGING WORLD

SEBASTIAN I 2

V. Verma and Jason Surratt, chairs

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| 9PH.1
1:45 | The Effects of Atmospheric Oxidation on the Levels of Aerosol Reactive Oxygen Species. JONATHAN ABBATT, <i>University of Toronto</i> |
| <hr/> | |
| 9PH.3
2:15 | In Vitro Exposures to Isoprene-Derived Secondary Organic Aerosol: Assessing the Effects of Cytotoxicity and Inflammation on BEAS-2B using Resuspension and Direct Deposition Approaches. MAIKO ARASHIRO, Ying-Hsuan Lin, Kenneth Sexton, Ilona Jaspers, Rebecca Fry, Avram Gold, Jason Surratt, <i>University of North Carolina at Chapel Hill</i> |
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9PH.4 **Application of Aerosol Mass Spectrometry to infer the Sources of the Reactive Oxygen Species Generating Properties of Organic Aerosols in the Southeastern United States.** VISHAL VERMA, Ting Fang, Lu Xu, Nga Lee Ng, Rodney Weber, *Georgia Institute of Technology*

2:30

9PH.5 **Formation and Transformation of Hazardous Components in the Atmosphere: Reactive Oxygen Species, Polycyclic Aromatic Compounds and Allergenic Proteins.** MANABU SHIRAIWA, Andrea Arangio, Kathrin Selzle, Christopher Kampf, Ulrich Poeschl, *MPIC*

2:45

9UA URBAN AEROSOLS

SEBASTIAN / 1

Kristina Wagstrom and Ashish Singh, chairs

9UA.1 **Impacts of Complete Street Retrofit on On-road Fine and Ultrafine Particles Concentrations: A Case Study in Santa Monica, California.** Shi Shu, Nu Yu, YIFANG ZHU, *UCLA*

1:45

9UA.2 **Airborne Metal Concentrations during and After Pollution Restrictions in Beijing.** NITIKA DEWAN, Brian Majestic, YuanXun Zhang, *University of Denver*

2:00

9UA.3 **Predicting the Effectiveness of Vegetation Barriers on Near-Road PM.** JONATHAN STEFFENS, K. Max Zhang, *Cornell University*

2:15

9UA.4 **Contamination of Urban Stormwater Runoff in Syracuse, NY by Previously Deposited Atmospheric Aerosol.** CLIFF DAVIDSON, Emily Procopio, Jeremy Tamargo, *Syracuse University*

2:30

9UA.5 **Spatial Distribution of and Correlation between Noise And Particulate Matter near Two Free-ways in Los Angeles, California.** SHI SHU, Yang Pu, Yifang Zhu, *UCLA*

2:45



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

Thursday 3:30 PM - 5:00 PM
Session 10: Platform

10BA BIOAEROSOLS AND HOMELAND SECURITY
SEBASTIAN I 3

Alex Huffman and Anne Pering, chairs

Thursday

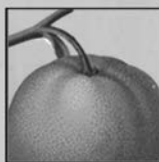
10BA.1 **Contribution of Bioaerosols to PM₁₀ and**
3:30 **PM_{2.5} in the Southeastern United States.** TRACI
LERSCH, Gary Casuccio, Stephanie Shaw, Annette
Rohr, *RJ Lee Group, Inc.*

10BA.2 **On the Use of Organic Molecular Markers for**
3:45 **the Apportionment of Aerosols - Insight from**
PMF Analysis at 3 French Urban Sites. ANTOINE
WAKED, Olivier Favez, Jean-Luc Jaffrezo, Jean-
Luc Besombes, Benjamin Golly, Laurent Alleman,
Tiphaine Delaunay, Géraldine Guillaud, Pierre-Yves
Guernion, Eva Léoz-Garziandia, Univ. Grenoble
Alpes, CNRS, LGGE, *F-38000 Grenoble, France*

10BA.3 **Species Variations in Airborne Bacterial Com-**
4:00 **munities in Asian Dust Downwind Area during**
a Dust Event. TERUYA MAKI, Fumihisa Kobayashi,
Kazunori Hara, Chen Bin, Yasunobu Iwasaka,
Kanazawa University

10BA.4 **Hunting Sources of Biogenic Ice Nucleating**
4:15 **Particles in Soils, Sea Spray and Air.** PAUL
DEMOTT, Thomas Hill, Yukata Tobo, Christina S.
McCluskey, Ezra Levin, Kaitlyn Suski, Douglas
Collins, Gavin Cornwell, Christopher Lee, Camille
Sultana, Jessica Axson, Francesca Malfatti, Kim-
berly Prather, Sonia Kreidenweis, Tinkara Tinta,
Colorado State University

10BA.5 **Hydrophilicity and CCN Activity of Atmospheric**
4:30 **Bacteria Isolates and Implications for Cloud**
Formation. NATASHA DELEON-RODRIGUEZ,
Aikaterini Bougiatioti, Nimmy Mathew, Arnaldo
Negron-Marty, Michael Bergin, Konstantinos
Konstantinidis, Athanasios Nenes, *Georgia Institute*
of Technology



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- 10BA.6** **Emission Rates of Biological Aerosol Particles in a Montane Pine Forest.** STEPHAN NORD-MANN, Hang Su, J. Alex Huffman, Ulrich Poeschl, Yafang Cheng, *MPIC*
-

10BB BIOMASS BURNING AEROSOL: FROM EMISSIONS TO IMPACTS

SEBASTIAN I 2

Eben Cross and Matthew Alvarado, chairs

- 10BB.1** **Impact of the Economic Crisis on Wintertime Air Quality in Thessaloniki, Greece.** ARIAN SAF-FARI, Nancy Daher, Constantini Samara, Dimitra Voutsas, Athanasios Kouras, Evangelia Manoli, Olga Karagkiozidou, Christos Vlachokostas, Nicolas Moussiopoulos, Martin Shafer, James Schauer, Constantinos Sioutas, *University of Southern California*
-

- 10BB.2** **2013 Southeast Asian Smoke Haze: Speciation of Size-resolved Aerosols and Associated Health Impacts.** RAJASEKHAR BALASUBRAMANIAN, Raghu Betha, Sailesh Behera, *National University of Singapore*
-

- 10BB.3** **Characterizing Cookstove Emissions in South Asia.** RYAN THOMPSON, Cheryl Weyant, Tami Bond, *University of Illinois at Urbana-Champaign*
-

- 10BB.4** **Chemical and Physical Characterization of Particulate Emissions from Different Phases of an Improved Cookstove Operation.** Raul Martinez, SAMEER PATEL, Anna Leavey, Dhruv Mitroo, Ruijie Yu, Brent Williams, Pratim Biswas, *Washington University in St. Louis*
-

- 10BB.5** **Online Characterization of Biomass-derived Cooking Fuel Emissions with a Soot Particle Aerosol Mass Spectrometer.** EBEN CROSS, Dan Sweeney, Amy Banzaert, Amy Smith, Timothy Onasch, John Jayne, Douglas Worsnop, Jesse Kroll, *MIT*
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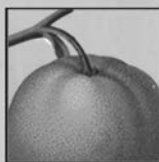


- 10BB.6**
4:45
Evolution of the Aerosol Size Distribution and Cloud Condensation Nuclei (CCN) Within Smoke Plumes during the Biomass Burning Observation Project (BBOP). JASON TOMLINSON, Fan Mei, Jian Wang, Jennifer Comstock, John Hubbe, Mikhail Pekour, John Shilling, Edward Fortner, Duli Chand, Arthur J. Sedlacek, Lawrence Kleinman, Gunnar Senum, Beat Schmid, *Pacific Northwest National Laboratory*

**10CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE
PANZACOLA H4**

Roya Bahreini and Stephanie Shaw, chairs

- 10CA.1**
3:30
Wavelength Dependence of the Optical Properties of Primary Combustion Aerosols. Luka Drinovec, GRISA MOCNIK, Ian Arnold, Rajan K. Chakrabarty, Anthony D.A. Hansen, Hans Moosmuller, *Desert Research Institute*
- 10CA.2**
3:45
Determining Aerosol Volatility Parameters using a 'Dual Thermodenuder' System: Application to Laboratory-generated Organic Aerosol. PROVAT SAHA, Andrey Khlystov, Andrew Grieshop, *North Carolina State University*
- 10CA.3**
4:00
Quantitative Evidence of Ultraviolet Organic Peroxy Radical Photochemistry in a Photochemical Flow Cell. W. SEAN MCGIVERN, Joseph Klems, *National Institute of Standards and Technology*
- 10CA.4**
4:15
Application of Positive Matrix Factor Analysis in Heterogeneous Kinetics Studies: OH Initiated Oxidation of Organophosphate Flame Retardants in PM. JOHN LIGGIO, Yongchun Liu, Shao-Meng Li, *Environment Canada*
- 10CA.5**
4:30
Relative Importance of Black vs. Brown Carbon Absorption in Biomass Burning Plumes. SHANE MURPHY, Rudra Pokhrel, Eric Beamesderfer, Daniel Lack, Nick Wagner, Justin Langridge, Daniel Murphy, *University of Wyoming*



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- 10CA.6** **Comparison of Near-Roadway PAH Measurements via Multiple Methods.** STEVEN BROWN, David Olson, Taehyoung Lee, Paul Roberts, Gary Norris, Jeffrey Collett, *Sonoma Technology, Inc*
-

10C0 COMBUSTION *SEBASTIAN I 4*

Albert Presto and Fred Gelbard, chairs

- 10C0.1** **Temperature Effects on Secondary Organic Aerosol Formation from Gasoline Vehicle Exhaust.** MARY KACARAB, David R. Cocker III, *University of California, Riverside*
-
- 10C0.2** **On the Black Carbon Content of Soot from Flames and Engine Exhaust.** MATTI MARICQ, Ford Motor Company
-
- 10C0.3** **Determination of Suspended Exhaust PM Mass for Light Duty Vehicles Using IPSP Method.** HEEJUNG S. JUNG, Yang Li, Jian Xue, Kent Johnson, Thomas D. Durbin, Mark Villela, Liem Pham, Seyedehsan Hosseini, Zhongqing Zheng, Daniel Short, Georgios Karavalakis, Akua Asa-Awuku, Xiaoliang Wang, David Quiros, Shaohua Hu, Tao Huai, Alberto Ayala, *University of California Riverside*
-
- 10C0.4** **Detailed Characterization of Particulate Matter (PM) Emitted by Lean-Burn Gasoline Direct Injection (GDI) Engine.** JACQUELINE WILSON, Alla Zelenyuk, Mark Stewart, George Muntean, John Storey, Vitaly Prikhodko, Samuel Lewis, Mary Eibl, *Pacific Northwest National Laboratory*
-
- 10C0.5** **Morphology of Particles Emitted during Cold Start and Hot Start Operating Conditions of a GDI Engine Fuelled on Gasoline and Ethanol Blends.** RAMIN DASTANPOUR, Steven Rogak, Phillip Mireault, Manuel Ramos, James S. Wallace, *University of British Columbia*
-



- 10C0.6**
4:45
Effect of Drive Cycle and Gasoline Particulate Filter on Size and Morphology of Soot Particles Produced by a Gasoline Direct Injection Vehicle. MEGHDAD SAFFARIPOUR, Fengshan Liu, Kevin Thomson, Tak Chan, Joseph Kubsh, Brezny Rasto, *National Research Council Canada*

10IM INSTRUMENTATION AND METHODS
PANZACOLA H 1-3

Jian Wang and Nathan Kreisberg, chairs

- 10IM.1**
3:30
A Novel Glass Chamber for Studies of Aerosol Dynamics and Interactions. YEVGEN NAZARENKO, Parisa A. Ariya, *McGill University*
- 10IM.2**
3:45
Characterization of the Photochemistry in a Potential Aerosol Mass (PAM) Chamber by Modeling and Measurements: Radical Formation, OH Exposure Quantification and Calibration Equation Derivation. RUI LI, Joost de Gouw, William Brune, Brett Palm, Amber Ortega, Weiwei Hu, Douglas Day, Jose-Luis Jimenez, *NOAA & CIRES & University of Colorado-Boulder*
- 10IM.3**
4:00
Real-Time Separation and Detailed Characterization of Aspherical Nanoparticles. ALLA ZELENYUK, David Bell, Jacqueline Wilson, Dan Imre, *Pacific Northwest National Laboratory*
- 10IM.4**
4:15
Development of Triggering-LIBS for Elemental Analysis of Submicrometer Single Particle in Real Time. HEESUNG LEE, Gibaek Kim, Jihyun Kwak, Kihong Park, *GIST*
- 10IM.5**
4:30
Recent Applications of Single Particle Aerosol Mass Spectrometry (SPAMS). DAVID FERGENSON, Anna Susz, David Kohler, Jia-Yih Feng, Jordon Rose, Maria Balaxi, Bradley D. Morrical, Payam Nahid, Midori Kato-Maeda, Adithya Cattamanchi, *Livermore Instruments Inc.*
- 10IM.6**
4:45
PAHs Emissions in Diesel and Biodiesel Using LVI-PTV-GC-MS. CAROLINA SOUZA, Sergio Correa, *Rio de Janeiro State University*



10SA SOURCE APPORTIONMENT

SEBASTIAN I 1

Nga Lee (Sally) Ng and Shunsuke Nakao, chairs

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- 10SA.1**
3:30 **Indoor PM2.5 in Santiago, Chile, Spring 2012: Source Apportionment and Outdoor Contributions.** LUPITA MONTOYA, Francisco Barraza, Hector Jorquera, Gonzalo Valdivia, *University of Colorado Boulder*
-
- 10SA.2**
3:45 **Characterization of Aral Sea Particulate Matter in Kyrgyzstan.** NITIKA DEWAN, Brian Majestic, Martin Shafer, James Schauer, Paul A. Solomon, *University of Denver*
-
- 10SA.3**
4:00 **Use of Stack Samples to Enhance Source Apportionment of Particulate Matter Mass Collected in Ambient Air Samples.** SURESH RAJA, Punith Nallathamby, *ENERCON Services, Inc.*
-
- 10SA.4**
4:15 **Receptor Modeling of Near-Real-Time, Ambient PM2.5 and Its Constituents Collected at an Urban-Industrial Site in Toronto, Ontario.** UWAYEMI SOFOWOTE, Ankit Rastogi, Jerzy Debosz, Philip Hopke, AQARU, EMRB, *Ontario Ministry of the Environment*
-
- 10SA.5**
4:30 **Positive Matrix Factorization Analysis of 47-years of Finnish Arctic Aerosol Composition.** JAMES R. LAING, Philip K. Hopke, Eleanor F. Hopke, Liaquat Husain, Vincent A. Dutkiewicz, Jussi Paatero, Yro Viisinen, *Clarkson University*
-
- 10SA.6**
4:45 **Long-term Source Apportionment of Ambient Fine Particulate Matter (PM2.5) in the Los Angeles Basin: A Focus on Emissions Reduction from Vehicular Sources.** SINA HASHEMINASSAB, Nancy Daher, Bart Ostro, Constantinos Sioutas, *University of Southern California*
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Friday 8:00 AM - 9:15 AM

Plenary IV

8:00 Climate, Biofuel Emissions, and the Quest for Relevance Tami Bond, *University of Illinois at Urbana-Champaign*

Moderator V. Faye McNeill, *Columbia University*

9:00 Student Poster Competition Award Presentation
Britt Holmén, *University of Vermont*

9:10 Concluding Remarks and Preview for 2015 Athanasios Nenes and Andrea Ferro, 2014 and 2015 Conference Chairs, *Georgia Institute of Technology and Clarkson University*

Friday 9:15 AM - 9:45 AM

Coffee Break

Friday 9:45 AM - 11:00 AM

Session 11: Platform

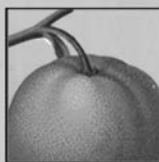
**11AC AEROSOL CHEMISTRY
PANZACOLA H 4**

Adam Bateman and Nga Lee (Sally) Ng, chairs

11AC.1 The Effect of Particle Morphology on its Evaporation Kinetics and Rates of Heterogeneous Reactions. ALLA ZELENYUK, Jacqueline Wilson, David Bell, Dan Imre, *Pacific Northwest National Laboratory*
9:45

11AC.2 Gas-Particle Partitioning of Organic Aerosols: Defining the Influence of Surface Interactions on Their Volatility. RICHARD E. COCHRAN, Alena Kubatova, Evguenii I. Kozliak, *University of North Dakota*
10:00

11AC.3 Effect of Precursor Molecular Structure on the Volatility, Viscosity and Oligomer Content of SOA Particles Formed by Ozonolysis of Cycloalkenes. JACQUELINE WILSON, Alla Zelenyuk, Dan Imre, ManishKumar Shrivastava, *Pacific Northwest National Laboratory*
10:15



11AC.4 **APM Measured Shape Factor Change of α -pinene SOM and Its Dependence on Relative Humidity.** YUE ZHANG, Marianna Santos Sanchez, Yan Wang, Zhaocheng Gong, Adam Bateman, Franz Geiger, Scot Martin, *Harvard University*

10:30

11AC.5 **Ultraviolet and Visible Complex Refractive Indices of Brown Carbon Formed via Photo-oxidation of Aromatic Toluene and m-Xylene.** PENGFEI LIU, Scot Martin, *Harvard University*

10:45

11BA BIOAEROSOLS AND HOMELAND SECURITY PANZACOLA H 1-3

Dave Alburty and Joanne Emerson, chairs

11BA.1 **Study of the Aerosolization Mechanisms of Bacteria in Single Particle Using Fluorescence Spectroscopy.** NICOLAS GROULX, Nathalie Turgeon, Caroline Duchaine, *Université Laval, Canada*

9:45

11BA.2 **Bacterial and Fungal Ecology in Indoor and Outdoor Air.** JOANNE B. EMERSON, Patricia Keady, Anne Perring, Jonathan Awerbuch, Joshua P. Schwarz, David Fahey, Shelly Miller, Noah Fierer, *University of Colorado Boulder*

10:00

11BA.3 **Proteomic Analysis of *Sphingomonas aerolata* Incubated in the Airborne State.** Valdis Krumins, Maksim Abadjev, Sjef Boeren, Tomas Kruse, Peter Schaap, Hauke Smidt, Gediminas Mainelis, Lee Kerkhof, DONNA FENNELL, Rutgers, *The State University of New Jersey*

10:15

11BA.4 **Characterization of Fungal Fragments.** JACOB MENSAH-ATTIPOE, Sampo Saari, Jorma Keskinen, Anniina Salmela, Anna-Maria Veijalainen, Pertti Pasanen, Tiina Reponen, *University of Eastern Finland*

10:30

11BA.5 **Development of a Laboratory Surrogate for Swine Bioaerosol.** CHRISTINE LOZA, John Horns, Brian Mader, Scott Dee, *3M*

10:45

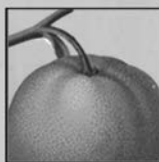


11C0 COMBUSTION

SEBASTIAN I 4

Matti Maricq and Hossein Ghiassi, chairs

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|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11C0.1
9:45 | Size Distributions and Volatility of Vehicle PM Emissions Measured in a Traffic Tunnel. ALBERT A. PRESTO, Xiang Li, Timothy Dallmann, <i>Carnegie Mellon University</i> |
| <hr/> | |
| 11C0.2
10:00 | Pyrolysis Smoke Generated Under Low-Gravity Conditions. GEORGE MULHOLLAND, Marit Meyer, David Urban, Gary Ruff, Zeng-guang Yuan, Victoria Bryg, Thomas Cleary, Jiann Yang, <i>NASA Glenn Research Center</i> |
| <hr/> | |
| 11C0.3
10:15 | Combining Selective Catalytic Reduction (SCR) System with Biodiesel in Mobile Sources: New Issues Arise. Yara S. Tadano, Guilherme C. Borillo, Thiago O. B. Silva, Fabio B. Valebona, Penteado Neto, Denis Rempel, Lucas Martin, Carlos I. Yamamoto, Sanja Potgieter-Vermaak, Ana Flavia L. Godoi, RICARDO H. M. GODOI, <i>Federal University of Parana - Curitiba, PR, Brazil</i> |
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| 11C0.4
10:30 | Light-Duty Diesel Biodiesel Particle Number Emissions Relative to Blend Ratio and Engine Conditions. TYLER FERALIO, Britt Holmén, <i>University of Vermont</i> |
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| 11C0.5
10:45 | The Use of Diesel, Biodiesel Combined and Selective Catalytic Reduction (SCR) After-Treatment System on Particulate Matter Emissions: A Dynamometer Test Bench. GUILLHERME C. BORILLO, Thiago O. B. Silva, Yara S. Tadano, Fabio B. Valebona, Penteado Neto, Denis Rempel, Lucas Martin, Carlos I. Yamamoto, Marcelo Nalin, Jacson Weber de Menezes, Flemming R Cassee, Sanja Potgieter-Vermaak, Ana Flavia L. Godoi, Ricardo H. M. Godoi, <i>Federal University of Parana - Curitiba, PR, Brazil</i> |
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11IM INSTRUMENTATION AND METHODS

SEBASTIAN / 1

Matthew Berg and Steven Spielman, chairs

11IM.1 **A New Method to Measure the Extinction Cross Section Using Digital Holography.** MATTHEW BERG, Nava Subedi, *Mississippi State University*

11IM.2 **Enhanced Thermal/Optical Characterization of Aerosol Elemental, Molecular, and Optical Properties.** XIAOLIANG WANG, Xufei Yang, Benjamin Sumlin, Gustavo Riggio, Jerome Robles, L.-W. Antony Chen, LaxmiNarasimha Yatavelli, Judith Chow, John Watson, *Desert Research Institute*

11IM.3 **Multi-Wavelength Measurements of Soot Optical Properties Using CAPS PMss and CRD-PAS Instruments.** Sara Forestieri, Andrew Lambe, Molly Cummings, James Brogan, Christopher Cappa, Paul Davidovits, ANDREW FREEDMAN, Timothy Onasch, *Aerodyne Research, Inc.*

11IM.4 **Methods for the Determination of Black Carbon Emissions from an Aircraft Gas Turbine Engine.** JOHN KINSEY, Edwin Corporan, *U.S. EPA*

11IM.5 **Surface Tension Measurement of Secondary Organic Aerosols Using Atomic Force Microscopy.** ANDREW HRITZ, Dabrina Dutcher, Timothy Raymond, *Bucknell University*

11RA REMOTE AND REGIONAL ATMOSPHERIC AEROSOLS

SEBASTIAN / 3

Satoshi Takahama and John Liggio, chairs

11RA.1 **Atmospheric Monitoring in the Western Mediterranean in Summer 2013: Overview of Physic-chemical Properties and Variability.** JORGE PEY, José Carlos Cerro, Stig Hellebust, H. Langley DeWitt, Brice Temime-Roussel, Miriam Elser, N. Pérez, Alexandre Sylvestre, Dalia Salameh, Grisa Mocnik, Andre Prévôt, Yanlin Zhang, Soenke Szidat, Nicolas Marchand, Aix-Marseille Université, CNRS, *LCE FRE 3416*



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- 11RA.2**
10:00 **A Study on Primary Marine Organic Aerosols and Biological Materials in Seawater.** JI YEON PARK, Min Soo Kang, Wajih Ur Rehman, Dohyung Kim, Kihong Park, *Gwangju Institute of Science and Technology*
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- 11RA.3**
10:15 **Using Ocean Biogeochemistry and Surface Activity to Improve Understanding of Regional Patterns in Sea Spray Chemistry.** SUSANNAH BURROWS, Oluwaseun Ogunro, Amanda Frossard, Lynn Russell, Phil Rasch, Scott Elliott, *Pacific Northwest National Laboratory*
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- 11RA.4**
10:30 **Characterization of the Springtime Arctic Aerosol.** RICHARD LEITCH, Julia Burkart, Andreas Herber, Shao-Meng Li, John Ogren, Sangeeta Sharma, Jonathan Abbatt, *Environment Canada*
-
- 11RA.5**
10:45 **Chemical Characterization of PM_{2.5} for the Year 2013 for 5 Rural Background Sites in France.** ANTOINE WAKED, Jean-Luc Jaffrezo, Jean-Luc Besombes, Emmanuelle Drab-Sommesous, Eve Chretien, Pierre-Yves Robic, Sebastien Conil, Géraldine Guillaud, Jérôme Rangognio, Quentin Poinsignon, Univ. Grenoble Alpes, CNRS, LGGE, *F-38000 Grenoble, France*
-

11SA SOURCE APPORTIONMENT
SEBASTIAN I 2

Amy Sullivan and Lindsay Hatch, chairs

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- 11SA.1**
9:45 **Single Particle Chemical Profiles for Improved Source Identification and Quantification of Atmospheric Aerosol Source Contributions in Combination with Aerosol Mass Spectrometry Data.** STIG HELLEBUST, Jorge Pey, H. Langley DeWitt, Brice Temime-Roussel, Miriam Elser, José Carlos Cerro, N. Pérez, Andre Prévôt, Nicolas Marchand, Aix Marseille Université, *Laboratoire Chimie Environnement*
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- 11SA.2**
10:00 **Determination of Local and Remote Sources Areas of PM₁₀ In Northern France.** Aude Pascaud, Esperanza Perdrix, LAURENT ALLEMAN, Stéphane Sauvage, Tiphaine Delaunay, Mines Douai
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- 11SA.3**
10:15 **Influence of Industrial Activities on Concentrations and Chemical Composition of Ambient Aerosol Particles.** ALEXANDRE SYLVESTRE, Aurelie Mizzi, Sebastien Mathiot, Boualem Mesbah, Julien Don, Gautier Revenko, Philippe Chamaret, Jean-Luc Jaffrezo, Henri Wortham, Nicolas Marchand, *Aix-Marseille Université, CNRS, LCE FRE 3416*
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- 11SA.4**
10:30 **Source Apportionment of PM₁₀ in a North-Western Europe Regional Urban Background Site (Lens, France): Interest of the Use of Organic Tracers in a Positive Matrix Factorization Methodology.** ANTOINE WAKED, Benjamin Golly, Olivier Favez, Laurent Alleman, Christine Piot, Tiphaine Delaunay, Emmanuel Verlinden, Jean-Luc Besombes, Jean-Luc Jaffrezo, Eva Léoz-Garzandia, Univ. Grenoble Alpes, *CNRS, LGGE, F-38000 Grenoble, France*
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- 11SA.5**
10:45 **Comparison of the Sources of Organic Aerosol (OA) Using Aerosol Mass Spectrometry at Two Mediterranean Islands: Corsica and Mallorca.** H. LANGLEY DEWITT, Jorge Pey, Stig Hellebust, Brice Temime-Roussel, Aurelie Mizzi, Dalia Salameh, Alexandre Sylvestre, Miriam Elser, N. Pérez, José Carlos Cerro, Jean-Luc Jaffrezo, Grisa Mocnik, Andre Prévôt, Nicolas Marchand, *Aix-Marseille Université, CNRS, LCE FRE 3416*
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Friday 11:15 AM - 12:30 PM
Session 12: Platform

12BA BIOAEROSOLS AND HOMELAND SECURITY
PANZACOLA H 1-3

Matthias Frank and Paul Dabisch, chairs

-
- 12BA.1**
11:15 **Exposure of Aerosolized Bacillus Spores to Combustion Products of Novel Reactive Bio-cidal Materials: Kinetics of Inactivation Process.** SERGEY A. GRINSHUPUN, Michael Yermakov, Reshmi Indugula, Atin Adhikari, Tiina Reponen, Edward Dreizin, Mirko Schoenitz, *University of Cincinnati*
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12BA.2 **An Aerosol Dry Deposition System for Quanti-**
11:30 **fying the Retention of Bacillus Spores on HVAC**
 Filters. ANNE MARIE ERLER, Staci Kane, Matthias
 Frank, George R. Farquar, Lewis Wogan, *Lawrence*
 Livermore National Laboratory

12BA.3 **Resuspension of Spores from Urban Surfaces.**
11:45 JEROME GILBERRY, Jonathan Thornburg, Laurie
 Brixey, Alfred Eisner, Russell Wiener, Marshall
 Gray, *RTI International*

12BA.4 **Improved Threat Characterization Using Next**
12:00 **Generation Sequencing.** ZAHRA CHAUDHRY,
 Peter Thielen, Verratti Kathleen, Christopher Brad-
 burne, *JHU APL*

12BA.5 **DHS Biological Hazard Assessment Research:**
12:15 **Characterizing Agents to Inform Risk: A Focus**
 on Aerosols. MATTHEW MOE, Lloyd Hough, Scott
 White, *Department of Homeland Security*

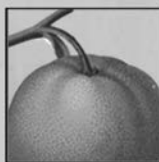
12CA CARBONACEOUS AEROSOLS IN THE ATMOSPHERE
PANZACOLA H 4

Hans Moosmuller and Andy Freedman, chairs

12CA.1 **Experimental Studies of Particle Bounce: Com-**
11:15 **parison of Secondary Organic Material (SOM)**
 from Harvard Environmental Chamber and
 Field Studies in Amazonia. ADAM BATEMAN,
 Pengfei Liu, Yue Zhang, Zhaoheng Gong, Bruno
 Bianchi Sato, Glauber Cirino, Joel Brito, Rodrigo
 A. F. Souza, Antonio O. Manzi, Paulo Artaxo, Scot
 Martin, *Harvard University*

12CA.2 **Interpretation of Regression Parameters for**
11:30 **Quantification of Organic Aerosol Mass Com-**
 ponents with Infrared Transmission Spectra.
 SATOSHI TAKAHAMA, Ann Dillner, *Ecole Polytech-*
 nique Federale de Lausanne, Switzerland

12CA.3 **Atmospheric Aging of Fullerene Nanoparticles.**
11:45 DHRUV MITROO, Peter Colletti, Michael Walker,
 Jiewei Wu, John Fortner, Brent Williams, *Washing-*
 ton University in St. Louis



12CA.4 **Phase Separation Effects on the Optical**
 12:00 **Properties of Mixed Brown Carbon/Ammonium**
 Sulfate Aerosol. JAMES RADNEY, Christopher
 Zangmeister, *National Institute of Standards and*
 Technology

12CA.5 **Soot Aggregate Restructuring due to Coatings**
 12:15 **of Secondary Organic Aerosol from Aromatic**
 Precursors. ELIJAH G. SCHNITZLER, Jason S.
 Olfert, Wolfgang Jaeger, *University of Alberta*

12CO COMBUSTION

SEBASTIAN I 4

Heejung Jung and George Mulholland, chairs

12CO.1 **Emissions of Intermediate-volatility Organic**
 11:15 **Compounds from On-road Vehicles.** YUNLIANG
 ZHAO, Ngoc Nguyen, Albert A. Presto, Andrew
 May, Christopher Hennigan, Allen Robinson, *Carn-*
 egie Mellon University

12CO.2 **An Investigation of Soot Oxidation-Induced**
 11:30 **Fragmentation in a Two-Stage Burner.** HOS-
 SEIN GHIASSI, Isabel C. Jaramillo, JoAnn S. Lighty,
 University of Utah

12CO.3 **Aerosol Measurements in Solid Rocket Propel-**
 11:45 **lant Fire Plumes.** FRED GELBARD, Daniel Lucero,
 Brandon Servantes, Andrew Lennon, Karen
 Siegrist, Mike Thomas, Adam Willitsford, *Sandia*
 National Laboratories

12CO.4 **Measurements of High Spatial Resolution**
 12:00 **of Ultrafine and Coarse Aerosol Particles**
 in Industrial Plume. JAN HOVORKA, Veronika
 Docekalova, Miroslav Klán, Filip Kozbrzek, Petr
 Marecek, *Charles University in Prague*

12CO.5 **Filtration of Ultrafine Dust Emitted by Bio-**
 12:15 **mass Combustion with a Baghouse Filter**
 Using Precoat Materials. SASCHA SCHILLER,
 Hans-Joachim Schmid, *University of Paderborn,*
 Germany



12IM INSTRUMENTATION AND METHODS

SEBASTIAN I 1

Jim Farnsworth and Leah Williams, chairs

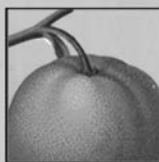
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|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12IM.1
11:15 | Design, Testing, and Validation of a Calibration Chamber for Particles. Wendy Merkley, KORI MOORE, Randy Martin, Michael Wojcik, <i>Utah State University</i> |
| 12IM.2
11:30 | A Novel Instrument for Measuring Broadband Optical Properties of PM Deposited on Filters. KEITH BEIN, Charles McDade, <i>UC Davis</i> |
| 12IM.3
11:45 | Measuring PM and Related Air Pollutants Using Low-Cost Sensors. KAROLINE JOHNSON, Michael Bergin, Armistead Russell, Gayle Hagler, <i>Georgia Institute of Technology</i> |
| 12IM.4
12:00 | Performance Evaluation of a Low-Cost, Real-Time Community Air Monitoring Station. WAN JIAO, Gayle Hagler, Ron Williams, Bobby Sharpe, Joann Rice, Lewis Weinstock, <i>ORD-US EPA, RTP, NC</i> |
| 12IM.5
12:15 | Measurement System for the Simultaneous and Continuous Determination of PM-fractions and Ultrafine Particles. JUERGEN SPIELVOGEL, Maximilian Weiss, <i>Palas GmbH</i> |
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12RA REMOTE AND REGIONAL ATMOSPHERIC AEROSOLS

SEBASTIAN I 3

Richard Leaitch and Qi Ying, chairs

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- | | |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12RA.1
11:15 | Livestock Ammonia Emissions: From Process-based Farm Emissions Models to a New National Inventory for Beef, Swine, and Poultry in the United States. ALYSSA MCQUILLING, Peter Adams, <i>Carnegie Mellon University</i> |
| 12RA.2
11:30 | Response of Total NH₃ to Reductions in Atmospheric Levels of SO₂ and NO_x: An Analysis of Data from SEARCH. RICK SAYLOR, LaToya Myles, Eric Edgerton, <i>NOAA Air Resources Laboratory</i> |
-



12RA.3 **Trends in Concentrations of Atmospheric Gaseous and Particulate Species at Look Rock as Related to Primary Emissions Reductions.** STEPHANIE SHAW, Roger Tanner, Solomon Bairai, Stephen Mueller, *Tennessee Valley Authority*

12RA.4 **The Role of Nucleation in Controlling Aerosol Size Distributions: Analysis of 10 Months of Recent Aerosol Size Distributions at a Non-Forested Agricultural Location.** ROBERT BULLARD, Ashish Singh, Charles Stanier, *University of Iowa*

12RA.5 **Volatility Measurement of Ultrafine Particles in the Midwestern United States: Field Measurement from Bondville, IL.** ASHISH SINGH, Robert Bullard, Matthew Johnson, Charles Stanier, *University of Iowa*

12SA SOURCE APPORTIONMENT *SEBASTIAN I 2*

Cari Dutcher and Paul Solomon, chairs

12SA.1 **Quantifying Variability in Molecular Markers Used for Vehicle Source Profiles: Effects on PM Source Apportionment Results.** ALBERT A. PRESTO, Andrew Hix, Christopher Hennigan, Allen Robinson, *Carnegie Mellon University*

12SA.2 **Analysis of Polar Organic Compounds by TAG-AMS: Case Study of an Alpine Valley in France.** AMELIE BERTRAND, H. Langley DeWitt, Brice Temime-Roussel, Thorsten Hohaus, Donna Sueper, Florie Chevrier, Jean-Luc Besombes, Jean-Luc Jaffrezo, Grisa Mocnik, Nathan Kreisberg, Gabriel Isaacman, Susanne Hering, Allen H. Goldstein, John Jayne, Henri Wortham, Nicolas Marchand, Aix-Marseille Université, *CNRS, LCE FRE 3416*

12SA.3 **Performance Evaluation of Three Co-Located Ultrafine Particle Monitors Near the 710 in California.** Ahmed Mehadi, Donald Hammond, Jeff Wright, Andrea Polidori, Timothy Morphy, ROBERT ANDERSON, *CARB Monitoring and Laboratory Division*



12SA.4 **Selenium in Ambient Fine Particulate Matter: Measurement and Trend Analysis.** LI DU, Jay Turner, *Washington University in St. Louis*

12SA.5 **Temporal and Regional Analysis of Spatially-Resolved PM_{2.5} Source Apportionment Results over Continental US.** CESUNICA IVEY, Heather Holmes, Yongtao Hu, James Mulholland, Armistead Russell, *Georgia Institute of Technology*



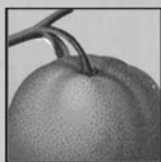
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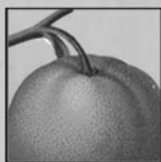
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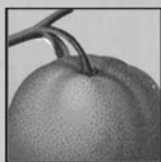
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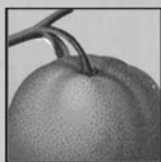
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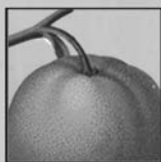
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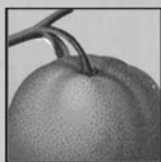
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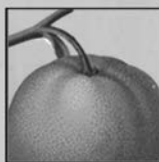
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A LIST OF AEROSOL-RELATED ACRONYMS FOR THE 2014 CONFERENCE

AD	aerodynamic diameter
AMS	aerosol mass spectrometer
APS	aerodynamic particle sizer
BC	black carbon
CCN	cloud condensation nuclei
CFD	computational fluid dynamics
CIMS	chemical ionization mass spectrometer
CMAQ	community multiscale air quality
CPC	condensation particle counter
CPMA	centrifugal particle mass analyzer
CS	catalytic stripper
DMA	differential mobility analyzer
DPM	diesel particulate matter
DRW	discrete random walk
EC	elemental carbon
EDX	energy dispersive x-ray analysis
ESI	electrospray ionization
ENP	engineered nanoparticle
FBAR	film bulk acoustic resonator
FBC	fuel borne catalyst
GC	gas chromatograph
GC-MS	gas chromatograph-mass spectrometer
HEPA	high-efficiency particulate air
HVAC	heating ventilation air conditioning
HVC	heterogeneous vaporization condenser
ICP	inductively coupled plasma
IN	ice nuclei
LA	laser ablation
m/z	mass-to-charge ratio
MEMS	micro-electro-mechanical system
MMAD	mass median aerodynamic diameter



MS	mass spectrometer
OA	organic aerosol
OC	organic carbon
OPC	optical particle counter
OPD	open plate deposition
OPM	organic particulate matter
PAM	potential aerosol mass
PAS	photoacoustic spectroscopy
PCR	polymerase chain reaction
PM	particulate matter
PM _x	particulate matter having AD ≤ x microns
POA	primary organic aerosol
ppm, ppb, ...	parts per million, ...billion,... etc.
PSL	polystyrene latex
RH	relative humidity
sd	standard deviation
SEM	scanning electron microscope
SMPS	scanning mobility particle sizer
SN	smoke number
SOA	secondary organic aerosol
Stk	Stokes number
SVOC	semi volatile organic compound
TEM	transmission electron microscope
TEOM	tapered element oscillating microbalance
TOF	time of flight
UFP	ultrafine particle
URM	unresolved material
VBS	volatility basis set
VFAS	variable flow rate aerosol sampler
VOC	volatile organic compounds
XPS	x-ray photoelectron spectroscopy

A faint, grayscale background image of a lotus flower and large leaves, overlaid with horizontal ruling lines. The lotus flower is in the center, with several large, pointed leaves surrounding it. The entire image is covered with thin, horizontal black lines, similar to a notebook page.

A faint, grayscale background illustration of a plant with large, pointed leaves and small, bell-shaped flowers, overlaid with horizontal ruling lines. The plant appears to be a species of orchid or a similar tropical flower. The leaves are broad and have a prominent central vein. The flowers are small and hang from the stems. The entire image is covered with horizontal ruling lines, suggesting it is a template for a notebook or a document.

A faint, artistic illustration of a vanilla plant. The image features several large, dark green, glossy leaves with prominent veins. In the lower-left corner, there is a single white flower with a yellow center, and next to it is a small, green, oval-shaped fruit or pod. The entire illustration is rendered in a soft, painterly style and is positioned on the left side of the page, partially overlapping the horizontal lines.

A faint, grayscale background image of a lotus flower and large leaves, overlaid with horizontal ruling lines. The lotus flower is in the center, with several large, pointed leaves surrounding it. The entire image is covered with thin, horizontal black lines, similar to a notebook page.

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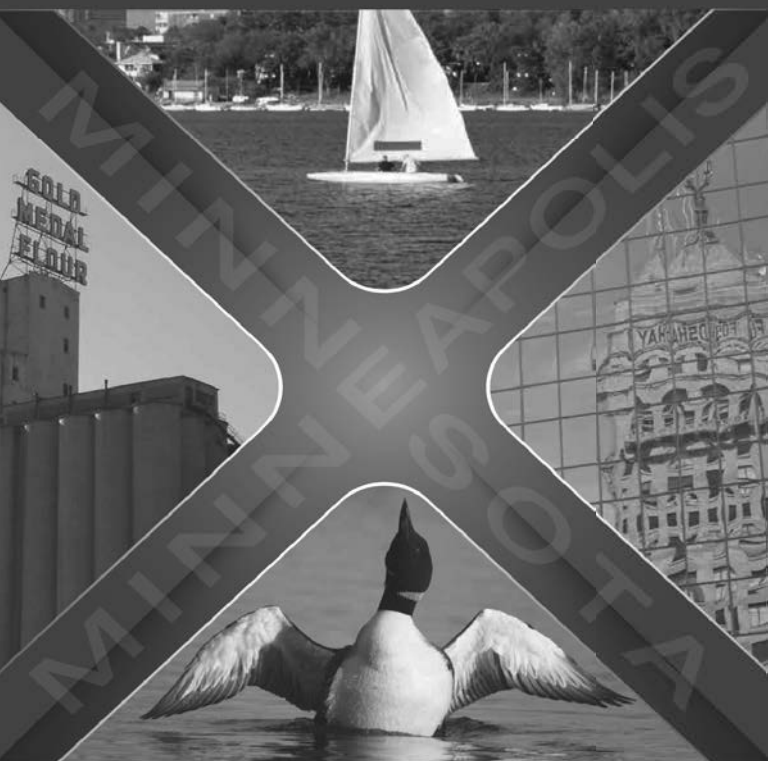
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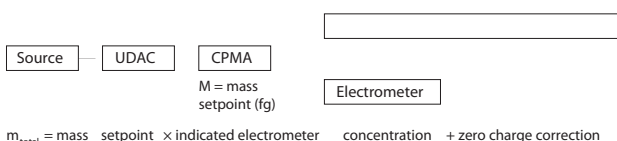
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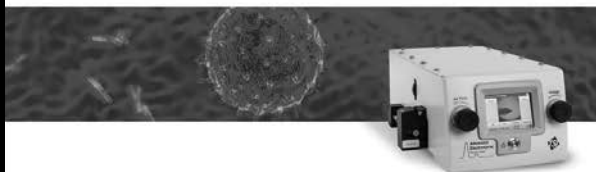
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