



AAAR 27TH ANNUAL CONFERENCE

***October 20–24, 2008
Rosen Shingle Creek
Orlando, Florida***

AAAR NATIONAL OFFICE

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AAAR 27TH ANNUAL CONFERENCE

October 20–24, 2008 • Rosen Shingle Creek • Orlando, Florida

AAAR CONFERENCE SPONSORS

Silver



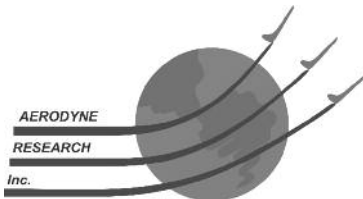
TSI, Incorporated

Bronze



Electric Power Research Institute

Supporting



Aerodyne Research, Inc.





IMPORTANT INFORMATION

Registration Hours

Sunday, October 19	6:00 PM – 9:00 PM
Monday, October 20	7:00 AM – 8:00 PM
Tuesday, October 21	7:00 AM – 6:00 PM
Wednesday, October 22	7:00 AM – 6:00 PM
Thursday, October 23	7:00 AM – 5:00 PM
Friday, October 24	7:00 AM – 12:00 PM

Exhibit Hours

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

Platform Sessions

A platform presentation 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 (overhead projectors, slide projectors, etc.) 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

Technical Session 3: Poster

Tuesday, October 21, 2008 1:30 PM – 2:45 PM

Technical Session 5: Poster

Wednesday, October 22, 2008 9:15 AM – 10:45 AM

Technical Session 9: Poster

Thursday, October 23, 2008 9:20 AM – 10:45 AM

Each presented poster is based on a submitted and approved abstract. The size of a poster cannot exceed 4 feet by 4 feet. Posters will be located in Sebastian J/K at Rosen Shingle Creek. There are three poster sessions during which authors will present their posters and will be available for discussions. Posters are available for viewing throughout the conference at the times indicated below.



Poster Session Viewing Times

Monday, October 20

Exhibits, Poster Preliminary Viewing
and Welcome Reception 6:00 PM – 8:00 PM

Tuesday, October 21

Posters Open. 9:00 AM – 8:00 PM

Technical Session 3. 1:30 PM – 2:45 PM

Wednesday, October 22

Posters Open. 9:00 AM – 5:00 PM

Technical Session 5. 9:15 AM – 10:45 AM

Thursday, October 23

Posters Open. 9:00 AM – 3:30 PM

Technical Session 9. 9:20 AM – 10:45 AM

Instructions to Poster Presenters

Posters should be placed on the assigned display boards between the hours of 12:00 PM - 5:00 PM on Monday, October 20. They should be removed at 3:30 PM and **no later than 4:00 PM** on Thursday, October 23. All posters not picked up by 4:00 PM on Thursday will be discarded.

Welcome Reception

Monday, October 20 6:00 PM - 8:00 PM

This is your opportunity to meet and greet the exhibitors. Representatives from well-known and respected vendors are happy to discuss their products and talk with you about the latest in technology and advances in the field.

AAAR Annual Business Meeting

This year the Annual Business Meeting takes place on Tuesday, October 21 from 4:30 - 5:30 PM. This important session provides an overview of the highlights of AAAR today and tomorrow. There will be a special tribute to the current conference chair and conference committees, as well as others who have served AAAR during the year. During this meeting, the ceremonial passing of the gavel will mark the transfer of leadership responsibility from Chris Sorensen to incoming president, Spyros N. Pandis.



Working Group Meetings

Wednesday, October 22

Working Group Meetings 1 4:40 PM – 5:40 PM

Working Group Meetings 2 5:50 PM – 6:50 PM

Working Groups play key roles in planning the technical content of future AAAR conferences. Working Group Meetings will take place on Wednesday, October 22. All AAAR members 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.

Exhibitors' Reception

Tuesday, October 21 6:00 PM – 8:00 PM

The Exhibitors' Reception, an AAAR tradition, is a time to visit with the exhibitors and all conference attendees in an informal, relaxed atmosphere.

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

The American Board of Industrial Hygiene will award CM points to CIH's as follows:

- 0.5 points per 1/2 day of attendance**
- 4.5 points for attending the full conference**

The AAAR approval number is 08 - 1627.

All participants of the AAAR 27th Annual Conference are encouraged to contact their respective professional certifying agencies for the applicability of the AAAR conference program toward additional CM points and CEU credits.

For more information on the American Board of Industrial Hygiene and CM points, please visit www.abih.org.



Award Presentations

Awards will be presented immediately after each plenary session. Please refer to the Schedule-at-a-Glance for the specific award presentation times. Join us in honoring the recipients of AAAR's major awards: Kenneth T. Whitby Award, David Sinclair Award, Sheldon K. Friedlander Award, and Benjamin Y.H. Liu Award. The recipient of the Thomas T. Mercer Joint Prize will also be acknowledged. The inaugural class of AAAR Fellows will be celebrated. Student poster awards will be presented.

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. Overhead and slide projectors will not be available. Speakers will be asked to transfer any slides or transparencies to a PowerPoint presentation.**

Speaker Ready Room Hours

Sunday, October 19	6:00 PM – 9:00 PM
Monday, October 20	7:00 AM – 8:00 PM
Tuesday, October 21	7:00 AM – 6:00 PM
Wednesday, October 22	7:00 AM – 6:00 PM
Thursday, October 23	7:00 AM – 5:00 PM
Friday, October 24	7:00 AM – 11:00 AM

Hotel Information

Rosen Shingle Creek
9939 Universal Boulevard
Orlando, FL 32819
Telephone: (407) 996-9939
Guest Fax: (407) 996-9938



CONFERENCE AND TECHNICAL COMMITTEES

Technical Program Committee

A. Ayala, A. Vette, J. Herner – *Mobile Sources Symposium*

Junhong Chen – *Combustion and Material Synthesis*

Cliff I. Davidson – *Careers in Aerosol Science Workshop*

Weiwei Deng – *Electrospray Symposium*

Neil Donahue – *Aerosol Chemistry*

David S. Ensor – *History of Aerosol Science*

Pramod Kulkarni, R. Subramanian – *Instrumentation*

Linsey C. Marr, Mike Bergin – *Megacity Aerosols Symposium*

Lupita D. Montoya – *Indoor Aerosols and Aerosol Exposure*

Paul A. Solomon – *Atmospheric Aerosols*

John Veranth – *Health Related Aerosols*

Chang-Yu Wu, Pratim Biswas – *Online Aerosol Science
Education Workshop*

Judy Q. Xiong – *Aerosol Physics*

Ye Zhuang – *Control Technology*

Conference Committee

William W Nazaroff – *Conference Chair (2008)*

Chang-Yu Wu – *Conference Chair (2009)*

Cynthia H. Twohy – *Conference Chair (2010)*

Patricia B. Keady – *Exhibits Chair (2008 and 2009)*

Lupita D. Montoya – *Tutorial Chair (2008)*

Athanasios Nenes – *Student Liaison Chair (2008)*

Donald Dabdub – *Abstracts*

Susanne Hering – *Conference Program*

Exhibits

Patricia B. Keady (*Chair*)



Development Committee

Spyros N. Pandis (*Chair*)

AAAR BOARD OF DIRECTORS AND STAFF

2008 Board of Directors

Chris Sorensen, *President*

Spyros N. Pandis, *Vice President*

Paul J. Ziemann, *Vice President Elect*

Pratim Biswas, *Immediate Past President*

Melissa M. Lunden, *Treasurer*

Allen Robinson, *Treasurer-Elect*

Sheryl Ehrman, *Secretary*

Jeffrey L. Collett, Jr.

Suresh Dhaniyala

Bruce G. Doddridge

Andrea R. Ferro

Murray V. Johnston

Tiina Reponen

James J. Schauer

James N. Smith

Paul A. Solomon

AAAR Staff

Amy Williams, CAE, MPA, *Executive Director*

Melissa Baldwin, *Assistant Executive Director*

Deanna Bright, *Executive Assistant*

Ann Mitchell, *Meeting Manager*

Joanna Barrett, *Assistant Meeting Manager*

Robin Geary, *Exhibits Manager*

Gail Valente, *Registration Manager*



2008 STUDENT ASSISTANTS

***AAAR would like to acknowledge the
2008 Student Assistant Volunteers***

List complete as of 9/24/08

Begona Almeria	Ming-Yeng Lin
Hardik Amin	Tsz Yan Ling
Andrew Ault	Julie Lloyd
Suresh Kumar Balasubramanian	Xiaofei Ma
Emily Berg	Laura Mack
Shannon Capps	Sasikala Manthena
Matthew Casari	Mallory Mentele
Arthur W.H. Chan	Arash Moharreri
Ajay Chaudhary	Richard Moore
Praney Dubey	Punith Dev Nallathamry
Juan Fernandez Garcia	Scott Noblitt
Huijing Fu	Diana Ortiz-Montalvo
Ingrid George	Fatma Ozturk
Gretchen Goldman	Jorge Pachon
Kate Hanford	Kerri Pratt
Edward Harding	Mitchell Robinson
Megan Hatfield	Misha Schurman
Meilu He	Karen Sentoff
Karen Hirakawa	Tucker Stevens
Amanda Holden	Andrea Tiwari
Ta-Chih Hsiao	Xing Wang
Hyeon Kook Kim	Zhicheng Wei
Prashant Kumar	Myung Heui Woo
Andrew Lambe	Yun Wu
Carlos Larriba Andaluz	Qi Zhang
Jin-Hwa Lee	Guan Zhao
Lin Li	Luke Ziembra



2008 STUDENT TRAVEL GRANT WINNERS

Begona Almeria

Xiaofei Ma

Hardik Amin

Mallory Mentele

Ajay Chaudhary

Arash Moharreri

Ingrid George

Luz Padro

Kate Hanford

Kerri Pratt

Ta-Chih Hsiao

Lejun Qi

Nancy Jennerjohn

Nicholas Stanley

Kathleen Kozawa

Xing Wang

Yunha Lee

Yun Wu

Julie Lloyd

Luke Ziemba





SCHEDULE-AT-A-GLANCE

Sunday, October 19

- 6:00 PM – 9:00 PM Registration
Sebastian Registration
- 6:00 PM – 9:00 PM Speaker Ready Room
Wekiwa 1
- 8:00 PM – 9:00 PM Student Assistant Orientation
Wekiwa 2
- 9:00 PM – 10:00 PM Student Reception
Wekiwa 3

Monday, October 20

- 7:00 AM – 8:00 PM Registration
Sebastian Registration
- 7:00 AM – 8:00 PM Speaker Ready Room
Wekiwa 1
- 8:00 AM – 4:00 PM Web-based Aerosol Science
and Technology Educational
Resources Workshop
Suwannee 16
- 8:00 AM – 9:40 AM **First Tutorial Session**
1. Introduction to
Aerosol Mechanics I
William C. Hinds
Sebastian I 1
 2. Bioaerosol Sampling and
Analyses for Biodefense
Tiina Reponen and
Jana S. Kesavan
Sebastian I 2
 3. Nanoparticle Synthesis
Mark T. Swihart
Sebastian I 3
 4. Conceptual Framework and
Application of Receptor Models
Philip K. Hopke
Sebastian I 4



10:00 AM – 11:40 AM

Second Tutorial Session

5. Introduction to
Aerosol Mechanics II
William C. Hinds
Sebastian I 1
6. Numerical Modeling of
Multiphase Flows
Sean C. Garrick
Sebastian I 2
7. Nanoparticle Applications in
Energy Technology
Uwe R. Kortshagen
Sebastian I 3
8. Aerosol Nucleation: Bridging
Subnanoscale Processes to
Global-Scale Climate Change
Fangqun Yu
Sebastian I 4

11:40 AM – 1:00 PM

Lunch (on your own)

12:00 PM – 5:00 PM

Exhibitor and Poster Set-Up
Sebastian J/K

1:00 PM – 2:40 PM

Third Tutorial Session

9. Atmospheric-Surface
Exchange: Dry Deposition and
Resuspension
Cliff I. Davidson
Sebastian I 1
10. Secondary Aerosol Formation
Paul J. Ziemann
Sebastian I 2
11. Challenges to Ensuring the
Safety of Emerging
Nanomaterials
Andrew D. Maynard
Sebastian I 3
12. Aerosol-Cloud Interactions:
The Elusive Component of
Climate Change
Athanasios Nenes
Sebastian I 4



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- 1:00 PM – 4:00 PM AS&T Editors Meeting
Wekiwa 2
- 2:00 PM – 5:00 PM Executive Committee Meeting
Wekiwa 10
- 3:00 PM – 4:40 PM **Fourth Tutorial Session**
13. Human Aerosol Exposure:
Toward a Mechanistic
Understanding
William W Nazaroff
Sebastian I 1
14. Methods for the Semicontinuous
Measurement of Particle and
Gas Chemical Composition
Rodney J. Weber
Sebastian I 2
15. Aerosol Filtration for Fine and
Nano Particles
Da-Ren Chen
Sebastian I 3
16. From Emission to Direct Forcing:
Single Source Contributions to
Climate Change
Tami C. Bond
Sebastian I 4
- 5:00 PM – 6:00 PM Development Committee Meeting
Wekiwa 3
- 6:00 PM – 8:00 PM Welcome Reception and
Exhibitor/Poster Preview
Sebastian J/K

Tuesday, October 21

- 7:00 AM – 6:00 PM Registration
Sebastian Registration
- 7:00 AM – 6:00 PM Speaker Ready Room
Wekiwa 1
- 7:00 AM – 8:00 AM Awards Committee Meeting
Wekiwa 2
- 7:00 AM – 8:00 AM By-Laws Committee Meeting
Wekiwa 3



- 8:00 AM – 9:20 AM **Plenary Session #1:**
Aerosols, Health and Climate
Kirk R. Smith
Sebastian L
- Presentation of the
Sheldon K. Friedlander Award
- Presentation of the
Kenneth T. Whitby Award
- 9:00 AM – 4:00 PM Exhibits/Posters Open
and 6:00 PM – 8:00 PM *Sebastian J/K*
- 9:30 AM – 10:45 AM **Technical Session 1: Platform**
- 1A.** Symposium: Frontiers in
Megacity Aerosol Research I
Sebastian L
- 1B.** Regional and Remote Aerosols I
Sebastian I 1
- 1C.** Biodefense Sampling I
Sebastian I 2
- 1D.** Nanoparticle Synthesis
Sebastian I 3
- 1E.** Filtration with Nanotechnology
Sebastian I 4
- 10:45 PM – 11:15 PM Coffee Break
Sebastian J/K
- 11:15 AM – 12:15 PM **Technical Session 2: Platform**
- 2A.** Symposium: Frontiers in
Megacity Aerosol Research II
Sebastian L
- 2B.** Carbonaceous Aerosols:
Biomass Burning
Sebastian I 1
- 2C.** Biodefense Sampling II
Sebastian I 2
- 2D.** Nanoparticle Applications
Sebastian I 3
- 2E.** PM Capture Mechanisms
Sebastian I 4
- 12:15 PM – 1:30 PM Lunch (on your own)



- 12:15 PM – 1:15 PM Internet Communications
Committee Meeting
Wekiwa 2
- 12:15 PM – 1:15 PM Working Group Chairs
Strategy Meeting
Wekiwa 3
- 12:30 PM – 2:00 PM AAAR Board of Directors Meeting
Suwannee 16
- 1:30 PM – 2:45 PM **Technical Session 3: Poster**
Sebastian J/K
- 3A.** Frontiers in Megacity
Aerosol Research
 - 3B.** Source Apportionment:
Source Characterization
 - 3C.** Biodefense
 - 3D.** Nanoparticles
 - 3E.** Combustion Aerosols
 - 3F.** Aerosol Inhalation and Toxicology
 - 3G.** PM Control
 - 3H.** Urban Aerosols: Characterization
 - 3I.** Carbonaceous Aerosols:
Ambient Experiments
 - 3J.** Atmospheric Aerosol
Control Policy
 - 3L.** Late-Breaking Posters
- 2:45 PM – 3:15 PM Coffee Break
Sebastian J/K
- 3:15 PM – 4:15 PM **Technical Session 4: Platform**
- 4A.** Carbonaceous Aerosols:
Measurements vs Models
Sebastian L
 - 4B.** Aerosols, Clouds and Climate I
Sebastian I 1
 - 4C.** Aerosol Inhalation and Toxicology
Sebastian I 2
 - 4D.** Combustion Aerosols I
Sebastian I 3
 - 4E.** PM Control Applications
Sebastian I 4



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- 4:30 PM – 5:30 PM AAAR Annual Business Meeting
Sebastian L
- 5:30 PM – 6:30 PM Publications Committee Meeting
Wekiwa 2
- 5:30 PM – 7:00 PM Careers in Aerosol Science
Workshop
Sebastian L
- 6:00 PM – 8:00 PM Exhibitors' Reception
Sebastian J/K

Wednesday, October 22

- 7:00 AM – 6:00 PM Registration
Sebastian Registration
- 7:00 AM – 6:00 PM Speaker Ready Room
Wekiwa 1
- 7:00 AM – 8:00 AM Newsletter Committee Meeting
Wekiwa 2
- 7:00 AM – 8:00 AM Finance Committee Meeting
Wekiwa 3
- 8:00 AM – 9:15 AM **Plenary Session #2: From
Molecules to Nanodroplets:
Nucleation, Growth, and Structure**
Barbara E. Wyslouzil
Sebastian L
- Introduction of the AAAR Fellows
- 9:00 AM – 5:00 PM Exhibits/Posters Open
Sebastian J/K
- 9:15 AM – 10:45 AM **Technical Session 5: Poster and
Continental Breakfast**
Sebastian J/K
- 5A.** Applications of the
Electrospray
 - 5B.** Regional and Remote Aerosols
 - 5C.** Environmental and
Occupational Health Aerosols
 - 5D.** Carbonaceous Aerosols: Lab
Experiments
 - 5E.** Aerosol Chemistry
 - 5F.** Airway Deposition



- 5G. Aerosol Chemical Characterization
- 5H. Aerosol Mass Measurement
- 5I. Aerosol Sampling
- 5J. Measuring Aerosol Physical Properties
- 5K. Aerosols, Clouds and Climate: Models
- 5L. Late-Breaking Posters

10:45 AM – 12:00 PM

Technical Session 6: Platform

- 6A. Carbonaceous Aerosols: Laboratory Studies
Sebastian L
- 6B. Regional and Remote Aerosols II
Sebastian I 1
- 6C. Deposition in Airway Replicas
Sebastian I 2
- 6D. Combustion Aerosols II
Sebastian I 3
- 6E. New Particle Formation and Aerosol Chemistry Models
Sebastian I 4

12:00 PM – 1:15 PM

Lunch (on your own)

12:00 PM – 1:00 PM

IARA Lunch
Suwannee 16

12:00 PM – 1:00 PM

AS&T Editorial Advisory Board Meeting
Wekiwa 2

12:00 PM – 1:00 PM

Education Committee Meeting
Wekiwa 3

1:15 PM – 2:45 PM

Technical Session 7: Platform

- 7A. Symposium: Applications of the Electrospray
Sebastian L
- 7B. Source Apportionment: Applications I
Sebastian I 1
- 7C. Health-Related Aerosols: Field Sampling
Sebastian I 2



- 2:45 PM – 3:15 PM **7D. Aerosol Chemical Composition Measurements II**
Sebastian I 3
- 7E. Organic Aerosol Chemistry I**
Sebastian I 4
- 3:15 PM – 4:30 PM Coffee Break
Sebastian J/K
- Technical Session 8: Platform**
- 8A. Urban Aerosols: Size Distributions**
Sebastian L
- 8B. Source Apportionment: Applications II**
Sebastian I 1
- 8C. Health-Related Aerosols: Characterization**
Sebastian I 2
- 8D. Aerosol Chemical Composition Measurements II**
Sebastian I 3
- 8E. Organic Aerosol Thermodynamics**
Sebastian I 4
- 4:40 PM – 5:40 PM **Working Group Meetings 1**
Aerosol Physics – *Sebastian L*
Atmospheric Aerosols – *Sebastian I 1*
Indoor Aerosols and
Aerosol Exposure – *Sebastian I 2*
Control Technology – *Sebastian I 3*
History of Aerosol Science –
Sebastian I 4
- 5:50 PM – 6:50 PM **Working Group Meetings 2**
Instrumentation – *Sebastian I 1*
Combustion/Materials – *Sebastian I 2*
Health-Related Aerosols –
Sebastian I 3
Aerosol Chemistry – *Sebastian I 4*
- 7:00 PM – 8:00 PM Student Chapter Meeting
Suwannee 16
- 7:00 PM Alumni Dinners

**Thursday, October 23**

- 7:00 AM – 5:00 PM Registration
Sebastian Registration
- 7:00 AM – 5:00 PM Speaker Ready Room
Wekiwa 1
- 7:00 AM – 8:00 AM Conference Committee Meeting
Wekiwa 2
- 7:00 AM – 8:00 AM Long Range Planning Committee Meeting
Wekiwa 3
- 8:00 AM – 9:20 AM **Plenary # 3:** Physical, Chemical and Toxicological Characteristics of PM from Mobile Sources
Constantinos Sioutas
Sebastian L
- Presentation of the Benjamin Y. H. Liu Award
- Presentation of the David Sinclair Award
- 9:00 AM – 3:30 PM Exhibits/Posters Open
Sebastian J/K
- 9:20 AM – 10:45 AM **Technical Session 9:
Poster and Continental Breakfast**
Sebastian J/K
- 9A.** Mobile-Source PM
- 9B.** Aerosols, Clouds and Climate: Measurements
- 9C.** Indoor Aerosols and Aerosol Exposure
- 9D.** Source Apportionment: Applications
- 9E.** Aerosol Chemistry
- 9F.** History of Aerosol Measurements
- 9G.** Aerosol Size Measurements
- 9H.** Aerosol Focusing and Optical Separation



- 9I. Aerosol Characterization:
Facilities and Modeling**
- 9J. Aerosol Physics**
- 9K. Nanoparticle Physics**
- 9L. Late-Breaking Posters**
- 10:45 AM – 12:00 PM Technical Session 10: Platform**
- 10A. Symposium: Characterizing
Mobile PM Sources I**
Sebastian L
- 10B. Aerosols, Clouds and Climate II**
Sebastian I 1
- 10C. Aerosol Exposure**
Sebastian I 2
- 10D. New Instrumentation
and Methods**
Sebastian I 3
- 10E. Particle Formation and Growth**
Sebastian I 4
- 12:00 PM – 1:30 PM Lunch (on your own)**
- 12:00 PM – 1:30 PM Membership Committee Meeting**
Wekiwa 2
- 1:30 PM – 3:00 PM Technical Session 11: Platform**
- 11A. Symposium: Mobile Sources
and Near-Road Impacts**
Sebastian L
- 11B. Source Apportionment:
Modeling I**
Sebastian I 1
- 11C. Indoor Aerosols I**
Sebastian I 2
- 11D. Personal and Portable
Instruments**
Sebastian I 3
- 11E. Nanoparticle Physics**
Sebastian I 4
- 3:00 PM – 3:30 PM Coffee Break**
Sebastian J/K



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- 3:30 PM – 5:00 PM **Technical Session 12: Platform**
- 12A.** Symposium: Mobile Sources and Near-Road to Urban-Scale Impacts
Sebastian L
- 12B.** Aerosols, Clouds and Climate III
Sebastian I 1
- 12C.** Indoor Aerosols II
Sebastian I 2
- 12D.** Sampling Large Particles, Bioaerosols and Other Aerosols
Sebastian I 3
- 12E.** Organic Aerosol Chemistry II
Sebastian I 4
- 3:30 PM – 6:00 PM Exhibitor Move-Out
Sebastian J/K
- 5:30 PM – 6:30 PM Working Group Chairs/Technical Program Committee Meeting
Suwannee 16
- 7:00 PM Alumni Dinners

Friday, October 24

- 7:00 AM – 12:00 PM Registration
Sebastian Registration
- 7:00 AM – 11:00 AM Speaker Ready Room
Wekiwa 1
- 8:00 AM – 9:20 AM **Plenary # 4:** Particles, Drops and Crystals: Recent Advances in Understanding Aerosol-Cloud Interactions
Sonia M. Kreidenweis
Sebastian L
- Presentation of the Thomas T. Mercer Joint Prize
- Presentation of Student Poster Awards



9:30 AM – 10:45 AM

Technical Session 13: Platform

13A. Carbonaceous Aerosol

Measurements I

Sebastian L

13B. Source Apportionment:

Modeling II

Sebastian I 1

13C. Condensation and Phase

Equilibrium

Sebastian I 2

13D. Aerosol Charging and Size

Distribution Measurements

Sebastian I 3

13E. Organic Aerosol Chemistry III

Sebastian I 4

10:45 AM – 11:15 AM

Coffee Break

Sebastian L Foyer

11:15 AM – 12:30 PM

Technical Session 14: Platform

14A. Symposium: Characterizing

Mobile PM Sources II

Sebastian L

14B. Carbonaceous Aerosol

Measurements II

Sebastian I 1

14C. Aerosol Physics and

Technology

Sebastian I 2

14D. Aerosol Mass, Density and

Physical Properties

Sebastian I 3

14E. Inorganic Aerosol Chemistry

Sebastian I 4

12:30 PM – 5:00 PM

AAAR Board of Directors Meeting

Suwannee 15



AAAR TUTORIAL SESSIONS

Monday, October 20**First Session: 8:00 AM – 9:40 AM**

1 INTRODUCTION TO
AEROSOL MECHANICS 1

*William C. Hinds, UCLA, School of Public Health,
Center for Occupational and Environmental Health,
Department of Environmental Health Science,
Los Angeles, CA*

Abstract: These two courses (Tutorials 1 and 5) form a sequence that covers basic aerosol mechanics (particle motion) at an introductory level. Topics include: Stokes law, settling velocity, slip correction, aerodynamic diameter, nonspherical particles, acceleration, relaxation time, stopping distance, impaction, isokinetic sampling, diffusion, and coagulation. The course covers theory and applications and is suitable for those new to the field and for others who want to brush up on the basics.

William C. Hinds is a professor of environmental health sciences at the UCLA School of Public Health. He received a bachelor's degree in mechanical engineering from Cornell University and a doctorate in environmental health from Harvard University. Professor Hinds has taught the Introduction to Aerosol Mechanics tutorial for many years as a service to AAAR. This will be his last year teaching this tutorial series.

2 BIOAEROSOL SAMPLING AND ANALYSES
FOR BIODEFENSE

*Tiina Reponen, Department of Environmental
Health, University of Cincinnati, OH and Jana S.
Kesavan, Aerosol Sciences Team, U.S. Army
Edgewood Chemical Biological Center, Aberdeen
Proving Ground, MD*

Abstract: Bioaerosols are produced naturally, as a byproduct, or intentionally to harm people. Sampling and detecting harmful aerosols produced by terrorists are important problems. Bioaerosols include viruses and bacteria, and the size of biological particles varies widely, from nanoscale to micron size. The same physical principles



that are applied to non-biological particles can be applied to bioaerosol sampling in terms of sampling efficiency of a given particle size range. When sampling to identify a threat, high sample volume, high collection efficiency and accurate detection are important. This tutorial will review the traditional and modern techniques for bioaerosol sampling and analysis. Advantages and disadvantages of various methods in bioaerosol sampling and detection will be discussed.

Tiina Reponen is a professor of environmental health at the University of Cincinnati, Department of Environmental Health. She received her doctoral degree in environmental sciences from Kuopio University, Finland. Her current research efforts are focused on the exposure assessment of biological and nonbiological particles in indoor and industrial environments and physical and microbiological characterization of airborne bacteria and fungi.

Jana S. Kesavan is a research physicist at the U.S. Army Edgewood Chemical Biological Center. She received her doctoral degree in environmental health sciences from Johns Hopkins University. She has been characterizing many aerosol samplers, concentrators, and detector systems that are used for biodefense purposes. Next generation and developmental aerosol sampler and detector systems are also characterized in her laboratory.

3 NANOPARTICLE SYNTHESIS

Mark T. Swihart, Department of Chemical and Biological Engineering, State University of New York at Buffalo, Buffalo, NY

Abstract: The vast majority of commercially produced nanoparticulate materials are made by aerosol processes, based on gas-to-particle conversion. Large volume examples include carbon black, fumed silica, titania, and nickel nanoparticles. In contrast, the vast majority of academic nanoparticle synthesis research has been in solution-phase methods that often provide much better control of product particle size distribution and morphology. A key challenge in aerosol synthesis of nanoparticles is to approach the control of particle size and morphology that is achieved by solution phase methods, while maintaining the important advantages of aerosol processing, including low cost, high throughput, high purity, high crystallinity,



and reduced solvent use. This tutorial will provide an overview of methods of aerosol synthesis of nanoparticles, including flame reactors, laser-driven reactors, thermal and non-thermal plasma reactors, spray pyrolysis, and related approaches. Strengths, weaknesses, common features, and differences among these techniques will be highlighted. Aerosol dynamics modeling of nanoparticle synthesis will also be briefly addressed.

Mark T. Swihart is a professor of chemical and biological engineering and director of the UB2020 Integrated Nanostructured Systems Initiative at the State University of New York at Buffalo. He earned a BS in chemical engineering from Rice University, a PhD in chemical engineering from the University of Minnesota and conducted postdoctoral research in the Particle Technology Lab at Minnesota.

4 CONCEPTUAL FRAMEWORK AND APPLICATION OF RECEPTOR MODELS

Philip K. Hopke, Departments of Chemical Engineering and Chemistry, Clarkson University, Potsdam, NY

Abstract: This course will present the underlying chemical basis for distinct profiles for different types of emission sources and how these differences in profiles then provide a basis for receptor models. The conceptual framework of receptor models, a mass balance approach, will be described and how resulting models can be implemented depending on what a priori information is available. Applications of several types of models to various problems will be described with an emphasis on the practical use of positive matrix factorization for both elemental and organic species data.

Philip K. Hopke is the Bayard D. Clarkson Distinguished Professor at Clarkson University and the director of the Center for Air Resources Engineering and Science. Professor Hopke received his BS in chemistry from Trinity College (Hartford) and his MA and PhD degrees in chemistry from Princeton University.



Monday, October 20

Second Session: 10:00 AM – 11:40 AM

5 INTRODUCTION TO
AEROSOL MECHANICS II

*William C. Hinds, UCLA, School of Public Health,
Center for Occupational and Environmental Health,
Department of Environmental Health Science,
Los Angeles, CA*

Abstract: These two courses (Tutorials 1 and 5) form a sequence that covers basic aerosol mechanics (particle motion) at an introductory level. Topics include: Stokes law, settling velocity, slip correction, aerodynamic diameter, nonspherical particles, acceleration, relaxation time, stopping distance, impaction, isokinetic sampling, diffusion, and coagulation. The course covers theory and applications and is suitable for those new to the field and for others who want to brush up on the basics.

William C. Hinds is a professor of environmental health sciences at the UCLA School of Public Health. He received a bachelor's degree in mechanical engineering from Cornell University and a doctorate in environmental health from Harvard University. Professor Hinds has taught the Introduction to Aerosol Mechanics tutorial for many years as a service to AAAR. This will be his last year teaching this tutorial series.

6 NUMERICAL MODELING
OF MULTIPHASE FLOWS

*Sean C. Garrick, Department of Mechanical Engineering,
University of Minnesota, Minneapolis, MN*

Abstract: This tutorial presents the state-of-the-art in modeling and simulation of multiphase flows. The models, tools and techniques presented will highlight and delve into both scientific investigation and engineering practice. Specific attention will be given to the need for turbulence models, the coupling of Eulerian and Lagrangian dynamics, and spanning the wide range of length and time scales present in variety of multiphase flows. In addition, the tutorial will explore the interrelatedness of computational and experimental/physical investigation in the dynamics and chemistry of aerosols and how they may better inform each other.



Sean C. Garrick is an associate professor of mechanical engineering at the University of Minnesota. His research group investigates nanoparticle formation and growth and turbulent reacting multiphase flows. They also develop models for the effects of turbulence on chemical reactions, nanoparticle nucleation, and particle coagulation. Dr. Garrick earned his PhD in mechanical engineering from the State University of New York at Buffalo in 1998.

7 NANOPARTICLE APPLICATIONS IN ENERGY TECHNOLOGY

***Uwe R. Kortshagen**, Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN*

Abstract: Semiconductor nanocrystals produced in the gas, liquid, and solid phase are widely studied for applications in energy conversion devices. Applications range from photovoltaics to light-emitting devices to thermoelectrics. This tutorial will present an overview of some of these potential applications and will discuss the potential advantages of nanoparticles compared to bulk materials. It will discuss several schemes for light emitting devices, in which nanocrystals enhance the light emitting properties. It will also discuss the basic physical processes in semiconductor nanocrystals as well as various implementations of nanocrystal-based solar cells: dye-sensitized solar cells, quantum-dot sensitized solar cells, hybrid organic/inorganic solar cells, and ink-jet printed solar cells based on nanocrystal inks.

Uwe R. Kortshagen is a Distinguished McKnight University Professor and director of Graduate Studies in the Department of Mechanical Engineering at the University of Minnesota, and a member of the graduate faculties of physics, chemical engineering, and materials science. He earned his diploma degree in plasma physics in 1988, and his PhD in plasma physics in 1991 from the University of Bochum, Germany. He currently serves as president of the International Plasma Chemistry Society.



8

AEROSOL NUCLEATION: BRIDGING SUBNANOSCALE PROCESSES TO GLOBAL-SCALE CLIMATE CHANGE

*Fangqun Yu, Department of Earth and Atmospheric
Sciences, State University of New York at Albany,
Albany, NY*

Abstract: Nucleation, the molecular process that drives the formation of new particles in the nanometer size range, is a key source of the atmospheric aerosol. Nanoparticles that grow to the sizes of cloud condensation nuclei contribute to the aerosol indirect radiative forcing of the climate system. Exposure to high concentrations of nanoparticles can lead to adverse health effects. A clear understanding of the physical and chemical processes and parameters controlling aerosol nucleation is thus crucial for assessing future climate change, and a range of health and environmental impacts associated with airborne particulates. Topics to be covered in this tutorial will include: (1) Nucleation fundamentals: A historical overview; (2) Recent advances in atmospheric nucleation (quantum-mechanical investigation of molecular interactions relevant to nucleation, measurements of prenucleation clusters, multiple-instrument characterization of nucleation events, and kinetic nucleation models); (3) Well-constrained case studies of particle formation and growth in the atmosphere; (4) Nucleation rate parameterizations suitable for multidimensional simulations; (5) Global modeling and observations of atmospheric nucleation; (6) Nucleation and climate change (aerosol indirect radiative forcing, positive and negative climate feedback mechanisms, and links between solar variability and climate change).

Fangqun Yu is a faculty member at the State University of New York at Albany. He has earned degrees from Peking University and the Chinese Academy of Sciences, and a PhD in atmospheric sciences at UCLA. Yu's research focuses on the fundamental theory of nucleation mechanisms, the development and application of nucleation models, the analysis of field and laboratory measurements related to particle formation, and the global implications of aerosol nucleation for climate change, air quality, and health impacts. He has published about 50 peer-reviewed scientific journal papers.

**Monday, October 20****Third Session: 1:00 PM – 2:40 PM****9** **ATMOSPHERIC-SURFACE EXCHANGE:
DRY DEPOSITION AND RESUSPENSION**

Cliff I. Davidson, Departments of Civil and Environmental Engineering/Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA

Abstract: This tutorial reviews current understanding of aerosol exchange between the atmosphere and surfaces, focusing on the interacting processes of dry deposition and resuspension. First, the process of dry deposition is described physically and mathematically, considering the three sequential steps aerodynamic transport, boundary layer transport, and interaction with the surface. Second, the process of resuspension is described, including some newly developed models. Finally, a number of important measurement techniques for dry deposition and resuspension are summarized. These include direct measurements of material accumulated on surfaces as well as methods of inferring the flux using atmospheric data.

Cliff I. Davidson is a professor in the Department of Civil and Environmental Engineering and the Department of Engineering and Public Policy at Carnegie Mellon. He is the founding director of the Center for Sustainable Engineering at that university. He received his BS in electrical engineering from Carnegie Mellon and MS and PhD degrees in environmental engineering science from the California Institute of Technology.

10 **SECONDARY AEROSOL FORMATION**

Paul J. Ziemann, Department of Environmental Sciences, University of California, Riverside, CA

Abstract: Secondary aerosol is an important component of atmospheric fine particles that generally consists of organics, sulfates, and nitrates. The processes that lead to the formation of this material are often complex and can involve gas and particle phase chemistry, nucleation, and gas-particle partitioning. In this course, Dr. Ziemann will discuss the major chemical reactions and partitioning processes involved in the formation of secondary organic and inorganic aerosol (with a strong emphasis on organic aerosol) using examples from laboratory and field studies.



Paul J. Ziemann is a professor of atmospheric chemistry at the University of California, Riverside. He received a doctorate in chemistry from Penn State University and was a postdoctoral researcher in the Particle Technology Laboratory at the University of Minnesota.

11 CHALLENGES TO ENSURING THE SAFETY OF EMERGING NANOMATERIALS

Andrew D. Maynard, Project on Emerging Nanotechnologies, Woodrow Wilson International Center for Scholars, Washington, DC

Abstract: Many engineered nanomaterials demonstrate scale-specific functionality that may be exploited in new products and applications. But there is evidence that scale-specific properties might also lead to new risks to humans and the environment. Avoiding undue release, dispersion of and exposure to nanoscale aerosols is a significant challenge if safe and successful nanotechnologies are to be developed and commercialized. This tutorial considers the challenges to understanding and managing potential nanomaterial risks from an aerosol perspective. Starting from an exploration of how nanoscale size and structure might influence biologically-relevant behavior, the tutorial will consider how aerosol science and technology can inform the development of safe nanotech products and practices, and where some of the greatest future challenges lie.

Andrew D. Maynard is chief science advisor to the Project on Emerging Nanotechnologies. He received his bachelor's degree in physics from the University of Birmingham, U.K., and his doctorate in ultrafine particle analysis from the University of Cambridge, U.K. For many years, he worked on aerosol measurement and characterization at the U.K. Health and Safety Laboratory and the U.S. National Institute for Occupational Safety and Health. Before leaving bench science for science policy in 2005, Dr. Maynard was co-chair of the U.S. government National Nanotechnology Initiative Nanotechnology Environment and Health Implications working group.



12 AEROSOL-CLOUD INTERACTIONS:
THE ELUSIVE COMPONENT OF
CLIMATE CHANGE

Athanasios Nenes, Schools of Earth and Atmospheric Sciences and Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA

Abstract: The effects of aerosols on clouds (known as the “aerosol indirect climatic effect”) are thought to have a net climatic cooling effect, which partially offsets greenhouse gas warming. Regional impacts of aerosol-cloud interactions on the radiation budget and precipitation can be very strong. Despite its importance, the complex and multiscale nature of aerosol-cloud interactions makes it one of the most uncertain components of anthropogenic climate change. This tutorial will provide an overview of what aerosol-cloud interactions are and present the approaches used to observationally study them and represent them in models. We will provide an assessment of what has been learned and point out key research challenges for the future.

Athanasios Nenes is an associate professor in the Schools of Earth and Atmospheric Sciences and Chemical and Biomolecular Engineering at the Georgia Institute of Technology. He received a diploma in chemical engineering from the National Technical University of Athens, a master’s degree in atmospheric chemistry from the University of Miami, and a doctorate in chemical engineering from the California Institute of Technology.

Monday, October 20

Fourth Session: 3:00 PM – 4:40 PM

13 HUMAN AEROSOL EXPOSURE:
TOWARD A MECHANISTIC UNDERSTANDING

William W Nazaroff, Department of Civil and Environmental Engineering, University of California, Berkeley, CA

Abstract: This tutorial explores the relationships between aerosol emission sources and human inhalation exposure. The tools and techniques are those of the physical sciences and engineering, stressing causal connections. The tutorial draws on key chemical and physical knowledge from



atmospheric aerosol science. Focusing on human exposure as the outcome of concern leads to an emphasis on the proximity between sources and receptors. Most exposure occurs while people are in enclosed spaces, so issues that influence indoor aerosols enter strongly into this lecture.

William W Nazaroff is a professor of environmental engineering at UC Berkeley. His research group studies indoor air pollutant chemistry and physics. They also develop and apply methods for assessing human exposure to air pollutants from major exposure sources, such as motor vehicles, power plants, and cigarettes. Dr. Nazaroff earned a PhD in environmental engineering science at Caltech (1989).

14

METHODS FOR THE SEMICONTINUOUS MEASUREMENT OF PARTICLE AND GAS CHEMICAL COMPOSITION

Rodney J. Weber, School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA

Abstract: A wide variety of non-mass spectrometric methods have been developed recently for automated on-line measurements of particle chemical composition in real, or near real-time. Many of these techniques collect ambient particles in a manner that permits them to be directly coupled to existing analytical devices. Although these approaches generally only provide measurements of bulk chemical composition, they often have unique advantages. Some are highly quantitative and are capable of measuring a wide range of chemical compounds, including gas phase species. Others are relatively low in cost and/or can operate unattended for extended periods making them suitable for network monitoring sites. A review attempting to convey the breadth of these types of approaches will be presented. This will include approaches that convert particles to gases for analysis and liquid-based systems. Methods for measuring a wide range of compounds will be discussed, including inorganic ions, total organic mass and water-soluble organic mass, organic acids, reactive oxygen species (ROS), aerosol pH, and specific water-soluble metals. Consideration will be given to the application of newer analytical devices, such as microchip electrophoresis, ion selective electrodes, and liquid waveguide capillary cells with spectroscopic



detection. The goal will be to provide resource information and insights into the many research opportunities afforded by these types of systems.

Rodney J. Weber is a professor in the School of Earth and Atmospheric Sciences at the Georgia Institute of Technology. He received a bachelor's degree in mechanical engineering from the University of Waterloo and masters and doctorate degrees in mechanical engineering from the University of Minnesota.

15 AEROSOL FILTRATION FOR FINE AND NANO PARTICLES

Da-Ren Chen, Department of Energy, Environmental and Chemical Engineering, Washington University, St. Louis, MO

Abstract: Nanoparticles comprise a key foundation for nanotechnology. Nanoparticles of different materials have been synthesized for industrial applications using a variety of physical and chemical methods. The presence of synthetic nanoparticles and the potential for releasing them into the environment have raised public concern over how these nanoparticles could impact the public health and our environment. Large increases in demand and production in the future could lead to unintended exposures to nanoparticles by occupational workers and/or end product users via inhalation, dermal absorption, and gastrointestinal tract absorption. Aerosol filtration is the conventional technique to remove particles from gas streams. Concern about the filtration efficiency of filters is often raised when applying the technique for controlling releases of nanoparticles. This tutorial will review published works in nanoparticle filtration, fundamental filtration theories and simulation techniques for nanoparticle filtration, the experimental validation of theories, and issues/common mistakes in the experimental evaluation of filter performance for nanoparticles.

Da-Ren Chen, PhD, is an associate professor in the Department of Energy, Environmental and Chemical Engineering, Washington University in St. Louis, MO. He received his PhD from the Particle Technology Laboratory, University of Minnesota. He has received the Sheldon K. Friedlander Award (1997), Smoluchowski Award (2002) and Kenneth T. Whitby Award (2005) for his contributions to nanoparticle



instrumentation. He has also been involved in aerosol filtration research for more than 17 years. His filtration work includes filter pleating design; dust cake filtration; filter behavior under particle loadings; pulsed reverse-flow systems for filter cleaning; and modeling of filtration systems.

16 FROM EMISSION TO DIRECT FORCING: SINGLE SOURCE CONTRIBUTIONS TO CLIMATE CHANGE

Tami C. Bond, *Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL*

Abstract: This tutorial will examine direct climate forcing by aerosols from a slightly different perspective. Instead of looking at how single chemical species affect the Earth's radiative balance, total effects of individual sources will be discussed. The tutorial will begin with a brief overview of the major players in direct radiative forcing. A simple one-dimensional box model of radiative transfer will be presented and made available to the tutorial participants. (Bring a laptop if you desire.) The important aerosol characteristics that come from aerosol characterization, including hygroscopicity and optical properties will be discussed. Dr. Bond will discuss the simplifications required to incorporate these aerosols into global models of transport and radiative-transfer models. Two case studies of sources that emit significant amounts of black carbon—diesel engines and biofuel cookstoves—showing the path from direct emission measurements to estimates of climate forcing by these sources will be presented. A discussion of future research needs to fill in the missing steps in the path from emission to forcing will conclude the tutorial.

Tami C. Bond earned bachelor's and master's degrees in the combustion side of mechanical engineering before turning to an interdisciplinary PhD from the University of Washington (atmospheric sciences, mechanical engineering and civil engineering). She was a NOAA Climate and Global Change postdoctoral fellow, a visiting scientist at NCAR, and is now an assistant professor at the University of Illinois. She measures emission properties that are relevant to understanding the climate impact of anthropogenic aerosols in the laboratory and field and runs microphysical and global models.



PLENARY LECTURES

Tuesday, October 21

8:00 AM – 9:00 AM

AEROSOLS, HEALTH AND CLIMATE

Kirk R. Smith

Kirk R. Smith, MPH, PhD, is professor of Global Environmental Health and coordinator of the Health, Environment, and Development Program at the University of California, Berkeley. He conducts research on the health and climate impacts of air pollution in developing countries including field surveys, epidemiological studies, policy analyses, and development of new monitoring technologies. He sits on a range of international assessments, including the IPCC, the Global Energy Assessment, the World Comparative Risk Assessment, and the Global Air Quality Guidelines. He was elected to the U.S. National Academy of Sciences in 1997.

Wednesday, October 22

8:00 AM – 9:00 AM

FROM MOLECULES TO NANODROPLETS: NUCLEATION, GROWTH, AND STRUCTURE

Barbara E. Wyslouzil

Barbara E. Wyslouzil, PhD, is a professor of chemical and biomolecular engineering and chemistry at The Ohio State University. Her research interests include aerosol physics and aerosols in biological applications. Dr. Wyslouzil received her PhD in chemical engineering at the California Institute of Technology in 1992. She joined OSU in 2003 after 10 years at Worcester Polytechnic Institute. She served on the AAAR Board of Directors from 2000 – 2003 and was honored with the Kenneth T. Whitby Award from the AAAR in 2002.



Thursday, October 23

8:00 AM – 9:00 AM

PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS OF PM FROM MOBILE SOURCES

Constantinos Sioutas

Constantinos Sioutas, ScD, is the first holder of the Fred Champion Professorship in Civil and Environmental Engineering at the University of Southern California (USC) and the co-director and co-principal investigator of the Southern California Particle Center and Supersite (SCPCS). He received his ScD from the Harvard School of Public Health. Dr. Sioutas' research has followed an integrated approach to the problem of the well-publicized and significant effects of particulate air pollution on health and the environment. His research has focused on investigations of the underlying mechanisms that produce the health effects associated with exposure to air pollutants generated by a variety of combustion sources, such as traffic, harbor and airport operations, power plants, and photochemically induced atmospheric reactions.

Friday, October 24

8:00 AM – 9:00 AM

PARTICLES, DROPS AND CRYSTALS: RECENT ADVANCES IN UNDERSTANDING AEROSOL-CLOUD INTERACTIONS

Sonia M. Kreidenweis

Sonia M. Kreidenweis, PhD, is a professor of atmospheric science in the Department of Atmospheric Science at Colorado State University in Fort Collins, Colorado. Her research interests include characterization of atmospheric particles, especially their hygroscopicities, and the visibility and climate effects of particles. Dr. Kreidenweis received her PhD in chemical engineering from the California Institute of Technology. She is a past president of the American Association for Aerosol Research.



SPECIAL SYMPOSIA

Tuesday, October 21

FRONTIERS IN MEGACITY AEROSOL RESEARCH

Conveners: L.C. Marr and M. Bergin

The rapid proliferation of megacities and their air quality problems are producing unprecedented air pollution health risks and management challenges. Emissions from megacities affect not only local populations but also regional and global scale atmospheric chemistry and climate. Presently there are 20 megacities with populations in excess of 10 million, and the number is expected to increase to 26 by the year 2015. The extremely high aerosol loadings in megacities make them unique laboratories for studying the complex physical and chemical processes that form and transform particles. In addition, megacities offer special opportunities to study particulate impacts on human and environmental health due to the relatively large signals (e.g. relative health risk, regional radiative forcing) associated with the high particulate concentrations. This special symposium will center on (1) exposure, risk assessment, and policy implications, (2) aerosol measurements, and (3) regional and global impacts.

Wednesday, October 22

APPLICATIONS OF THE ELECTROSPRAY

Convener: W. Deng

Electrospray is an elegant technique to generate aerosols with monodispersed droplets/particles from a few nanometers to hundreds of micrometers. This booming area has made significant impact to nanotechnology and biotechnology, evidenced by John Fenn's 2002 Nobel Chemistry Prize for electrospray-related work. Given recent progresses on coaxial and multiplexed electrospray, the aerosol research community has a pressing need to draw together the multidisciplinary researchers to communicate on the potential applications of the electrospray. This special symposium strives to bridge the gap between electrospray researchers and general aerosol scientists who seek an aerosol generation technique with excellent monodispersity, complex structures, and/or high throughput.



Thursday and Friday, October 23–24

PARTICULATE MATTER AND MOBILE SOURCES

Conveners: A. Ayala, A. Vette, J. Herner

Mobile source emissions of particulate matter (PM) and its precursors impact air quality and human health across multiple temporal and spatial scales. Approaches to characterize emissions include the use of dynamometers to simulate driving conditions for individual vehicles, remote sensing technologies under actual driving conditions, and field measurements to estimate integrated roadway emission factors. Once emitted to the atmosphere, the complex mixture of condensed and gaseous species undergo rapid dilution and cooling, resulting in high numbers of ultrafine particles adjacent to roadways. These ultrafine particles rapidly coagulate into the accumulation mode or evaporate such that particle counts return to background levels over relatively small distances. Also, coarse particles are generated by mechanical abrasion, and vehicle induced turbulence can resuspend road dust. Recent investigations of near- and on-road particle concentrations have sparked a great deal of interest in primary emissions from on-road vehicles and also in the “plume processing” that occurs under real-world conditions. As mobile source emissions are transported away from roadways, dilution and interaction with ambient pollutants may change the physical, chemical, and toxicological nature of the emitted aerosols. Attributing pollutant impacts to underlying causes underscores the need to differentiate the contribution and toxicity of aerosols from various emission sources at the urban scale. Health studies implicate PM from various sources, including vehicles, in adversely affecting human health at the urban scale.





EXHIBITORS

AAAR gratefully acknowledges the following companies for their participation this year! Please stop by and visit each company in the exhibit area in the Sebastian J/K Ballroom.

Organization Booth Number

List complete as of 9/24/08.

<i>BGI Instruments</i>	<i>200</i>
<i>Brechtel Mfg. Inc.</i>	<i>106</i>
<i>Cambustion Ltd</i>	<i>108</i>
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<i>Met One Instruments, Inc.</i>	<i>209</i>
<i>MSP Corporation</i>	<i>101</i>
<i>Particle Instruments.</i>	<i>105,107,109</i>
<i>Sunset Laboratory Inc.</i>	<i>203</i>
<i>Taylor & Francis.</i>	<i>103</i>
<i>Thermo Scientific.</i>	<i>205</i>
<i>TSI Inc.</i>	<i>202,204,206</i>
<i>URG Corporation</i>	<i>207</i>



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List complete as of 9/24/08.

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MSP Corporation is an applied engineering company located in Shoreview, Minnesota, dedicated to the design, development, and manufacture of particle sampling and measurement instruments. Since 1985, MSP has developed numerous aerosol samplers and analytical instruments that serve clients in the air quality monitoring, pharmaceutical, and semiconductor industries, as well as those engaged in scientific research fields.

Particle Instruments 105, 107, 109

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TECHNICAL PROGRAM

Monday**6:00 PM - 8:00 PM**

**WELCOME RECEPTION
EXHIBITS OPEN
SEBASTIAN J/K**

Tuesday**8:00 AM - 9:15 AM**

**PLENARY I
SEBASTIAN L 1-4**

- 8:00 Welcoming Remarks**
William Nazaroff, *Conference Chair*
- 8:05 Aerosols, Health and Climate**
Kirk R. Smith, *University of California, Berkeley*
- 9:00 Presentation of the Kenneth T. Whitby and Sheldon K. Friedlander Awards**
David Ensor, *Awards Committee Chair*

Tuesday**9:00 AM - 5:00 PM**

**EXHIBITS OPEN
SEBASTIAN J/K**

Tuesday**9:30 AM - 10:45 AM****SESSION 1: PLATFORM**

**1A SYMPOSIUM: FRONTIERS IN MEGACITY
AEROSOL RESEARCH I
SEBASTIAN L**

Mike Bergin and James Schauer, chairs

9:30

- 1A.01 Urban Air Quality in the Asian Region.** PHILIP K. HOPKE (1), David D. Cohen (2), Bilkis A. Begum (3), Swapan K. Biswas (3), Bangfa Ni (4), Gauri Girish Pandit (5), Muhayatun Santoso (6), Yong-Sam Chung (7), Perry Davy (8), Andreas

MONDAY**TUESDAY**



Markwitz (8), Shahida Waheed (9), Naila Siddique (9), Flora L. Santos (10), Preciosa Corazon B. Pabroa (10), Manikkuwadura Consy Shirani Seneviratne (11), Wanna Wimolwattanapun (12), Supamatthree Bunprapob (12), Thu Bac Vuong (13), and Andrzej Markowicz (14), *1-Clarkson University, Potsdam, 2-Australian Nuclear Science and Technology Organisation, Menai NSW, Australia, 3-Bangladesh Atomic Energy Commission, Atomic Energy Centre, Dhaka Bangladesh, 4-China Institute of Atomic Energy, Beijing, 5-Bhabha Atomic Research Centre, Mumbai India, 6-National Nuclear Energy Agency, Bandung Indonesia, 7-Korea Atomic Energy Research Institute, Daejeon, Republic of Korea, 8-Institute of Geological and Nuclear Sciences, Lower Hutt, New Zealand, 9-Pakistan Atomic Energy Commission, Islamabad, Pakistan, 10-Philippine Nuclear Research Institute, Quezon City Philippines, 11-Atomic Energy Authority, Orugodawatta, Wellampitiya, Sri Lanka, 12-Thailand Institute of Nuclear Technology, Bangkok Thailand, 13-Institute of Nuclear Sciences and Technology, Hanoi, Vietnam, 14-International Atomic Energy Agency, Wien, Austria*

9:45

1A.02

Air Pollution in South Asia: Findings from Multi-city Campaigns. Liaquat Husain (1,2), A.J. Khan (2), B.K. Farhana (2), Badar M. Ghauri (3), *(1) Wadsworth Center, NYS Department of Health, Albany, NY 12201-0509. (2) Department of Environmental Health Sciences, School of Public Health, State University of New York, Albany 12201-0509. (3) Division of Space and Environment, SUPARCO, University Road, Karachi, Pakistan*

10:00

1A.03

Source Apportionment of Atmospheric Aerosols in Lahore, Pakistan. Suresh Raja (1), Biswas K. Farhana (2), Liaquat Husain (2,3), Philip K. Hopke (1), *(1) Center for Air Resources Engineering and Science and Department of*



Chemical Engineering, Clarkson University, Potsdam, NY (2) NYS Department of Health, Wadsworth Center, Albany, NY (3) Department of Environmental Health and Toxicology, School of Public Health, State University of New York, Albany, NY

10:15

1A.04

Composition and Sources of Aerosols in a Rapidly Developing Megacity, Lahore, Pakistan. James J. Schauer (1), Tauseef A. Quraishi (2), Abid Mahmood (2), Elizabeth A. Stone (1) and Marya Orf (1), (1) *University of Wisconsin-Madison*, (2) *University of Engineering and Technology, Lahore, Pakistan*

10:30

1A.05

Direct climate forcing by diesel vehicles in Thailand. TAMI C. BOND (1), Ekbordin Winijkul (1), R Subramanian (1,2), Worrarat Thiansathit (3), Nguyen Thi Kim Oanh (3), Ittipol Paw-armart (4), and Peter Hess (5), (1) *University of Illinois at Urbana-Champaign* (2) *Droplet Measurement Technologies* (3) *Asian Institute of Technology* (4) *Pollution Control Department, Thailand* (5) *Cornell University*

TUESDAY

1B REGIONAL AND REMOTE AEROSOLS I SEBASTIAN I-1

Max Zhang and Rich Moore, chairs

9:30

1B.01

Worldwide Aerosol Chemistry: From Hemispheric Distributions to Megacity Sources. G. M. Hidy, *Envair/Aerochem*

9:45

1B.02

Aerosol Transport across the Arctic: Results from Alaska and Greenland. CATHERINE CAHILL (1), Thomas Cahill (2), (1) *University of Alaska Fairbanks*, (2) *University of California, Davis*



10:00

- 1B.03 Ice Nuclei Measurements in the Amazon Basin.** MARKUS PETTERS, Anthony Prenni, Paul DeMott, Sonia Kreidenweis, *Colorado State University, Department of Atmospheric Science, Fort Collins, Colorado, USA*

10:15

- 1B.04 The Role of the Breakdown of the Nocturnal Boundary Layer in Particle Nucleation.** R.J. BARTHELMIE (1,2) and S.C. Pryor (1), (1) *Atmospheric Science Program, Indiana University, Bloomington, IN 47405* (2) *University of Edinburgh, Edinburgh, UK*

10:30

- 1B.05 Nucleation and growth in/over a deciduous forest: How important are the trees?** S.C. PRYOR (1), R.J. Barthelmie (1,2), A.M. Spaulding (1), A. Rossner (3), B. Crimmins (3), P.K. Hopke (3), L. Mauldin (4), T. Jobson (5), (1) *Atmospheric Science Program, Indiana University, Bloomington, IN 47405* (2) *University of Edinburgh, Edinburgh, UK* (3) *Clarkson University, Potsdam, NY* (4) *NCAR/ACD, Boulder, CO* (5) *Washington State University, Pullman, WA*

1C BIODEFENSE SAMPLING I

SEBASTIAN I-2

Yung-Sung Cheng and Bing Guo, chairs

9:30

- 1C.01 Labeling Single Particles On-the-Fly: A Novel Method for Rapid Identification of Aerosols.** Matthew B. Hart, Horn-Bond Lin, Casey Jacobson, Jay D Eversole, Charles D. Merritt, *Naval Research Laboratory, Washington, DC*

9:45

- 1C.02 Development of a dual-excitation-wavelength single-particle fluorescence spectrometer for monitoring atmospheric aerosol and detecting biological threats.** Yong-Le Pan (1), Hermes Huang (1), Richard K. Chang(1), Steven C. Hill (2), Ronald G. Pinnick (2), (1) *Department of Applied Physics, Yale University*, (2) *U.S. Army Research Laboratory*



10:00

- 1C.03 Comparison of Electrostatic Field with BioSampler in Quantifying Airborne Allergens.** Maosheng Yao (1), Shiqi Zhen (2), Huili Zhang (2), Shuofei Dong (1), (1) *Peking University, Beijing, China* (2) *Jiangsu Center for Disease Prevention and Control, Nanjing, China*

10:15

- 1C.04 Performance of an electrostatic sampler with superhydrophobic surface when collecting bacterial aerosols.** Taewon Han, Hey-Reoun An, and Gediminas Mainelis, *Bioaerosol Laboratory, Department of Environmental Sciences Rutgers, The State University of New Jersey*

10:30

- 1C.05 Reaerosolization Characterization in an Attempt to Improve Airborne Virus Sampling.** Lindsey Riemenschneider (1), CHANG-YU WU (1), Dale Lundgren (1), Joseph Wander (3), Jin-Hwa Lee (1), Hsing-Wang Li (1), and Alex Theodore (2), (1) *University of Florida, Environmental Engineering Department* (2) *University of Florida, Chemical Engineering Department* (3) *Air Force Research Laboratory, Tyndall Air Force Base*

TUESDAY

1D NANOPARTICLE SYNTHESIS

SEBASTIAN I-3

Sheryl Ehrman and Ganhua Lu, chairs

9:30

- 1D.01 Structural Evolution of Hydrogen-Capped Silicon Nanoparticles: Coalescence, Sintering, and Morphological Behavior as a Function of Temperature.** JASON HOLM, Jeffrey Roberts, *University of Minnesota*

9:45

- 1D.02 Synthesis and Characteristics of Porous Nanostructured SiO₂- TiO₂ particles.** Hee Dong Jang (1), Hankwon Chang (1), Kuk Cho (1), Sun-Kyung Kim (2), Kikuo Okuyama (3), (1) *Nano-Materials Group, Korea Institute of Geoscience and Mineral Resources, Daejeon,*



Korea (2) Department of Chemical and Biomolecular Engineering, Sogang University, Seoul, Korea (3) Department of Chemical Engineering, Graduate School of Engineering, Hiroshima University, Higashi-Hiroshima, Japan

10:00

- 1D.03 SiO₂ coating of silver nanoparticles by photoinduced chemical vapor deposition.** ADAM BOIES, Jeffrey Roberts, Steven Girshick, *University of Minnesota, Twin Cities*

10:15

- 1D.04 Phase Control of Y₂O₃:Eu Fluorescent Particles in Flame Aerosol Synthesis.** HOON YIM and Bing Guo, *Texas A&M University*

10:30

- 1D.05 New Flame Pyrolysis Reactor for Probing Carbon Black Yield : The Role of Soot Oxidation and Surface Growth.** ANSHUMAN AMIT LALL, Xiaofei Ma, Dale Hsien-Yi Huang and Michael R. Zachariah, *University of Maryland, College Park*

1E FILTRATION WITH NANOTECHNOLOGY SEBASTIAN I-4

David Ensor and Chaolong Qi, chairs

9:30

- 1E.01 Viral aerosol capture and retention by a novel alumina nanofiber filter.** Hsing-Wang Li (1), Chang-Yu Wu (1), Fred Tepper (2), Jin-Hwa Lee (1) and Christiana N. Lee (3), (1) *Department of Environmental Engineering Sciences, University of Florida, Gainesville, FL* (2) *Argonide Corp., Sanford, FL* (3) *Department of Chemical Engineering, University of Florida, Gainesville, FL*

9:45

- 1E.02 Figure of Merit of Composite Filters with Micrometer and Nanometer Fibers.** JING WANG, Seong Chan Kim, David Y.H. Pui, *Particle Technology Laboratory, Department of Mechanical Engineering, University of Minnesota*



10:00

- 1E.03 Filtration of Carbon Nanotube Aerosols with Mechanical and Electret Filters.** Takuma Furukawa, Yuki Takeuchi, Takafumi Seto, Yoshio Otani, *Kanazawa University*

10:15

- 1E.04 Nanoparticle Agglomerates Loading on Fibrous Filter.** SEONG CHAN KIM, Jing Wang, David Y.H. Pui, *University of Minnesota*

10:30

- 1E.05 Filtration media in magnetic field.** Vadim Tovstoy,

*Tuesday**10:45 AM - 11:15 AM***BREAK***SEBASTIAN J/K**Tuesday**11:15 AM - 12:15 PM***SESSION 2: PLATFORM**

**2A SYMPOSIUM:
FRONTIERS IN MEGACITY AEROSOL RESEARCH II**
SEBASTIAN L

Linsey Marr and Edward Dunlea, chairs

11:15

- 2A.01 Long-term Aerosol Characterization in the Mega-city of Sao Paulo, Brazil.** MARIA DE FATIMA ANDRADE, *Atmospheric Sciences Department, University of Sao Paulo, Sao Paulo, Brazil.*

11:30

- 2A.02 Evolution of Trace Gases and Aerosols in the Mexico City Pollution Outflow during a Long Range Transport Event.** RAHUL ZAVERI (1), Lizabeth Alexander (1), John Ortega (1), Jerome Fast (1), John Hubbe (1), Paul Voss (2), Manjula Canagaratna (3), Timothy Onasch, John Jayne, Douglas Worsnop (3), Lawrence Kleinman (4), Stephen Springston (4), Peter Daum (4), Peter

TUESDAY



DeCarlo (5), Jose Jimenez (6), Teresa Campos (7), Frank Flocke (7), David Knapp (7), Deedee Montzka (7), Andrew Weinheimer (7), Wengang Zheng (7), Alma Hodzic (7), Sasha Madronich (7), (1) *Pacific Northwest National Laboratory*, (2) *Smith College*, (3) *Aerodyne Research, Inc.*, (4) *Brookhaven National Laboratory*, (5) *Paul Scherrer Institut*, (6) *University of Colorado*, (7) *National Center for Atmospheric Research*

11:45

2A.03

Aircraft Based Measurement of Organic Aerosol: Characterization and Evolution During the MILAGRO 2006 Field Campaign.

P.F. DeCarlo(1)(2), I. Ulbrich(1), A.C. Aiken(1), E.J. Dunlea(1), J. Crouse(3), P.O. Wennberg(3), D. Knapp(4), A.J. Weinheimer(4), D.D. Montzka(4), T. Campos(4), and J.L. Jimenez(1), (1) *Univ. of Colorado, Boulder, CO*, (2) *Now at the Paul Scherrer Institut, Switzerland*, (3) *California Institute of Technology, Pasadena, CA*, (4) *National Center for Atmospheric Research, Boulder, CO*

12:00

2A.04

Organic Aerosols in Mexico City: Urban and Biomass Burning Contributions during MILAGRO / MCMA-2006 at the Urban Supersite (T0).

ALLISON C. AIKEN (1), Christine Wiedinmyer (2), Benjamin de Foy (3), Dara Salcedo (1,4), Michael Cubison (1), Ingrid Ulbrich (1), Peter DeCarlo (1, *), J. Alex Huffman (1), Ken Docherty (1), Donna Sueper (1,5), Douglas R. Worsnop (5), Achim Trimborn (5), Megan Northway (5), Andre S.H. Prevot (6), Sonke Szidat (6,7), Miriam N. Wehrli (7), Elizabeth A. Stone (8), James J. Schauer (8), Jian Wang (9), Jun Zheng (10), Edward Fortner (10), Renyi Zhang (10), Alexander Laskin (11), Jeff Gaffney (12), Nancy Marley (12), Luisa Molina (13), Gustavo Sosa (14), and Jose L. Jimenez (1), (1) *University of Colorado, Boulder*, (2) *NCAR, Boulder*, (3) *St. Louis University*, (4) *Universidad Autónoma del Estado de Morelos, Mexico*, (5) *Aerodyne Research Inc., Billerica, MA*, (6) *Paul Scherrer Institut, Switzerland*, (7)



University of Bern, Switzerland, (8) University of Wisconsin, Madison, (9) Brookhaven National Laboratory, Upton, NY, (10) Texas A&M, College Station, (11) Pacific Northwest National Laboratory, Richland, WA, (12) University of Arkansas, Little Rock, (13) Molina Center and Massachusetts Institute of Technology, (14) IMP, Mexico City, () now at (6)*

2B CARBONACEOUS AEROSOLS: BIOMASS BURNING SEBASTIAN I-1

Jeff Collett and Rebecca Sheesley, chairs

11:15

- 2B.01 Spatial and Temporal Impacts of Biomass Burning on the Upper Midwest.** AMY P. SULLIVAN (1), Donna M. Kenski (2), Jeffrey L. Collett, Jr. (1), (1) *Colorado State University*, (2) *Lake Michigan Air Directors Consortium*

11:30

- 2B.02 Physicochemical and Toxicological Profiles of Particulate Matter (PM) from October 2007 Southern California Wildfires.** VISHAL VERMA (1), Andrea Polidori (1), James J. Schauer (2), Martin M. Shafer(2), Flemming R. Cassee (3) and Constantinos Sioutas (1), (1) *University of Southern California, Los Angeles* (2) *University of Wisconsin, Madison* (3) *National Institute for Public Health and the Environment (RIVM), the Netherlands*

11:45

- 2B.03 Do Biomass Burning Aerosols Nucleate Ice?** MARKUS PETERS, Matthew Parsons, Anthony Prenni, Paul DeMott, Christian Carrico, and Sonia Kreidenweis, *Colorado State University, Department of Atmospheric Science, Fort Collins, Colorado, USA*

12:00

- 2B.04 Carbonaceous Aerosols in South Asia: Synoptic Measurements and Source Apportionment by Radiocarbon Analysis for the Maldives and India Using Two Complimentary Methods.** REBECCA J SHEESLEY (1), Orjan Gustafsson (1), Martin

TUESDAY



Krusa (1), M.M. Sarin (2), P.D. Safai (3), PS Praveen (4), Henning Rodhe (5) and Caroline Leck (5), (1) *Department of Applied Environmental Science (ITM), Stockholm University, Sweden* (2) *Physical Research Laboratory, Ahmedabad, India* (3) *Indian Institute for Tropical Meteorology, Pune, India* (4) *UN Environment Programme Asia Pacific, Maldives Climate Observatory, Project Atmospheric Brown Clouds, Hanimaadhoo, Maldives* (5) *Department of Meteorology, Stockholm University, Sweden*

2C BIODEFENSE SAMPLING II

SEBASTIAN I-2

William Hinds and Gedi Mainelis, chairs

11:15

2C.01 Hydrosol concentrator for Improved Detection of Bioaerosols. David Alburty (1) Pamela Murowchick (1) Zachary Packingham (1) Andrew Page (2) Viengsavanthong Elliott (1) Carol Pranulis (1), (1) *AlburtyLab, Inc.* (2) *Page Applied Research, LLC*

11:30

2C.02 A Two-Stage Circumferential Slot Virtual Impactor System for Bioaerosol Concentration. Shishan Hu (1), Daniel LaCroix (1), Andrew R. McFarland (1) Philip M. Poeschl (2), (1) *Texas A&M University* (2) *TSI Inc.*

11:45

2C.03 Modeling of aerosol dispersion and sedimentation in the atmospheric surface layer and the implications for bioaerosol detection. JOSH HUBBARD, John Haglund, Ofodike Ezekoye, *The Applied Research Laboratories at The University of Texas at Austin*

12:00

2C.04 Ambient Aerosol Sampling Inlets for Flow Rates from 100 to 400 L/min. Mike Baehl, Sridhar Hari, BING GUO, and Andrew R. McFarland, *Texas A&M University, College Station*



2D NANOPARTICLE APPLICATIONS*SEBASTIAN I-3*

Mark Swihart and Bing Guo, chairs

11:15

2D.01 Micropattern Deposition of Semiconductor Nanocrystals by Aerodynamic Focusing.LEJUN QI, Peter H. McMurry, David J. Norris, Steven L. Girshick, *University of Minnesota*

11:30

2D.02 Bionano Antenna-Reaction Center (ARC) Hybrid Solar Cells Facilitated by Aerosol Processing. Elijah Thimsen(1), Aaron Collins(2), Luis Modesto-Lopez(1), Robert Blankenship(2) and Pratim Biswas(1), (1) *Aerosol and Air Quality Research Laboratory, Department of Energy, Environmental and Chemical Engineering, Washington University, Saint Louis, MO 63130* (2) *Blankenship Laboratory, Department of Chemistry and Department of Biology, Washington University, Saint Louis, MO 63130*

11:45

2D.03 Copper Oxide Nanoparticles via Flame Spray Pyrolysis for Photoelectrochemical Hydrogen Generation. Ranjan Pati (1), Joshua Emmanuel (1), SHERYL EHRMAN (1), Aadesh Singh (2), Monica Gupta (2), Vibha Satsanghi (2), Rohit Srivastav (2), Sahab Dass (2), (1) *University of Maryland, College Park*, (2) *Dayalbagh Educational Institute, Agra*

12:00

2D.04 Array Formation of 3-D Nanostructure of Nanoparticle via Electrodynamic Focusing of Charged Aerosols. Mansoo Choi, HEECHUL LEE, Sukbeom You, Changkyu Woo, *Seoul National University***TUESDAY**



2E PM CAPTURE MECHANISMS

SEBASTIAN I-4

Peter Jaques and John Veranth, chairs

11:15

2E.01 Filter Loading Characteristics of Supermicron Liquid-Coated Particles. Ta-Chih Hsiao and Da-ren Chen, *Washington University in St. Louis, St. Louis*

11:30

2E.02 Effects of Temperature and Relative Humidity Variation on Fungal Growth on Loaded Ventilation Filters. Weihua Tang, Thomas H. Kuehn, *Department of Mechanical Engineering, University of Minnesota*

11:45

2E.03 Effect of Wind Velocity on Particle Collection Using a Multi-Domain Magnetic Passive Aerosol Sampler. Peter A. Jaques (1), Pengfei Gao (2), (1) *EG&G, Pittsburgh*, (2) *National Personal Protective Technology Laboratory, NIOSH, Pittsburgh*

12:00

2E.04 Performance of Filters When Loaded with NaCl and KCl Particles in Low Relative Humidity Environment. Ta-Chih Hsiao and Da-Ren Chen, *Washington University in St. Louis*

Tuesday

12:15 PM - 1:30 PM

LUNCH (ON YOUR OWN)



**Tuesday****1:30 PM - 2:45 PM****SESSION 3: POSTER****SEBASTIAN J/K****3A SYMPOSIUM: FRONTIERS IN MEGACITY****AEROSOL RESEARCH****SEBASTIAN J/K****3A.01 O/C and OM/OC Ratios of Primary, Secondary, and Ambient Organic Aerosols with High****Resolution Time-of-Flight Aerosol Mass****Spectrometry.** ALLISON C. AIKEN (1), Peter F.

DeCarlo (1,*), J. Alex Huffman (1), Edward

Dunlea (1,+), Jesse H. Kroll (2), Douglas R.

Worsnop (2), Kenneth Docherty (1), Ingrid M.

Ulbrich (1), Claudia Mohr (1,*), Joel R. Kimmel

(1,2), Donna Sueper (1,2), Yele Sun (3), Qi

Zhang (3), Achim Trimborn (2), Megan Northway

(2,#), Paul J. Ziemann (4), Manjula R.

Canagaratna (2), Timothy B. Onasch (2), M.

Rami Alfarra (5,^), Andre S.H. Prevot (5), Josef

Dommen (5), Jonathan Duplissy (5), Axel

Metzger (5), Urs Baltensperger (5), Jose L.

Jimenez (1), (1) *University of Colorado, Boulder,*(2) *Aerodyne Research Inc., Billerica, (3) State**University of New York, Albany, (4) University of**California, Riverside, (5) Paul Scherrer Institut,**Switzerland, (*) now at Paul Scherrer Institut, (+)**now at NOAA, Boulder, (#) now at University of**Reading, UK, (^) now at The University of**Manchester, UK***3A.02 Fractal Theory Applied to Aerosol****Experimental Data Collected in North of****Chihuahua City.** Eduardo F. Herrera Peraza(1),

Balter Trujillo Navarrete(1), Roman Perez

Balan(1), Adrian Vazquez Galvez(2), 1 *Centro de**Investigacion en Materiales Avanzados S.C.;**Departamento de Medio Ambiente y Energia.**Chihuahua. Mexico. (CIMA) 2 Comision para la**Cooperacion Ambiental (CCA)***TUESDAY**



3B SOURCE APPORTIONMENT: SOURCE CHARACTERIZATION

SEBASTIAN J/K

- 3B.01 Primary submicron marine aerosol dominated by insoluble organic colloids and aggregates.** MARIA CRISTINA FACCHINI (1) Matteo Rinaldi (1), Stefano Decesari (1), Claudio Carbone (1), Emanuela Finessi (1), Darius Ceburnis (2), and Colin D. O'Dowd (2), E. Douglas Nilsson (3), (1) *Institute of Atmospheric Sciences and Climate (ISAC), CNR, Bologna Italy* (2) *School of Physics and Centre for Climate and Air Pollution Studies, Environmental Change Institute, National University of Ireland, Galway, Ireland.* (3) *Department of Applied Environmental Science, Stockholm University, Sweden*
- 3B.02 Primary Particulate Matter from Ocean going Engines in Southern California Air Basin.** Harshit Agrawal (1,2), William A. Welch (2), J. Wayne Miller (1,2), David R Cocker III (1,2), Philip Fine (3), Aaron Katzenstein (3), Rudy Eden (3), Solomon Teffera (3), (1) *University of California, Riverside,* (2) *CE-CERT, Riverside,* (3) *SCAQMD, Diamond Bar*
- 3B.03 St. Louis Advanced Monitoring Initiative (AMI) Project: Source Sampling and Ambient Monitoring Study Design.** RACHELLE M. DUVALL (1), Gary A. Norris (1), Robert D. Willis (1), Jay R. Turner (2), Rob Kaleel (3), Terry Sweitzer (3), (1) *US Environmental Protection Agency, Research Triangle Park,* (2) *Washington University, St. Louis,* (3) *Illinois Environmental Protection Agency, Springfield*
- 3B.05 Impact of a Large Steel Facility on PM_{10-2.5} in Granite City, IL.** ROBERT D. WILLIS (1), Rachelle M. Duvall (1), Gary A. Norris (1), Teri L. Conner (1), Jay R. Turner (2), Rob Kaleel (3), Terry Sweitzer (3), Roger West (4), Traci Lersch (4), Gary Casuccio (4), (1) *US EPA,* (2) *Washington University,* (3) *Illinois EPA,* (4) *R.J. Lee Group, Inc.*



- 3B.06 Particle Size Distribution and Chemical Composition in and around a Swine Operation.** PHILIP J. SILVA (1), Randal S. Martin (2), Kori Moore (3), and Mark Erupe (1), (1) *Department of Chemistry and Biochemistry, Utah State University, Logan, Utah* (2) *Department of Civil and Environmental Engineering, Utah State University, Logan, Utah* (3) *Space Dynamics Laboratory, North Logan, Utah*

3C BIODEFENSE
SEBASTIAN J/K

- 3C.01 Bioaerosol Removal and Disinfection by Microwave Assisted Nanofiber Filtration.** Qi Zhang (1), Myung-Heui Woo (1), James Welch (2), Hyoungjun Park (3), Chang-Yu Wu (1), Wolfgang Sigmund (3), (1) *Department of Environmental Engineering Sciences, University of Florida* (2) *Department of Biology, University of Florida* (3) *Department of Materials Science and Engineering, University of Florida*
- 3C.02 Use of Zero-Valent Iron Nanoparticles in Inactivating Biological Agents.** Minghui Diao and MAOSHENG YAO, *Peking University, Beijing, China*
- 3C.03 Protection Factors Provided by Civilian Clothing Exposed to a Non-Biological Simulant During a Staged Evacuation.** JONATHAN THORNBURG, Andrew Dart, Jeremy Seagraves, and Doug VanOsdell, *RTI International*
- 3C.04 An Electrodynamic Balance for the Spectroscopic Study of Bioaerosol Fate in Simulated Ambient Environments.** Joshua L. Santarpia, SHANNA RATNESAR, Kelly Brinkley, David Kitchen, Jerome Gilberry, Jason Quizon, *Johns Hopkins University Applied Physics Laboratory*
- 3C.05 Method and experimental facility for evaluating the inactivation of aerosolized microorganisms by a halogen-enriched filled nanocomposite material.** SERGEY A.



GRINSHPUN (1), Atin Adhikari (1), Chunlei Li (1), Tiina Reponen (1), Mirko Schoenitz (2), Edward Dreizin (2), Mikhaylo Trunov (3), (1) *University of Cincinnati, Cincinnati, OH*; (2) *New Jersey Institute of Technologies, Newark, NJ*; (3) *Reactive Metals, Inc., Edison, NJ*

3C.06 Modeled Deposition of *B. anthracis* in the Human Lung. JACKY A. ROSATI (1), James S. Brown (2), (1) *U.S. Environmental Protection Agency (US EPA), National Homeland Security Research Center (NHSRC)*; (2) *U.S. Environmental Protection Agency (US EPA), National Center for Environmental Assessment (NCEA)*

3C.07 The Comparison of Different Strains of Avian Influenza A (H5N1) Infectivity at Mice and Chickens Aerosol Challenge. Oleg V. Pyankov (1,2), ALEKSANDR S. SAFATOV (1), Sergei A. Kiselev (1), Olga G. Pyankova (1), Artem A. Sergeev (1), Olga K. Demina (1), Aleksandr A. Sergeev (1), Aleksandr N. Sergeev (1), Ilya G. Drozdov (1), Igor E. Agranovski (2), (1) *Federal State Research Institution State Research Center of Virology and Biotechnology "Vector", Novosibirsk Region, Koltsovo, Russia* (2) *Griffith School of Engineering, Griffith University, Brisbane, Australia*

3C.08 The Effects of Gas-phase Ozone on *Bacillus* Spores. JOSHUA L. SANTARPIA, Shanna Ratnesar, Jason Quizon, Albert Paul, George Murray, Nathan Hagan and Miquel Antoine, *Johns Hopkins University Applied Physics Laboratory*

3C.09 Allergenic Potency of *Alternaria alternata* and *Aspergillus fumigatus* Spores is Influenced by Growth Temperature. SWEE YANG LOW (1), Maosheng Yao (2), Jordan Peccia (1), (1) *Yale University*, (2) *Peking University*

3C.10 Relation of Aerodynamic Size and (1-3)-beta-D-glucan of Airborne Fungal Spores under Thermal Heat Exposure. Jae Hee Jung (1), Jung Eun Lee (2), Byung Uk Lee (3), Sang Soo



Kim (1), (1) *Korea Advanced Institute of Science and Technology, South Korea*, (2) *Seoul National University, South Korea*, (3) *Konkuk University, South Korea*

3D NANOPARTICLES**SEBASTIAN J/K**

- 3D.01** **Effects of Electrostatic and Capillary Forces and Surface Deformation on Particle Detachment in Turbulent Flows.** XINYU ZHANG and Goodarz Ahmadi, *Clarkson University*
- 3D.02** **Morphology Control of Particles Produced by a Dual-capillary Electrospraying System.** FAN MEI (1), Da-Ren Chen (2), (1) *Washington University in St. Louis*, (2) *Washington University in St. Louis*
- 3D.04** **Preparation of Unsintered BaFe₁₂O₁₉ fine particles using an Alcohol Assisted Spray Pyrolysis Method.** Hye Moon Lee, Ji-Hun Yu, Yong-Jin Kim, *Korea Institute of Materials Science*
- 3D.05** **Synthesis of TiO₂ nanoparticles and Films in Stagnation-point Swirl Flames.** Junjing. Wang, Shuiqing Li*, Bin Ma, Qiang Song, Qiang Yao, *Key Laboratory for Thermal Science and Power Engineering of Ministry of Education, Department of Thermal Engineering, Tsinghua University, Beijing, 100084, CHINA*
- 3D.06** **Aerosol-Gel Synthesis and Characterization of Pt-SiO₂ Catalysts for Hydrocarbon Selective Catalytic Reduction of Gaseous Nitrogen Oxides.** JAE-WOOK JUNG, Donggeun Lee, *Pusan National University, South Korea*
- 3D.07** **Pt Coating on Flame-Generated Carbon Particles and Their Application for a Catalytic Electrode of Proton Exchange Membrane Fuel Cell (PEMFC).** IN DAE CHOI, Donggeun Lee, *Pusan National University, South Korea*

TUESDAY



- 3D.08 Generation of Zinc and Zinc Oxide Nanoparticles with an Aerosol Flow Reactor.** HungMin Chein, Sheng-Chang Tsai, Yu-Du Hsu, *Energy and Environment Research Laboratories, Industrial Technology Research Institute, Chutung, Hsinchu, Taiwan*
- 3D.09 Film Formation Using Atmospheric Aerosol Spray Method.** Hoomi Choi(1), Kwangsu Kim(1), Heesung Choi(2), Hyunho Shin(2), Miyang Kim(2), Taesung Kim(1), (1) *Sungkyunkwan University, Suwon* (2) *Samsung Electro Mechanics Corporation, Suwon*
- 3D.10 Controlled synthesis of ZnO nanoparticles by gas phase reaction.** HISASHI YAMAMOTO(1), T. Charinpanitkul(2), P. Nartpochananon(2), T. Seto(1), Y. Otani(1), (1) *Kanazawa University, kanazawa JAPAN* (2) *Chulalongkorn University, Bangkok Thai*
- 3D.11 Particles generation in laser ablation plasma.** Shun Kuroda, Shinishi Kaihara, Motoaki Adachi, *Osaka Prefecture University*
- 3D.12 Computational Modeling of Silicon Nanoparticle Synthesis in a Laser-Driven Reactor.** Hongyi Dang, MARK T. SWIHART, *Chemical and Biological Engineering, The University at Buffalo (SUNY)*
- 3D.13 Carbon-Nanotube-Assisted Transmission Electron Microscopy Characterization of Aerosol Nanoparticles.** SHUN MAO, Ganhua Lu, Junhong Chen, *University of Wisconsin-Milwaukee*
- 3D.14 Dustiness Testing of Nanoparticles.** PATRICK O'SHAUGHNESSY, Mitchell Kang, *University of Iowa*
- 3D.15 Flame Synthesis of Fe-Doped TiO₂ Nanoparticles and Decomposition of NO_x.** HANKWON CHANG (1), Hee Dong Jang (1), Sun Kyung Kim (1, 2), Jin Hoon Choi (2), (1) *Korea Institute of Geoscience and Minerals Resources, (2) Sogang University, Korea*



- 3D.16 TiO₂Zr; N Photocatalysts: Synthesis, Characterizations and Activity for NO Degradation under Visible-light.** JI-YOUNG KIM(1), YOUNG-HYUCK CHO(1), HEE-SU LIM(1), HEE-DONG JANG(2), HAN-KWON CHANG(2), BYOUNG-GON KIM(2), TAE-OH KIM(1), (1) *Kumoh National Institute of Technology, Korea*, (2) *Korea Institute of Geoscience and Mineral Resources, Korea*

3E COMBUSTION AEROSOLS
SEBASTIAN J/K

- 3E.01 Gravimetric measurements of 2007 Diesel engine exhaust: Filter sampling.** JACOB SWANSON, David Kittelson, *University of Minnesota, Minneapolis*
- 3E.02 Gravimetric measurements of 2007 Diesel engine exhaust: Filter mass measurements.** JACOB SWANSON (1), David Kittelson (1), David Dikken (2), (1) *University of Minnesota, Minneapolis* (2) *Measurement Technology Laboratories, Minneapolis*
- 3E.03 Size Distributed Chemical Composition of Fine Particles Emitted from Burning Asian Coals.** ZOHIR CHOWDHURY (1), James J. Schauer (2), Lynn G. Salmon (3), David Wagner (4), Adel F. Sarofim (4), JoAnn Lighty (4), Late Glen R. Cass (5,6), Armistead G. Russell (6), (1) *Graduate School of Public Health, San Diego State University, San Diego, CA 92182-4162* (2) *Water Chemistry Program, University of Wisconsin-Madison* (3) *Environmental Engineering Sciences, California Institute of Technology* (4) *Department of Chemical Engineering, University of Utah* (5) *School of Earth & Atmospheric Sciences, Georgia Institute of Technology*, (6) *Department of Civil and Environmental Eng., Georgia Institute of Technology*
- 3E.04 Effects of Metallic Additives on Oxidation Characteristics of Particulate Mtters Emitted from Diesel Engine.** YONGHO KIM, Donggeun Lee, *Pusan National University, South Korea*



- 3E.05 Chemical Characteristics of Diesel Exhaust Particles Collected During Inhalation Exposure Studies.** SEUNG-HYUN CHO (1), William P. Linak (1), Dennis G. Tabor (1), Jost O.L. Wendt (2), Q. Todd Krantz (3), M. Ian Gilmour (3), (1) *National Risk Management Research Laboratory, U.S. EPA*, (2) *Department of Chemical Engineering, University of Utah*, (3) *National Health & Environmental Effects Research Laboratory, U.S. EPA*
- 3E.06 Investigating the Effects of Biodiesel / Diesel Fuel Blends on the Performance of Diesel Particulate Filters.** SUSAN KAPETANOVIC; (1), Greg Evans (2), Jim Wallace (1), (1) *Department of Mechanical Engineering, University of Toronto, Ontario, Canada*, (2) *Southern Ontario Centre for Atmospheric Aerosol Research, University of Toronto, Ontario, Canada*
- 3E.07 Electrostatic Removal of Diesel Particulate Matter.** Ali Farnoud (1), Chenbo Huang (2), Al Armendariz (2), (1) *Trinity Consultants*, (2) *Southern Methodist University*
- 3E.08 The Effect of Changing Gas Composition on Emission Factors Measured from the Combustion of Natural Gas in Residential Appliances.** Toshifumi Hotchi, Douglas Black, Brett Singer, MELISSA LUNDEN, Lawrence Berkeley National Laboratory, *Environmental Energy Technology Division, Berkeley*
- 3E.09 Design, Development and Characterization of a Novel Benchtop Diesel Exhaust Simulator.** CHRISTOPHER BARE, Kelly Brinkley, Neal Baker, Shanna Ratnesar, Joshua L. Santarpia, *Johns Hopkins University Applied Physics Laboratory*
- 3E.10 Effect of Boiler Loads on the Particle Extinction Coefficient at a Coal-Fired Power Plant with Flue Gas Desulfurization.** Wen-Fu Tu(1), Jenn-Der Lin(1) and Yee-Lin Wu(2), (1) *Department of Mechanical Engineering, National Chao Tung University, Hsinchu, Taiwan*. (2) *Department of Environmental Engineering, National Cheng Kung University, Tainan, Taiwan*.



3F AEROSOL INHALATION AND TOXICOLOGY
SEBASTIAN J/K

- 3F.01 Quantitative Analysis and Design of Spray Inhaler Mouthpieces Based on a Concurrent CFD and Experimental Approach.** P. WORTH LONGEST and Michael Hindle, *Virginia Commonwealth University*
- 3F.02 Comparison of Different Aerosolization Methods for Inhalatory Delivery of Nano-sized Drug Carriers.** SATYANARAYANAN SESHADRI, Taewon Han, Olga Garbuzenko, Tamara Minko, and Gediminas Mainelis, *Rutgers University, New Brunswick, NJ*
- 3F.03 Biodistribution and Effects of Gold Nanoparticles after Inhalation Exposure.** Suresh Kumar Balasubramanian (1), Wei-Yi Ong (2), Lanry Yung L.Y. (3), Liya E. Yu (4), (1) *Environmental Science & Engineering, National University of Singapore, Singapore*, (2) *Anatomy & Office of Life Sciences, National University of Singapore, Singapore*, (3) *Chemical & Biomolecular Engineering, National University of Singapore, Singapore*, (4) *Environmental Science & Engineering, National University of Singapore, Singapore*
- 3F.04 Nanoparticle Agglomerate Dispersion in Biologically Relevant Fluids.** DAVID G. NASH, Owen R. Moss, and Brian A. Wong, *The Hamner Institutes for Health Sciences, RTP, NC*
- 3F.05 Aerosolization and Characterization of Multi-Walled Carbon Nanotubes for Inhalation Studies.** BEAN T. CHEN, Walter McKinney, Diane Schwegler-Berry, Vincent Castranova, David G. Frazer, *NIOSH, Morgantown*
- 3F.06 In-vitro Selection of DNA Aptamers for (1->3)-beta-D Glucans.** SWEE YANG LOW, Jordan Peccia, *Yale University*
- 3F.07 Study of nanoparticle agglomerate dispersion in biologically relevant solutions.** DAVID G. NASH, Owen Moss, Brian Wong, *The Hamner Institutes for Health Sciences*



- 3F.08 Characterization of TiO₂ Nanoparticles for In Vitro Models of Toxicity.** ZHICHENG WEI, Lupita D. Montoya, *Rensselaer Polytechnic Institute, Troy NY*
- 3F.09 Chemopreventive effect of aerosolized drugs on lung tumorigenesis in A/J mice.** Huijing Fu, Ruth Chen, and Da-Ren Chen, *Washington University in St. Louis*
- 3F.11 Estimation of Regions of Sensitivity to Smooth-Muscle Agonists Inhaled by Balb/c, B6C3F1, and AJ mice: Impact of Pulmonary Morphometry.** Owen Moss (1), Michael Oldham (2), (1) *The Hamner Institutes for Health Sciences*, (2) *University of California, Irvine.*

3G PM CONTROL

SEBASTIAN J/K

- 3G.01 Discharge Characteristics of Wet Electrostatic Precipitators.** DONG KEUN SONG (1), Sang Hyun Jeong (1), Yong Jin Kim (1), Sung Hoon Shim (1), Jongoung Won (2), (1) *Korea Institute of Machinery and Materials, Daejeon, Republic of Korea*, (2) *KC Cottrell Co., Seoul, Republic of Korea*
- 3G.02 Enhanced removal efficiency of high temperature ESP by using additional ion sources.** YONG JIN KIM, Hakjoon Kim, Bangwoo Han, Dong Keun Song, Sang Hyun Jeong, Sung Hoon Shim, Won Seock Hong, Wan Ho Shin, *Korea Institute of Machinery and Materials, Daejeon, Republic of Korea*
- 3G.03 Carbon Fiber Unipolar Charger for Fine and Ultra-fine Aerosol Particles with Negligible Ozone Generation.** BANGWOO HAN (1,2), HAK-JOON KIM (1), YONG-JIN KIM (1), CONSTANTINOUS SIOUTAS (2), (1) *Environmental System Research Division, Korea Institute of Machinery and Materials* (2) *Department of Civil and Environmental Engineering, University of Southern California*



- 3G.04 Fabrication of Bag Filter Media for High Temperature Use.** MYONG-HWA LEE, Byung-Hyun Park, Sang-Bum Kim and Gyung-Soo Kim, *Korea Institute of Industrial Technology*
- 3G.05 Wood Pulp Based Filters for High Efficiency Removal of Submicrometer Aerosol Particles.** Biljana Grgic (1), Jingliang Mao (2), WARREN H. FINLAY (1), John Kadla (2) and Richard J. Kerekes (2), (1) *University of Alberta, Edmonton* (2) *University of British Columbia, Vancouver*
- 3G.06 Characteristics of Dust Particle Emission through Bag Filters.** HYUN-SEOL PARK, Kyoung Soo Lim, *Korea Institute of Energy Research, Korea*
- 3G.07 Comparison of Nanoparticle Filtration Performance of NIOSH-approved and European Certified Filtering Facepiece Respirators.** SAMY RENGASAMY (1), Benjamin Eimer (2), Ronald Shaffer (1), (1) *NIOSH/NPPTL, Pittsburgh, PA* (2) *EG@G Technical Services, Inc., Pittsburgh, PA*
- 3G.08 Increase of Collection Efficiency in Fibrous Filter Media Through Magnetic Alignment of Elongated Aerosol Particles.** CHRISTOPHER LAM W.H. Finlay, *University of Alberta, Canada*
- 3G.09 Performance Evaluation of Virtual Cyclones for Dust Removal.** HYUN-SEOL PARK, Kyoung Soo Lim, *Korea Institute of Energy Research, Korea*
- 3G.10 Analytic solutions of cyclone efficiency for polydispersed aerosol.** C. H. JUNG (1), H. S. PARK (2), (1) *Kyungin Women's College, Incheon, Korea* (2) *Korea Institute of Energy Research, Daejeon, Korea*
- 3G.11 Particle Removal of Scrubbers with Different Vortex Chambers.** KYOUNGSOO LIM, Sihyun Lee, *Hyunseol Park, Korea Institute of Energy Research, Daejeon*



- 3G.12 Particle Size Distribution Measurement in Exhaust Gases of Burn-Wet Scrubber for Semiconductor Fabrication Environment.** Jinhong Ahn (1), Kitae Kang (1), Jinuk Yoon (1), Yongtaek Kwon (1), Jinrok Do (2), Suckhoon Kang (2), Jungsung Hwang (2), Kisoo Jeon (3), Kangho Ahn (3), (1) *HCT Co., Ltd.* (2) *Samsung Electronics Co., Ltd.* (3) *Hanyang University*
- 3G.13 The Consistent and Reproducible Generation of Test Aerosols.** NEAL BAKER, Christopher Bare, Michael Wagner and Joshua L. Santarpia, *Johns Hopkins University Applied Physics Laboratory*
- 3G.14 Aerosol Spectrometers.** Steven D. Kochevar, *Particle Measuring Systems*
-

3H URBAN AEROSOLS: CHARACTERIZATION SEBASTIAN J/K

- 3H.01 Specification of Lead and Cadmium in air and soil of the Mitrovica area.** Prof. Dr. Sc. KADRI BERISHA, Mr. Sc. Afrim Sylva Ass. Prof., Prof. Dr. Sc. Emin Karakashi, *University of Prishtina, Faculty of Mining and Metalurgy 40000 Mitrovic*
- 3H.02 Aerosol Growth Events Observed at Urban and Rural Locations in New York.** MIN-SUK BAE (1), James J. Schwab (1), Olga Hogrefe (1), G. Garland Lala (1), Brian Frank (2), Qi Zhang (1), Kenneth L. Demerjian (1), (1) *Atmospheric Sciences Research Center, University at Albany, State University of New York*, (2) *Air Resources Division, Bureau of Mobile Sources, New York State Department of Environmental Conservation, Albany, New York*
- 3H.03 A Multiyear Study of Ultrafine Particle Number Size Distributions and Growth Events in Rochester, NY.** JOHN KASUMBA (1), David Chalupa (2), Mark Utell (2), Philip Hopke (1), (1) *Clarkson University, Potsdam NY* (2) *University of Rochester Medical Center, Rochester NY*



- 3H.04 Relating ground-based aerosol size distributions and vertical mixing: Mexico City and other case studies.** ALICIA PETTIBONE, William Eichinger, Jameson Schoenfelder, Charles Stanier, *University of Iowa*
- 3H.05 Long-term characteristics of major chemical constituents in PM_{2.5} measured in South Korea.** Jin-Hee Jung, Young-Ji Han, Kangwon *National University, Chuncheon, South Korea.*
- 3H.06 Causes and Effects of Solid Fuel Use in Small Settlements in Central and Eastern Europe – Case Study from The Czech Republic.** MARTIN BRANIS, Ludmila Anelova, Chareles *University in Prague, Faculty of Science, Institute for Environmental Studies, Prague, Czech Republic*
- 3H.07 Influence Of Cooking Activities On The Urban And Suburban Particle Concentration By The Study Of Organic Compounds.** Olivier Delhomme Maurice Millet, *Universite de Strasbourg I / CNRS, France*
- 3H.08 Dicarboxylic Acids In The Particle Phase In Different Locations In East Of France. Temporal And Seasonal Variations.** Olivier Delhomme Maurice Milet, *Universite de Strasbourg I / CNRS, France*
- 3H.09 Influence Of Season And Location On Pm Size And Composition In Central California.** WALTER A HAM, Michael J Kleeman, *University of California, Davis*
- 3H.10 Regional Policy Implications for Future Air Quality and Human Health in California's San Joaquin Valley.** Mark Hixson, Michael J. Kleeman, Department of Civil and Environmental Engineering, *University of California, Davis*
- 3H.11 Rapid Shift in Toxicity Due to Gas-Particle Interactions in the Atmosphere.** SETH EBERSVILLER (1), Kim de Bruijne (1), Ken G Sexton (1), Cassie Olenick (1), Ilona Jaspers (2),



Harvey E Jeffries (1), (1) *University of North Carolina, Chapel Hill*, (2) *Center for Environmental Medicine, Asthma, and Lung Biology, Chapel Hill*

- 3H.12 Impact of New Airport on Regional Air Quality : A Case Study from India.** A. Mishra (1), M. Tembhare (1), J.S. Pandey (1), Rakesh Kumar (2) and S.R. Wate (1), (1) *National Environmental Engineering Research Institute (NEERI), NAGPUR, India* (2) *Mumbai Zonal Laboratory (NEERI), 89B, Dr. A.B. Road, Worli, Mumbai, India*

3I CARBONACEOUS AEROSOLS: AMBIENT EXPERIMENTS

SEBASTIAN J/K

- 3I.01 Altitude Profiles of Biogenic Components of Atmospheric Aerosol in Southwestern Siberia and Element Composition of Aerosol.** Galina A. Buryak (1), ALEKSANDR S. SAFATOV (1), Irina S. Andreeva (1), Sergei E. Olkin (1), Irina K. Peznikova (1), Aleksandr N. Sergeev (1), Boris D. Belan (2), Mikhail V. Panchenko (2), Denis V. Simonenkov (2), Gennadii N. Tolmachev (2), (1) *Federal State Research Institution State Research Center of Virology and Biotechnology, Novosibirsk Region, Koltsovo, Russia* (2) *Institute of Atmospheric Optics SB RAS, Tomsk, Russia*
- 3I.02 Estimating Contributions of Primary Biomass Burning to Fine Particulates in Ambient Aerosol in the Western United States.** AMANDA S. HOLDEN (1), Amy P. Sullivan (1), Leigh A. Patterson (1), Sonia Kreidenweis (1), Jeffrey L. Collett, Jr. (1), Bret Schichtel (2), William Malm (2), (1) *Department of Atmospheric Science, Colorado State University* (2) *National Park Service/CIRA, Colorado State University*
- 3I.03 Nationwide impacts by fire emissions in the United States in summer 2002.** Tao Zeng, Yuhang Wang, *Georgia Institute of Technology*



- 3I.04 An Alternative Method for Determining the Impact of Biomass Burning.** AMY P. SULLIVAN (1), Neil Frank (2), Jeffrey L. Collett, Jr. (1), (1) *Colorado State University*, (2) *US Environmental Protection Agency*
- 3I.05 Highly Time-Resolved Ambient Measurements of Organic Molecular Markers in Pittsburgh Using Thermal Desorption Aerosol GC-MS (TAG).** ANDREW T. LAMBE (1), Jennifer M. Logue (1), Allen L. Robinson (1), Neil M. Donahue (1), Nathan M. Kreisberg (2), Susanne V. Hering (2), David R. Worton (3), Allen H. Goldstein (3), (1) *Carnegie Mellon University*, (2) *Aerosol Dynamics Inc.*, (3) *University of California, Berkeley*
- 3I.06 Chemical Aging of Ambient Organic Aerosol by Hydroxyl Radicals.** Ingrid George, Jay Slowik, Jonathan Abbatt, *University of Toronto*
- 3I.07 Characteristics of Carbonaceous Aerosols during Winter in Kathmandu, Nepal.** Kabindra M. Shakya, Robert J. Griffin, *University of New Hampshire*
- 3I.08 Seasonal Variations of Levoglucosan in the NYC Area.** HARMONIE HAWLEY (1), Min Li (1), Monica Mazurek (1), Steve McDow (2), Dirk Felton (3), Oliver Rattigan (3), James Schwab (4), Ken Demerjian (4), (1) *Civil & Environmental Engineering Department, Rutgers The State University of NJ, Piscataway, NJ*, (2) *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC*, (3) *Division of Air Resources, NY State Department of Environmental Conservation* (4) *Atmospheric Sciences Research Center, University at Albany - State University of NY*
- 3I.09 Aerosol Carbon Measurements Using Different Techniques in New York.** OLIVER RATTIGAN (1), Dirk Felton (1), James Schwab (2), Min-Suk Bae (2), Kenneth Demerjian (2), (1) *New York State Department of Environmental*



Conservation, Division of Air Resources, 625 Broadway, Albany, NY (2) Atmospheric Sciences Research Center, University at Albany, State University of New York, Albany, NY

- 3I.10 Intercomparison of OC/EC Data at Two PM_{2.5} Monitoring Networks in the U.S.** JAMES FLANAGAN, Max R. Peterson, Larry Michael, R.K.M. Jayanty, *RTI International, Research Triangle Park, NC*
- 3I.11 Elemental Carbon Concentrations in the Northeastern United States, 1979–2007: Implications to Global Warming.** Tanveer Ahmed (1), Abdul J Khan (2), Liaquat Husain (1,2), *(1) Department of Environmental Health Sciences, State University of New York, Albany, NY. (2) New York State Department of Health, Wadsworth Center, Empire State Plaza, Albany, NY.*
- 3I.12 Intra-community spatial variation of size-fractionated organic compounds in Long Beach, CA.** Margaret A. Krudysz (1), Philip M. Fine (2), Michael P. Hannigan (3), *(1) Department of Environmental Health Sciences, University of California - Los Angeles, 650 Young Drive South, Los Angeles, CA (2) Department of Civil and Environmental Engineering, University of Southern California, 3620 South Vermont Avenue, Los Angeles, CA. (3) Department of Mechanical Engineering, College of Engineering and Applied Science, University of Colorado, Boulder, CO 80309, USA.*
- 3I.13 Characterization of Organic Aerosol with a High Resolution Time-of-Flight Aerosol Mass Spectrometer during the Amazonian Aerosol Characterization Experiment (AMAZE-08).** QI CHEN (1), Delphine Farmer (2), James Allan (3), Stephan Borrmann (4), Hugh Coe (4), Niall Robinson (4), Joel Kimmel (2), Johannes Schneider (4), Soeren Zorn (4), Paulo Artaxo (5), Jose Jimenez (2), Scot Martin (*) (1), *(1) Harvard University, USA, (2) University of Colorado,*



Boulder, USA, (3) University of Manchester, (4) Max Planck Institute for Chemistry, Mainz, Germany, (5) University of Sao Paulo, Brazil, () scot_martin@harvard.edu*

3J ATMOSPHERIC AEROSOL CONTROL POLICY SEBASTIAN J/K

- 3J.02 Cost Analysis of Impacts of Climate Change on Regional Ozone and PM_{2.5}.** Kuo-Jen Liao (1) Efthimios Tagaris (1) Kasemsan Manomaiphiboon (1,3) Jung-Hun Woo (2,4) Praveen Amar (2) Shan He (2) Armistead G. Russell (1), (1) *School of Civil & Environmental Engineering, Georgia Institute of Technology, Atlanta, GA, USA* (2) *Northeast States for Coordinated Air Use Management (NESCAUM), Boston, MA, USA* (3) *Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Bangkok, Thailand* (4) *Department of Advanced Technology Fusion, Konkuk University, Seoul, Korea*
- 3J.03 A Conceptual Model for PM-2.5 High Concentration Days over Southeast Michigan.** JAY TURNER, *Washington University in St. Louis*

TUESDAY



Tuesday

2:45 PM - 3:15 PM

BREAK

SEBASTIAN J/K

Tuesday

3:15 PM - 4:15 PM

SESSION 4: PLATFORM

**4A CARBONACEOUS AEROSOLS: MEASUREMENTS
VS MODELS**

SEBASTIAN L

Annmarie Carlton and Craig Stroud, chairs

3:15

4A.01 Organic Aerosol in the Greater-Edmonton Air Shed during the PrAIRie 2005 Field Intensive: Primary and Secondary Components and their NO_x Dependence. CRAIG STROUD (1), Paul Makar (1), Mike Moran (1), Wanmin Gong (1), Brian Wiens (2), John Liggio (1), Shao-Meng Li (1), (1) *Science and Technology Branch, Environment Canada*, (2) *Prairie and Northern Region, Environment Canada*

3:30

4A.02 Modelling Semivolatile PAHs in Canada and the USA. ELISABETH GALARNEAU (1) PAUL A. MAKAR (1) MIRIAM L. DIAMOND (2), (1) *Air Quality Research Division, Environment Canada, Toronto, Canada* (2) *Department of Geography, University of Toronto, Toronto, Canada*

3:45

4A.03 Organic Aerosols in Mexico City: Sources, Formation Processes and Responses to Emission Controls. ALEXANDRA TSIMPIDI (1), Vlassis Karydis(1), Miguel Zavala (2), Wenfang Lei (2), Ingrid Ulbrich (3), Jose Jimenez (3), Luisa Molina (2), Spyros Pandis (1), (1) *Department of Chemical Engineering, University of Patras, Greece*, (2) *Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute*



of Technology (MIT), and Molina Center for Energy and the Environment (MCE2), USA, (3) Department of Chemistry and CIRES, University of Colorado, Boulder, CO, USA

4:00

- 4A.04 Secondary Organic Aerosol Modeling in CMAQ and Comparisons with Ambient Tracer Data.** ANNMARIE G. CARLTON (1), Prakash V. Bhave (1), Sergey Napelenok (1), Golam Sarwar (2), George Pouliot (1), Edward O. Edney (2), Tadeusz E. Kleindienst (2), John O. Offenberg (2), Michael Lewandowski (2), Mohammed Jaoui (3), Marc Houyoux (4), (1) NOAA* In partnership with the U.S. EPA, Research Triangle Park, (2) U.S. EPA - NERL, Research Triangle Park, (3) Alion Science and Technology, Research Triangle Park, (4) U.S. EPA - OAQPS, Research Triangle Park

TUESDAY

4B AEROSOLS, CLOUDS AND CLIMATE I SEBASTIAN I-1

Mark Jacobson and Athanasios Nenes, chairs

3:15

- 4B.01 On the link between carbon dioxide and particulate matter mortality.** MARK Z. JACOBSON, *Stanford University*

3:30

- 4B.02 Variable Moment General Dynamic Equations for Global and Regional Aerosol Modeling.** Boris Grits (1) and Anthony Wexler (1,2,3), (1) *Department of Mechanical and Aeronautical Engineering, (2) Department of Civil and Environmental Engineering, (3) Department of Land, Air and Water Resources*

3:45

- 4B.03 Studying Climate-Chemistry-Aerosol-Cloud-Radiation Feedbacks in North America and Asia using Online-Coupled WRF/Chem.** YANG ZHANG, Xin-Yu Wen, Yao-Sheng Chen, Ying Pan and Xiao-Ming Hu, *North Carolina State University, Raleigh, NC*



4:00

- 4B.04 Development of a Framework for the Parameterization of Aerosol Indirect Effects on Cirrus Formation in Large-Scale Simulations.** DONIFAN BARAHONA (1), ATHANASIOS NENES (1), (2), (1) *School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA* (2) *School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta*

4C AEROSOL INHALATION AND TOXICOLOGY SEBASTIAN I-2

John Veranth and Chong Kim, chairs

3:15

- 4C.01 Do Nanoparticle Activity and Toxicity Depend upon Size?** JINGKUN JIANG (1), Gunter Oberdorster (2), Pratim Biswas (1), (1) *Washington University in St. Louis*, (2) *University of Rochester*

3:30

- 4C.02 Generation of Reactive Oxygen Species by Urban Particulate Matter.** Chuautemoc Arellanes (1) Daniel Curtis (2) and SUZANNE E. PAULSON (2), (1) *Now at Environ Corp.* (2) *Atmospheric and Oceanic Sciences Department, University of California at Los Angeles, CA*

3:45

- 4C.03 Simulated Transport and Deposition of Ellipsoidal Fibers with Application to Human Breathing.** KEVIN T. SHANLEY (1), Goodarz Ahmadi (1), Philip K. Hopke (2), and Yung-Sung Cheng (3), (1) *Department of Mechanical and Aeronautical Engineering, Clarkson University, Potsdam, NY* (2) *Department of Chemical and Biomolecular Engineering, Clarkson University, Potsdam, NY* (3) *Lovelace Respiratory Research Institute, Albuquerque NM*

4:00

- 4C.04 Hybrid Modeling for Respiratory Dose Estimation of Inhaled Particles.** CHONG S. KIM (1), Shu-Chieh Hu (2), Jung-Il Choi (3), (1) *USEPA National Health and Environmental Effects Research Laboratory, RTP*, (2) *IIT Research Institute, Chicago*, (3) *North Carolina State University, Raleigh*



4D COMBUSTION AEROSOLS I
SEBASTIAN I-3

Pratim Biswas and Tami Bond, chairs

3:15

- 4D.01 Pilot-Scale Study of Particle Size Distributions and Particulate Emission Control Strategies for a Pulverized Coal Combustor.** YING LI (1), ACHARIYA SURIYAWONG (1), MICHAEL DAUKORU (1), YE ZHUANG (2), PRATIM BISWAS (1), (1) *Washington University in St. Louis*, (2) *University of North Dakota*

3:30

- 4D.02 A Performance Comparison of Water and Butanol Based CPCs When Examining Diesel Exhaust Aerosol.** LUKE FRANKLIN, Anil Bika, David B. Kittelson, *University of Minnesota*

3:45

- 4D.03 Particle Emissions of Small Non-Road Engines Fueled by Ethanol Blends.** TERESA L. BARONE, John M. Storey, Brian H. West, John F. Thomas, Tim J. Theiss, *Oak Ridge National Laboratory, Fuels, Engines and Emissions Research Center, Knoxville, TN*

4:00

- 4D.04 Fine Particle Emissions From Engines Operating on Biodiesel Derived From Different Feedstocks.** MARISSA MIRACOLO (1), Eric Lipsky (2), Frederik Betz (1), David Archer (1), Allen Robinson (1), (1) *Carnegie Mellon University*, (2) *Penn State Greater Allegheny*

4E PM CONTROL APPLICATIONS
SEBASTIAN I-4

David Leith and Jay Almlie, chairs

3:15

- 4E.01 Modeling and simulation of mercury condensation in turbulent flows.** Michael Buhlmann, Sean Garrick, *University of Minnesota, Minneapolis, MN*

TUESDAY



3:30

4E.02 Effect of Selective Catalytic Reduction Unit on Emissions from Marine Auxiliary Engine.

Varalakshmi Jayaram (1,2), Abhilash Nigam (1,2,3), William A. Welch (2), J. Wayne Miller (1,2), David R Cocker III (1,2), (1) *University of California, Riverside*, (2) *CE-CERT, Riverside* (3) *Currently at Johnson Matthey, Philadelphia*

3:45

4E.03 Development of a Mini- Cyclone for Miniaturized Particle Devices.

Ta-Chih Hsiao (1), Da-Ren Chen (1) and Sang Young Son (2), (1) *Washington University in St. Louis, St. Louis*, (2) *University of Cincinnati, Cincinnati*

4:00

4E.04 Air Cleaner Effects on Improving Indoor Air Quality.

Ying Xu (1), Suresh Raja (1), Andrea R. Ferro (1), Peter A. Jaques (1), Sean McMahon (1) Yang Qi (1), Philip K. Hopke (1), Cheryl Gressani (2), Larry E. Wetzel (2), (1) *Clarkson University*, (2) *2Air Innovations, Inc, North Syracuse*

Tuesday

4:30 PM - 5:30 PM

AAAR ANNUAL BUSINESS MEETING
SEBASTIAN L

Tuesday

5:30 PM - 7:00 PM

CAREERS WORKSHOP
SEBASTIAN L

Tuesday

6:00 PM - 8:00 PM

EXHIBITORS' RECEPTION (EXHIBITS OPEN)
SEBASTIAN J/K



October 20–24, 2008 • Rosen Shingle Creek • Orlando, Florida

Wednesday

8:00 AM - 9:15 AM

PLENARY II

SEBASTIAN L

8:00 From Molecules to Nanodroplets: Nucleation, Growth, and Structure.

Barbara E. Wyslouzil, *The Ohio State University*

9:00 Announcement of the AAAR Fellows

Chris Sorensen, *AAAR President*

Wednesday

9:00 AM - 3:30 PM

EXHIBITS OPEN

SEBASTIAN J/K

Wednesday

9:15 AM - 10:45 AM

SESSION 5: POSTER & CONTINENTAL BREAKFAST

SEBASTIAN J/K

5A SYMPOSIUM:

APPLICATIONS OF THE ELECTROSPRAY

SEBASTIAN J/K

5A.01 Generation of E. coli Bacteria Bioaerosols using Multiplexed Grooved Nozzles Electropray. KYOUNGTAE KIM (1), Byung Uk Lee (2), Sangsoo Kim (1), (1) *Korea Advanced Institute of Science and Technology, Republic of Korea* (2) *Konkuk University, Republic of Korea*

5A.02 Production of PLGA Particles for Drug Delivery Systems using Multiplexed Nonconducting Grooved Nozzles Electropray. KYOUNGTAE KIM, Sangsoo Kim, *Korea Advanced Institute of Science and Technology, Republic of Korea*

WEDNESDAY



- 5A.03** **Decoration of Carbon Nanotubes with Electrospayed Nanocrystals via Electrostatic Force Directed Assembly.** SHUN MAO, Ganhua Lu, Junhong Chen, *University of Wisconsin-Milwaukee*
- 5A.04** **Generation of nanoparticles for drug delivery using the electropray.** BEGONA ALMERIA, Alessandro Gomez, *Yale University*
- 5A.06** **Production of Clusters from Electrospays of Ionic Liquids.** JUAN FERNANDEZ GARCIA, *Yale University*
- 5A.07** **Jet Formation and Continuation Time in the Pulsed Cone-Jet Mode of Electrohydrodynamic Atomization.** JOONGHYUK KIM, Hyuncheol Oh, Sangsoo Kim, *KAIST*
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5B REGIONAL AND REMOTE AEROSOLS SEBASTIAN J/K

- 5B.01** **Measurement of SOA Precursor Compounds in the Nucleation In Forests (NIFTY) Campaign.** Alan Rossner (1), BERNARD CRIMMINS (1), Philip K. Hopke (1), Sara C. Pryor (2), (1) *Clarkson University, Potsdam* (2) *Indiana University, Bloomington*
- 5B.02** **Measurement of Particle Concentrations above a Forest and Surrounding Farmland.** Daniel Valyou (1), Josh Butler (1), Erik Zito (1), Will Hull (1), Jon Hoffman (1), Pier Marzocca (1), SURESH DHANIYALA (1), Philip K. Hopke (1), Rebecca Barthelmie (2), Steve Scott (2), Sara C. Pryor (2), (1) *Clarkson University, Potsdam* (2) *Indiana University, Bloomington*
- 5B.03** **Synoptic Scale Meteorological Controls on Particle Nucleation.** A.M. Spaulding (1), S.C. Pryor (1), R.J. Barthelmie (1,2), (1) *Atmospheric Science Program, Indiana University, Bloomington, IN 47405*, (2) *University of Edinburgh, Edinburgh, UK*
- 5B.04** **Observations of Nucleation-Mode Particle Events and Size Distributions at a Rural New England Site.** PHILIP PLACE, Robert Griffin, Luke Ziemba, *University of New Hampshire*
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- 5B.05 Ammonia Monitoring in the Upper Green River Basin, Wyoming.** FLORIAN M. SCHWANDNER (1), H. James Sewell (2), Jeffrey L. Collett (1), John V. Molenar (3), Cassie M. Archuleta (3), Mark Tigges (3), Alice A. Bote (1), Suresh Raja (1), (1) *Colorado State University, Fort Collins*, (2) *Shell Exploration & Production Company, Denver*, (3) *Air Resource Specialists, Inc., Fort Collins*
- 5B.06 Phase Changes of Ambient Particles in the Southern Great Plains of Oklahoma, USA.** SCOT T. MARTIN (1), Thomas Rosenoern (1), Qi Chen (1), and Donald R. Collins (2), (1) *School of Engineering and Applied Sciences & Department of Earth and Planetary Sciences, Harvard University, Cambridge, Massachusetts, USA* (2) *Department of Atmospheric Sciences, Texas A&M University, College Station, Texas, USA*
- 5B.07 Volcanic Ash Collection and Characterization.** PETER G. RINKLEFF, Catherine F. Cahill, *University of Alaska, Fairbanks, Alaska Volcano Observatory*
- 5B.08 Estimation of the contributions of long-range transport on high concentration events of PM10 in Seoul, Korea.** KYE SEON KIM, Jong Bae Huh, Hyun Sun Kim, Eun Mi Choi, Seung Muk Yi, *Graduate school of public health, Seoul National University*
- 5B.09 Aerosol organic and inorganic chemical composition at a high himalayan station (5079 m asl).** Claudio Carbone (1), M. CRISTINA FACCHINI (1), Stefano Decesari(1), Emanuela Finessi(1), Matteo Rinaldi(1), Lara Giulianelli(1), Paolo Bonasoni(1), Angela Marinoni(1), Paolo Cristofanelli(1), Francescopiero Calzolari(1), Rocco Duchì(1), Paolo Laj (2), Elisa Vuillermoz (3) and Sandro Fuzzi (1), (1) *Institute of Atmospheric Sciences and Climate, CNR, Bologna Italy* (2) *Laboratoire de Meteorologie Physique Observatoire de Physique du Globe de Clermont-Ferrand Universite Blaise Pascal-CNRS* (3) *EV-K2-CNR Committee, Bergamo, Italy*



- 5B.10 Long-term measurement of aerosol at Cape Hedo, Japan using a Q-AMS.** AKINORI TAKAMI (1), Takao Miyoshi (1), Xiaoxiu Lun(1), Shungo Kato (2), Naoki Kaneyasu(3), Akio Shimono(4), Yoshizumi Kajii (2), Shiro Hatakeyama(5), (1)NIES, (2) TMU, (3)AIST, (4)Sanyu Plant Service, (5)TUAT
- 5B.11 Summertime Aerosol Size Distributions at Summit, Greenland.** LUKE ZIEMBA, Robert Griffin, Jack Dibb, and Pieter Beckman, *University of New Hampshire*
- 5B.12 Relationship between Aerosol Optical Properties and Chromatic properties of Perceived Visual Air Quality.** KYUNGWON KIM (1), Young J. Kim (2), (1) *Gyeongju University, Korea*, (2) *Gwangju Institute of Science and Technology, Korea*

5C ENVIRONMENTAL AND OCCUPATIONAL HEALTH AEROSOLS

SEBASTIAN J/K

- 5C.01 Determination of Parameters for Single-Point Particle Sampling in a Nuclear Stack.** HONGSEOK KIM (1), Jae Hee Jung (1), Sang Bok Kim (1), Gak Hyeon Ha (2), Sang Soo Kim (1), (1) *Korea Advanced Institute of Science and Technology, South Korea*, (2) *Korea Electric Power Research Institute, South Korea*
- 5C.02 Dispersal of Coarse Aerosol from Explosive Blast: Field Measurements.** PETR SKREHOT (1), Michaela Havlova (2), Jan Hovorka (3), (1) *Occupational Safety Research Institute, Prague* (2) *T-soft, Prague* (3) *Charles University in Prague*
- 5C.03 Assessment of heavy metal pollution in air and surface waters.** AFRIM SYLA (1), Agron Veliu (2), Bajram Kafexholli(2), (1) *University of Prishtina -Kosova*, (2)*NewCo Ferronikeli Complex L.L.C, Department: Laboratory*
- 5C.04 Association of fine particles (PM_{2.5}) from different sources with daily mortality in Seoul, Korea.** JONG-BAE HEO (1), OkHee Yi (2), BoRa Choi (1), Ho Kim (2), Seung-Muk Yi (1),



1. *Department of Environmental Health, School of Public Health, Seoul National University*
2. *Department of Public Health, School of Public Health, Seoul National University*

- 5C.05 Two Years of Data on Changes of Potential Danger to Humans of Culturable Bacteria in Atmospheric Aerosol of Southwest Siberia.** ALEKSANDR S. SAFATOV (1), Irina S. Andreeva (1), Boris D. Belan (2), Galina A. Buryak (1), Elena K. Emel'yanova (1), Ruprecht Jaenicke (3), Mikhail V. Panchenko (2), Natalya I. Pechurkina (1), Larisa I. Puchkova (1), Aleksandr N. Sergeev (1), (1) *Federal State Research Institution State Research Center of Virology and Biotechnology "Vector", Novosibirsk Region, Koltsovo, Russia*, (2) *Institute of Atmospheric Optics SB RAS, Tomsk, Russia*, (3) *Johannes Gutenberg - Universitat Mainz, Institut fur physik der atmosphere, Mainz, Germany*
- 5C.06 Specification of air pollution from past operations Lead smelters in Mitrovica.** AFRIM SYLA(1), Kadri Berisha(1), Mexhit Musa(2), (1)*University of Prishtina*, (2)*Faculty of Mining and Metalurgy 40000 Mitrovic*
- 5C.07 A Comprehensive Ambient Air Sampling and Characterization Study.** JEROME GILBERRY, Shanna Ratnesar, Jason Quizon, Neal Baker, Christopher Bare, Joshua L. Santarpia, *Johns Hopkins University Applied Physics Laboratory*
- 5C.08 Design and Characterization of a Sequential Cyclone System for the Collection of bulk PM.** Ana M. Rule (1); Alison S. Geyh (1); Juan P. Ramos-Bonilla (1); Jana Mihalic (1), Jared D. Margulies (2); Jana Kesavan (3); Patrick N. Breyse (1), (1) *Johns Hopkins University, Dept. of Environmental Health Sciences*. (2)*Goucher College*, (3) *Aerosol Sciences Team, RDECOM, Edgewood Chemical and Biological Center*.
- 5C.10 Evaluation of Airborne Nanoparticle Release: A Comparison of A Conventional Fume Hood and The Air-Curtain Isolated Hood.** SU-JUNG TSAI*, Earl Ada(1), R.F. Huang(2), Michael J. Ellenbecker(3), **University of Massachusetts*



Lowell, One University Avenue, Lowell, MA
(1)*Campus Materials Characterization Laboratory, University of Massachusetts Lowell, One University Avenue, Lowell, MA*
(2)*Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan, ROC* (3)*Toxics Use Reduction Institute, Department of Work Environment, University of Massachusetts Lowell, One University Avenue, Lowell, MA*

- 5C.11 Occupational Monitoring of Carbonaceous Nanomaterials.** DOUGLAS E EVANS, M. Eileen Birch, Bon Ki Ku and Toni Ruda-Eberenz, *The National Institute for Occupational Safety and Health Division of Applied Research and Technology Cincinnati OH*
- 5C.12 Windtunnel and Numerical Simulations of the Fate of Nanoparticles Released into a Work Environment.** NICHOLAS STANLEY (1), David Y.H. Pui (1), Thomas Kuehn (1), Christof Asbach (2), Thomas Kuhlbusch (2), Heinz Fissan (2), (1) *Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN 55455, USA* (2) *Institute of Energy and Environmental Technology, Duisburg, Germany*
- 5C.13 Cumulative Growth of Mainstream Tobacco Smoke In the Human Lung.** CONOR McGRATH, Colin Dickens, John McAughey, *British American Tobacco*
- 5C.14 Comparison of Particle Size Distribution in the Mainstream Smoke Aerosols of the Narghile Waterpipe and Cigarette.** ALAN SHIHADDEH, Hiba Sheheitli, Nancy Daher, *American University of Beirut*
- 5C.15 Tobacco Smoke Delivery System for Respiratory Research.** Vladimir B. Mikheev (1), Alec K. Hitchman (1), Bruce R. Westerberg (1), David J. Hesse (2), (1) *Battelle Toxicology Northwest, Richland, WA* (2) *Battelle, Columbus, OH*



- 5C.16 Active Pharmaceutical Ingredients Released by Dispensing Robots.** David Alburty (1) Pamela Murowchick (1), Andrew Page (2), Zachary Packingham (1), Ann Packingham (1), Viengsavonthong Chanthavong Elliott (1), (1) *AlburtyLab, Inc.*, (2) *Page Applied Research, LLC*

5D CARBONACEOUS AEROSOLS: LAB EXPERIMENTS
SEBASTIAN J/K

- 5D.01 Detection of nitrooxypolyols in secondary organic aerosol formed from the photooxidation of isoprene under high NO_x conditions.** KEI SATO, Takashi Imamura, Natl. *Inst. for Environmental Studies, Tsukuba, Japan*
- 5D.02 Secondary organic aerosols formation from anthropogenic and biogenic sources: bridging field and smog chamber experiments.** Emanuela Finessi (1), M. CRISTINA FACCHINI (1), Stefano Decesari (1) and Urs Baltensperger (2), (1) *Institute of Atmospheric Science and Climate (ISAC), CNR, Bologna, Italy* (2) *Laboratory of Atmospheric Chemistry (LAC), Paul Scherrer Institut (PSI), Villigen, Switzerland*
- 5D.03 Formation and Properties of Secondary Organic Aerosol from Toluene.** LEA HILDEBRANDT Neil M. Donahue Spyros N. Pandis, *Center for Atmospheric Particle Studies, Carnegie Mellon University*
- 5D.04 Investigation of Products formed during Hydroxyl Radical Initiated Photo-oxidation of beta-Pinene.** JANEEN AULD, Julie Bennett, Don Hastie, *York University Department of Chemistry and The Centre for Atmospheric Chemistry*
- 5D.05 Collection efficiencies with various temperature conditions in photoelectric ESP.** Woojin Kim(1), Jeahee Jung(1), Hakjoon Kim(2), Young Jin Kang(1), Yong Jin Kim(2) and Sang Soo Kim(1), (1) *Korea Advanced Institute of Science and Technology, South Korea* (2) *Korea Institute of Machinery & Materials, South Korea*



- 5D.06 Anthropogenic Influences on Biogenic Secondary Organic Aerosol.** ANNMARIE G. CARLTON, Robert W. Pinder, Prakash V. Bhawe, NOAA* *In partnership with the U.S. EPA, Research Triangle Park*
- 5D.07 Photooxidation of Diesel and Woodburning Aerosols in an Environmental Chamber.** P. DeCarlo, M.F. Heringa, R. Chirico, T. Tritscher, M. Steiger, M. Li, K. Gäggeler, C. Caprez, E. Weingartner, G. Wehrle, R. Richter, J. Dommen, A.S.H. Prevot, and U. Baltensperger, Paul Scherrer Institute, Switzerland
- 5D.08 Composition of Secondary Organic Particulate Matter from the Photo-Oxidation of Hydrocarbons Using APCI/MS-MS.** JULIE BENNETT, Janeen Auld, Donald Hastie, York University, Canada
- 5D.09 Optical closure experiments for biomass smoke aerosols.** LAURA MACK (1), Daniel Obrist (2), Hans Moosmüller (2), Kristin Lewis (2), Patrick Arnott (2), Gavin McMeeking (1), Ezra Levin (1), Sonia Kreidenweis (1), Cyle Wold (3), Wei Min Hao (3), Jeffrey Collett, Jr. (1), and William Malm (4), (1) Colorado State University, (2) Desert Research Institute, (3) Fire Sciences Lab, Missoula MT (4) CIRA, Fort Collins CO
- 5D.10 Modeling SOA Formation from OH reactions with C8 - C17 n-Alkanes.** CAROLYN JORDAN (1), Paul Ziemann (2), Robert Griffin (1), Yong Lim (2), Roger Atkinson (2), Janet Arey (2), Donald Dabdub (3), (1) University of New Hampshire, (2) University of California - Riverside, (3) University of California - Irvine
- 5D.11 Hygroscopic Properties of Biogenically Derived Secondary Organic Aerosol.** KEITH BROEKHUIZEN, Douglas Collins, Kashif Ahmed, Michael Prinsell, Colgate University, Hamilton, NY
- 5D.12 How Secondary Organic Aerosols Interact with Water.** MARKUS PETTERS (1), Heike Wex (2), Eva Hallberger (2), Laurent Poulain (2), Christian Carrico (1), Gavin McMeeking (1), Sonia Kreidenweis (1), Frank Stratmann (2),



Andreas Massling (2), (1) *Colorado State University, Department of Atmospheric Science, Fort Collins, Colorado, USA* (2) *Institute for Tropospheric Research, Leipzig, Germany*

5D.13 Hidden Organics on Diesel PM: Resolving Differences between Thermal Desorption and Solvent Extraction for Determining the PM Organic Fraction. JOHN STOREY, Samuel Lewis, *Oak Ridge National Laboratory*

5D.14 Secondary organic aerosol formation from photooxidation of naphthalene and alkyl-naphthalenes. Arthur W.H. Chan, Kathryn E. Kautzman, Puneet S. Chhabra, Jason D. Surratt, Man N. Chan, John D. Crouse, Scott P. Hersey, Paul O. Wennberg, Richard C. Flagan, John H. Seinfeld, *California Institute of Technology, Departments of Chemical Engineering and Environmental Science and Engineering, Pasadena, CA*

5E AEROSOL CHEMISTRY

SEBASTIAN J/K

5E.01 The effects of atmospheric heterogeneous oxidation on the redox activity of soot aerosols. ROBERT MCWHINNEY, Jay Slowik, Jonathan Abbatt, *University of Toronto*

5E.02 Effect of Aerosol Mixing State on Optical and CCN Activation Properties in an Evolving Urban Plume. RAHUL ZAVERI (1), Richard Easter (1), James Barnard (1), Nicole Riemer (2), Matt West (2), (1) *Pacific Northwest National Laboratory, Richland*, (2) *University of Illinois, Urbana Champaign*

5E.03 Deliquescence, Growth and Recrystallization Characteristics of Mixed Aerosol Particles. Harry H. Hunter and Asit K. Ray, *University of Kentucky*

5E.04 Homogeneous Ice Nucleation from Aqueous Aerosol Particles Containing Organic Surrogates of Biomass Burning. DANIEL A. KNOFF, Miguel D. Lopez, Bing Bing Wang, *Stony Brook University*

WEDNESDAY



- 5E.05 Modeling Atmospheric Heterogeneous Chemistry Using a Dynamic Uptake Coefficient Treatment.** Nicole Riemer (1), DANIEL KNOFF (2), (1) *University of Illinois at Urbana-Champaign*, (2) *Stony Brook University, Stony Brook*
- 5E.06 Measurements of the Hygroscopic and Deliquescence Properties of Organic Compounds of Different Solubilities in Water and Their Relationship with Cloud Condensation Nuclei Activities.** Man Nin CHAN (1, 2), Sonia M. Kreidenweis (3), Chak K. CHAN (1), (1) *Department of Chemical Engineering, Hong Kong University of Science and Technology, Hong Kong* (2) *Current affiliation: Division of Geological & Planetary Sciences, California Institute of Technology, Pasadena, CA* (3) *Department of Atmospheric Science, Colorado State University, Ft. Collins, Colorado*
- 5E.07 Partial Crystallization and Deliquescence of Particles Containing Ammonium Sulfate and Dicarboxylic Acids.** Tsz Yan Ling (1,2), Chak K. Chan (1), (1) *Department of Chemical Engineering, Hong Kong University of Science and Technology* (2) *Current affiliation: Particle Technology Laboratory, Department of Mechanical Engineering, University of Minnesota*
- 5E.08 Accretion Reactions of Octanal Catalyzed by Sulfuric Acid: Product Identification, Reaction Pathways and Atmospheric Implications.** Yong Jie LI (1), Alex K.Y. LEE (2), Arthur P.S. LAU (3) and Chak K. CHAN (2), (1) *Environmental Engineering Program, Hong Kong University of Science and Technology, Hong Kong* (2) *Department of Chemical Engineering, Hong Kong University of Science and Technology, Hong Kong* (3) *Institute for the Environment, Hong Kong University of Science and Technology, Hong Kong*



- 5E.09 Uptake of Octanal Vapor in the Presence of Acidic Seed Particles.** ALEX K. Y. LEE(1), Yong Jie Li(2), Arthur P S. Lau(3), Chak K. Chan(1), (1) *Department of Chemical Engineering, Hong Kong University of Science and Technology, Hong Kong* (2) *Environmental Engineering Program, Hong Kong University of Science and Technology, Hong Kong* (3) *Institute for the Environment, Hong Kong University of Science and Technology, Hong Kong*
- 5E.10 Bulk Phase Aerosol Analysis of Atmospheric Organic Species Exposed to Acidic Sulfate.** MYOSEON JANG (1), Ion Ghiviriga (1), Mark ter Horst (2), (1) *University of Florida, Gainesville*, (2) *The University of North Carolina, Chapel Hill*
- 5E.11 Secondary Organic Aerosol Formation from Toluene Photooxidation under Various NO_x Conditions and Particle Acidities.** GANG CAO (1), Myoseon Jang (2), (1) *the University of North Carolina at Chapel Hill* (2) *University of Florida*
- 5E.12 Development of a Predictive Model of SOA Formation from Toluene Photooxidation in the Presence of Inorganic Aerosols.** GANG CAO (1), Myoseon Jang (2), (1) *the University of North Carolina at Chapel Hill* (2) *University of Florida*
- 5E.13 Heterogeneous Reactions of NO₃ Radicals with Organic Liquids and Monolayers that Simulate Organic Aerosol Surfaces.** SIMONE GROSS, Daniel A Knopf, Allan K Bertram, *University of British Columbia, Vancouver*
- 5E.14 Secondary Organic Aerosol Formation from the Photooxidation of C₈ through C₁₄ Normal Alkanes in the Presence and Absence of NO_x.** Michael Lewandowski (1), Tadeusz E. Kleindienst (1), John H. Offenberg (1), Mohammed Jaoui (2), Edward O. Edney (1), (1) *U.S. Environmental Protection Agency, RTP, NC*, (2) *Alion Science and Technology, RTP, NC*.



- 5E.15 Light-Induced Degradation of Nitro-Aromatic Compounds.** R. Aaron Vogt, AMY M. SAGE, Carlos E. Crespo-Hernandez, *Case Western Reserve University*
- 5E.16 Measurements of the Henry's Law Coefficient of Toluene.** F. Rifkha Kameel, Deirdre Manion-Fischer, Mahinda Gangoda, Shan-Hu Lee, *Kent State University, Department of Chemistry, Kent, Ohio*
- 5E.17 Determination of the Evaporation Coefficient of Semi-Volatile Organic Aerosols.** RAWAD SALEH, Andrey Khlystov, *Duke University*
- 5E.18 Challenges in the Interpretation of Aerosol Volatility Measurements using Thermodenuders due to Mass Transfer Limitations.** BYONG-HYOEK LEE (1), Jeffery R. Pierce (1), and Spyros N. Pandis (1,2), (1) *Carnegie Mellon University* (2) *University of Patras, Patra*
- 5E.19 Problems and Prospects for Predicting SOA Production Through Cloud Processing.** BARBARA TURPIN (1), Annmarie G. Carlton (2), Barbara Ervens (3), Katye E. Altieri (1), Mark J. Perri (1), Yi Tan (1), Mary Moore (1), Sybil Seitzinger (1,4), (1) *Rutgers University, New Brunswick, NJ*, (2) *US Environmental Protection Agency, Research Triangle Park, NC*, (3) *CIRES, University of Colorado and NOAA, Boulder, CO*, (4) *NOAA Cooperative Marine Education and Research Program, New Brunswick, NJ*
- 5E.20 The Comparison of Two Types of Photocatalysts Efficacy in Inactivation/Destruction of Virus and Bacteria Aerosols.** ALEKSANDR S. SAFATOV (1), Sergei A. Kiselev (1), Vasilii Yu. Marchenko (1), Artem A. Sergeev (1), Maxim O. Skarnovich (1), Elena K. Emel'yanova (1), Maria A. Smetannikova (1), Galina A. Buryak (1) Aleksandr V. Vorontsov (2), (1) *Federal State Research Institution State Research Center of Virology and Biotechnology "Vector", Koltsovo, Novosibirsk region, Russia* (2) *Borekov Institute of Catalysis SB RAS, Novosibirsk, Russia*



5F AIRWAY DEPOSITION
SEBASTIAN J/K

- 5F.02** **Development of a CFD Model to Simulate the Effects of Aerosol Number Density and Hydrodynamic Interactions on Deposition.** P. WORTH LONGEST (1), Guoguang Su (1), Michael J. Oldham (2), (1) *Virginia Commonwealth University* and (2) *PM USA Research Center*
- 5F.03** **A Sampling System for Rapid Measurement of Regional Lung Deposition.** Kuan-Nan Chang (1), Sheng-Hsiu Huang (1), Yu-Mei Kuo (2), Chih-Chieh Chen (1), (1) *National Taiwan University*, (2) *Chung Hwa University of Medical Technology*
- 5F.04** **Transport and Deposition of Ellipsoidal Fiber in Human Tracheobronchial Tree with a Multi-level Bifurcation Computational Model.** Lin TIAN (1), Goodarz Ahmadi (1), Philip K. Hopke (1) and Sung-Yung Cheng (2), (1) *Clarkson University, Potsdam* (2) *Lovelace Respiratory Research Institute, Albuquerque*
- 5F.05** **Aerosol Deposition in Lung Airways at Full Breathing Cycle.** MATEJ FORMAN, MIROSLAV JICHA, *Brno University of Technology, Brno*
- 5F.06** **Fiber deposition in realistic human lung bifurcation model.** PHILIP HOPKE, Zuo Cheng Wang, *Clarkson University*
- 5F.07** **Simultaneous Effects of Coagulation and Hygroscopic Growth on the Deposition of Particles in Human Lungs.** Bahman Asgharian, Owen T. Price, *CIIT at The Hamner Institutes for Health Sciences*

5G AEROSOL CHEMICAL CHARACTERIZATION
SEBASTIAN J/K

- 5G.01** **Spin trapping for identification and characterization of particle-bound reactive radical species.** Jelica Pavlovic, Xi Chen, Philip K. Hopke, *Center for Air Resources Engineering and Science, Clarkson University, Potsdam, NY*

WEDNESDAY



- 5G.02 Effects of Organic Carbon Pyrolysis Correction on the Estimation of Carbon Conversion in Hydrogasification of Coal.** Kwangsam Na (1), Chan Seung Park (1), Joe Norbeck (1, 2), (1) Bourns College of Engineering — Center for Environmental Research and Technology (CE-CERT), *University of California, Riverside* (2) *Department of Chemical and Environmental Engineering, Bourns College of Engineering, University of California, Riverside*
- 5G.03 Highly Time Resolved Measurements of Aerosol Carbon Using the Water Cyclone: An Ambient Comparison against the Sunset-ECOC Analyzer.** Douglas A. Orsini (1), MIN-SUK BAE (2), James J. Schwab (2), Kenneth L. Demerjian (2), and Kevin P. Rhoads (3), (1) *The Institute for Tropospheric Research, Leipzig, Germany*, (2) *Atmospheric Sciences Research Center, University at Albany, State University of New York*, (3) *Department of Chemistry and Biochemistry, Siena College, Loudonville, New York, USA*
- 5G.04 Effect of Vaporizer Temperature on Ambient High-Resolution Time-of-Flight Aerosol Mass Spectrometer Organic Mass Spectra.** KENNETH S. DOCHERTY and Jose L. Jimenez, *Cooperative Institute for Research in Environmental Sciences and Department of Chemistry and Biochemistry, University of Colorado, Boulder*
- 5G.05 Validating a Liquid Based Calibration of a Thermal Desorption Aerosol Gas Chromatograph Mass Spectrometer (TAG).** NATHAN M. KREISBERG (1), Susanne S. Hering (1), David R. Worton (2), Brent J. Williams (2) and Allen H. Goldstein (2), (1) *Aerosol Dynamics Inc.*, (2) *University of California, Berkeley*
- 5G.06 On The Use of Ion Selective Electrodes for Online Measurement of Aerosol Inorganic Composition.** Neeraj Rastogi (1), Rodney J. Weber (1), James J. Schauer (2), Martin Shafer (2), (1) *Georgia Institute of Technology, Atlanta, GA* (2) *University of Wisconsin-Madison, Madison, WI*



- 5G.07 Iron Speciation in Particulate Matter.** Nabin Upadhyay, Pierre Herckes, *Arizona State University, Dept. of Chemistry and Biochemistry, Tempe, AZ*
- 5G.08 New sampler holder for mass limited samples for speciation studies of Fe, Mn, Ni by XANES.** SAUGATA DATTA (1), Janessa Hartmann(1), Tom Protus(2), Jana Mihalic(3), Ana Rule(3), Juan Ramos-Bonilla(3), Alison Geyh(3), Patrick Breysse(3) and Steven N. Chillrud(2), (1) *Georgia College and State University, Milledgeville*, (2) *Lamont-Doherty Earth Observatory, New York*, (3) *Johns Hopkins University, Bloomberg School of Public Health, Baltimore*
- 5G.09 Evaluation of Instruments for Tailpipe monitoring for DPM in Underground Mines.** JAMES NOII, Jon Volkwein, Sam Janisko, Larry Patts, Pittsburgh Research Laborator, NIOSH, Pittsburgh, PA
- 5G.10 Field Validation of Semi-continuous Monitoring of Sulfate and Carbonaceous Species at the Harvard-EPA Supersite.** CHOONG-MIN KANG, Mike Wolfson, Petros Koutrakis, Helen Suh, *Exposure, Epidemiology and Risk Program, Harvard School of Public Health*

5H AEROSOL MASS MEASUREMENTS
SEBASTIAN J/K

- 5H.01 Assessing the FRM-Likeness of Continuous PM_{2.5} Measurements in EPA's AQS Database.** ADAM REFF, Tim Hanley, Lewis Weinstock, *U.S. EPA, Office of Air Quality Planning and Standards*
- 5H.02 Test Results for the Thermo Scientific TEOM Monitors (1405-DF and 8500C), FH62C14, and SHARP Monitors for a US-EPA FEM PM_{2.5} Method Campaign.** JEFFREY AMBS Kevin Goohs, *Thermo Scientific*
- 5H.03 On the Development of Beta Attenuation and Hybrid Aerosol Monitoring Methods.** KEVIN GOOHS, *Thermo Fisher Scientific*



5I AEROSOL SAMPLING

SEBASTIAN J/K

- 5I.01 The Continuation of the Personal Data RAM.** KEVIN GOOHS, Pedro Lilienfeld, Wayne Harmon, *Thermo Fisher Scientific, Franklin, MA*
- 5I.02 Developing and Testing Prototype Compact Denuders for Ambient Air Sampling Applications.** MISHA SCHURMAN (1), Jeffrey L. Collett, Jr. (1), Susanne V. Hering (2), Derek E. Day (3), William C. Malm (3), Brian Lee (4), (1) *Department of Atmospheric Science, Colorado State University, Fort Collins, CO*, (2) *Aerosol Dynamics Inc., Berkeley, CA*, (3) *Cooperative Institute for Research in the Atmosphere (CIARA)/National Park Service, Colorado State University, Fort Collins, CO*, (4) *USEPA, Washington, DC*
- 5I.03 Efficiencies of Portable BioStage and RCS High Flow in Measuring Culturable Bacteria and Fungi in Shanghai, China.** Shiqi Zhen (1,3), Huili Zhang(3), Lihong Yin (1), Maosheng Yao (2), Minghao Zhou(3), and Xiaodong Chen (3), (1) *Shoutheast University, Nanjing, China*, (2) *Peking University, Beijing, China*, (3) *Jiangsu Center for Disease Prevention and Control*
- 5I.04 Characterization of a Slit-jet Nebulizer for use in Bacterial Inhalation Studies.** JOHN TROMBLEY, Jeremy Boydston, Melissa Bridgers, Zara Llewellyn, Mary Minyard, Larry Bowen, *Southern Research, Birmingham, AL*
- 5I.05 Interfacing External World Flow to a Microchip Capillary Electrophoresis Device for Improved Real-Time Aerosol Analysis.** Mallory M. Mentele, James R. Kraly, Charles S. Henry, *Department of Chemistry, Colorado State University*
- 5I.06 Development of an Injection System for Large Particles in an Aerosol Wind Tunnel.** ANDREW MAY (1), Sang-Rin Lee (2), Suresh Dhaniyala (1), Thomas M. Holsen (1), (1) *Clarkson University* (2) *University of Iowa*



- 5I.07 Design and Development of a Novel Instrument for Large Particle (PM_{>10}) Size Separation: Curved Channel Size Separator (CCSS).** Krishanu Banerjee, Thomas Holsen, Suresh Dhaniyala, *Clarkson University*
- 5I.08 A Rotary Sampling Disc for Unbiased Measurements of Large Particle Aerosols in a Wind Tunnel.** Kirsten A. Koehler (1), John Volckens (1), Renee Anthony (2) and Michael VanDyke (3), (1) *Colorado State University, Fort Collins*, (2) *University of Arizona, Tucson*, (3) *National Jewish Medical and Research Center, Denver, CO*

5J MEASURING AEROSOL PHYSICAL PROPERTIES SEBASTIAN J/K

- 5J.01 Use of Scanning Electron and Atomic Force Microscopy in the Physical Characterization of Micro- and Nanoparticles.** Patricia Fritz (1), Brian P. Frank (2), Daniel Hershey (2), Lupita Montoya (1), (1) *Rensselaer Polytechnic Institute, NY*, (2) *New York State Department of Environmental Conservation, Albany*
- 5J.02 Retrieval of aerosol extinction in the lower troposphere based on MAX-DOAS measurement and its application for improved retrieval of trace gas profiles.** Hanlim Lee(1), H. Irie(2), YOUNG J. KIM(1), Jinsang Jung(1), Chulkyu Lee(3), (1) *ADvanced Environmental Monitoring Research Center (ADEMRC), Gwangju Institute of Science and Technology (GIST), Gwangju, Korea* (2) *Frontier Research Center for Global Change, Japan Agency for Marine-Earth Science and Technology, Japan* (3) *Department of Physics and Atmospheric Science, Dalhousie University, Canada*

5K AEROSOLS, CLOUDS AND CLIMATE: MODELS SEBASTIAN J/K

- 5K.01 Effect of climate and emission changes on particle number concentration over the US.** Tagaris Efthimios (1), Kuo-Jen Liao (1), Kasemsan Manomaiphiboon (1), Jung-Hun Woo



- (2), Shan He (2), Praveen Amar (2) and Armistead G. Russell (1), (1) *School of Civil & Environmental Engineering, Georgia Institute of Technology, Atlanta, GA* (2) *Northeast States for Coordinated Air Use Management (NESCAUM), Boston, MA*
- 5K.02 On the Structure of Organic Coated Water Droplets or what causes an 'Oily' Drop to Process Water.** Purnendu Chakraborty, Michael R. Zachariah, *University of Maryland and NIST*
- 5K.03 Influence Of Altitudinal Distribution Of Gaseous Absorbate On Gas Absorption By Falling Liquid Droplets.** BORIS KRASOVITOV, Tov Elperin, Andrew Fominykh, Ben-Gurion *University of the Negev*
- 5K.04 Efficient global aerosol microphysics modules for predicting cloud condensation nuclei concentrations.** YUNHA LEE, Peter Adams, *Carnegie Mellon University*
- 5K.05 Effect of temperature on atmospheric particle formation: A positive climate feedback mechanism?** FANGQUN YU, *State University of New York, Albany*
- 5K.06 Examining the Effect of Future Sulfate Emissions Controls in the U.S. on Photolysis Rates.** CHRISTOPHER G. NOLTE (1), Shawn J. Roselle (1), Francis S. Binkowski (2), (1) *EPA, RTP*, (2) *University of North Carolina*
- 5K.07 Parameterization of Cloud Droplet Formation for large-scale models: Including the effects of Hydrophilic Insoluble particles.** PRASHANT KUMAR (1), Irina Sokolik (2), Athanasios Nenes (1,2), (1) *School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA* (2) *School of Earth & Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA*
- 5K.08 Aerosol { cloud drop concentration closure for clouds sampled during MASE.** WEI-CHUN HSIEH(1), Athanasios Nenes(1,2), Rebecca Ugalde(2), Purvi Patel(2), Roya Bahreini(3,6), William C. Conant(3,7), Hafliði Jonsson(4), Shane



Murphy(5), Armin Sorooshian(5), Varuntida Varutbangkul(5), Fred Brechtel(4), Richard C. Flagan(3,5), and John H. Seinfeld(3,5), (1)School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, (2)School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, (3)Environmental Science and Engineering, California Institute of Technology, Pasadena, (4)CIRPAS, Naval Postgraduate School, Monterey, (5)Chemical Engineering, California Institute of Technology, Pasadena, (6)National Oceanic and Atmospheric Administration, Boulder (7)Atmospheric Sciences, University of Arizona, Tucson, Arizona, Tucson

Wednesday

10:45 AM - 12:00 PM

SESSION 6: PLATFORM

6A CARBONACEOUS AEROSOLS:
LABORATORY STUDIES
SEBASTIAN L

Neil Donahue and Quentin Malloy, chairs

10:45

6A.01 Molecular Structure and Yield of Oligomers in Biogenic SOA. Wiley Hall, Katherine Heaton, MURRAY JOHNSTON, *University of Delaware*

11:00

6A.02 The Fight of the Fs: Functionalization vs Fragmentation. NEIL M DONAHUE, *Carnegie Mellon University, Pittsburgh*

11:15

6A.03 Laboratory Investigation of the Photochemical Oxidation of Organic Aerosol from Wood Fires. ANDREW GRIESHOP, Jennifer Logue, Neil Donahue, Allen Robinson, *Carnegie Mellon University*

11:30

6A.04 Characterization of SOA Formed from the Photooxidation of Benzene and Its Implication for Ambient PM_{2.5}. M. Jaoui (1), T. Gerald (1), E. Corse (1), T.E. Kleindienst (2), J.H. Offenberg (2),

WEDNESDAY



M. Lewandowski (2), E.O. Edney (2), (1) *Alion Science and Technology, Inc., Research Triangle Park, NC*, (2) *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC*

11:45

- 6A.05 Secondary Organic Aerosol Formation from Primary Aliphatic Amines with Nitrate Radical.** QUENTIN G.J. MALLOY (1), Li Qi (1), Bethany Warren (1), David R. Cocker III (1), Mark E. Erupe (2), Philip J. Silva (2), (1) *University of California-Riverside, Bourns College of Engineering, Department of Chemical and Environmental Engineering* (2) *Utah State University Department of Chemistry and Biochemistry*

6B REGIONAL AND REMOTE AEROSOLS II *SEBASTIAN I-1*

Amy Sullivan and Vera Samburova, chairs

10:45

- 6B.01 Hourly Sulfate and SO₂ Impacts at Look Rock, Great Smoky Mountains National Park: Implications for PM_{2.5} and Visibility Standards.** Roger L. Tanner (1) Solomon T. Bairai (1) Kenneth J. Olszyna (2), *Tennessee Valley Authority, Muscle Shoals Tennessee Valley Authority, Muscle Shoals (retired)*

11:00

- 6B.02 Gaseous Ammonia and PM_{2.5} Ammonium Measurements from SEARCH.** RICK SAYLOR (1), Rahul Zaveri (2), Eric Edgerton (3), Benjamin Hartsell (4), (1) *Atmospheric Research & Analysis, Inc., Snellville, GA*, (2) *Pacific Northwest National Laboratory, Richland, WA*, (3) *Atmospheric Research & Analysis, Inc., Cary, NC*, (4) *Atmospheric Research & Analysis, Inc., Plano, TX*



11:15

6B.03**Weekly cycles in United States aerosols.**

DANIEL MURPHY (1), Shannon Capps (2), John Daniel (1), Gregory Frost (1), Warren White (3), (1) NOAA Earth System Research Laboratory, Chemical Sciences Division (2) Georgia Institute of Technology (3) Crocker Laboratory, University of Colorado, Davis

11:30

6B.04**Determination of Atmospheric Aerosol Age Using a Three-Dimensional Chemical Transport Model.**

KRISTINA WAGSTROM (1), Spyros Pandis (1,2), (1) Carnegie Mellon University, (2) University of Patras

11:45

6B.05**Aerosol Optical Properties Obtained from Continuous Mass, Composition and Scattering Measurements.**

JAMES J. SCHWAB (1), Min-Suk Bae (1), Olga Hogrefe (1), Qi Zhang (1), G. Garland Lala (1), Kenneth L. Demerjian (1), Oliver V. Rattigan (2), (1) University at Albany, State University of New York, (2) New York State Department of Environmental Conservation

6C DEPOSITION IN AIRWAY REPLICAS**SEBASTIAN I-2****Carlos Lange and Worth Longest, chairs**

10:45

6C.01**In Vitro Nasal Airway Deposition in Infants.**

WARREN H. FINLAY, John Storey-Bishoff, Michelle Noga, University of Alberta

11:00

6C.02**Particle Deposition In Oral Airway Models At High And Low Flow Rates And Moving Boundary.**

Zheng Li (1), Ali A. Rostami (2) and Clement Kleinstreuer (3), (1) ClearPoint Resources, Inc., Virginia Biotechnology Research Park, Richmond, VA, (2) Philip Morris USA, Center of Research and Technology, Richmond, VA, (3) Department of Mechanical and Aerospace Engineering and Department of Biomedical Engineering, North Carolina State University, Raleigh, NC

WEDNESDAY



11:15

- 6C.03 Particle Deposition Efficiency in Defined Regions of a Human Nasal Replica.** EARL W. TEWKSBURY, Jeffry D. Schroeter, Julia S. Kimbell, and Brian A. Wong, *The Hamner Institutes for Health Sciences, RTP, NC*

11:30

- 6C.04 Deposition of MMVFs in Human Respiratory Airway Casts.** WEI-CHUNG SU, Yung Sung Cheng, *Lovelace Respiratory Research Institute, Albuquerque*

11:45

- 6C.05 Bolus dispersion as a measure of lung function in rats.** PRAVEEN K. SRIRAMA, DongYoub Lee, Anthony S. Wexler, Edward S. Schelegle, *University of California, Davis*

6D COMBUSTION AEROSOLS II

SEBASTIAN I-3

Allen Robinson and Junhong Chen, chairs

10:45

- 6D.01 Characterizing PM10 emission profiles for various kinds of coal-fired power plants.** Y. Yue, Q. Song*, S. Q. Li, Q. Yao, *Key Laboratory for Thermal Science and Power Engineering of Ministry of Education, Department of Thermal Engineering, Tsinghua University, Beijing, 100084, CHINA*

11:00

- 6D.02 Modelling residence time distribution of oxidising soot particles in a laminar flow reactor.** MANISH SHRIVASTAVA(1,2), Ashok Gidwani (3), Heejung Jung (1,2), *(1) Bourns College of Engineering-Center for Environmental Research and Technology (CE-CERT), University of California, Riverside, CA 92521 (2) Department of Mechanical Engineering, University of California, Riverside, CA 92521 (3) CFD Research Corporation, 215 Wynn Drive, Huntsville, AL 35805*



11:15

6D.03

Comparison of Emissions from Back Up Generators Operating on different Fuels.

Varalakshmi Jayaram (1,2), Aniket A Sawant (3), Sandip D Shah(4), Kent C Johnson (1,2), J. Wayne Miller (1,2), David R Cocker III (1,2), (1) *University of California, Riverside*, (2) *CE-CERT, Riverside*, (3) *Currently at Johnson Matthey, Philadelphia*, (4) *Currently at Ford Motor Company, Detroit*

11:30

6D.04

Ammonia Emission from Forest Prescribed Burning: Contribution from Wildland Fuels and Soil.

L.-W. ANTONY CHEN (1), Judith C. Chow (1), John G. Watson (1), Paul Verburg (2), (1) *Division of Atmospheric Sciences, Desert Research Institute, Reno, NV*, (2) *Division of Earth and Ecosystem Sciences, Desert Research Institute, Reno, NV*

11:45

6D.05

Combustion-Based Parameterizations of Biofuel Emissions.

Christoph A. Roden, Yanju Chen, Yue Fong Abel Lau, and TAMI C. BOND, *University of Illinois at Urbana-Champaign*

6E NEW PARTICLE FORMATION AND AEROSOL CHEMISTRY MODELS
SEBASTIAN I-4

Shanhu Lee and Nicole Riemer, chairs

10:45

6E.01

Stabilization Of Positively Charged Water And Sulfuric Acid-Water Pre-Nucleation Clusters By Protonated Ammonia.

ALEXEY NADYKTO, Fangqun Yu, Jason Herb, *State University of New York at Albany, ASRC, Albany, NY 12203, USA*

11:00

6E.02

Growth of Newly Formed Sulfuric Acid Nanoparticles.

Lin Wang, Alexei Khalizov, Renyi Zhang, *Department of Atmospheric Sciences and Department of Chemistry Texas A&M University, College Station, TX 77843, USA*

WEDNESDAY



11:15

- 6E.03 Laboratory-Measured Sulfuric Acid-Water Binary Homogeneous Nucleation from the SO₂ + OH Reaction.** Dave Benson, Li-Hao Young, Rifkha Kameel, Shan-Hu Lee, *Kent State University, Department of Chemistry, Kent, Ohio*

11:30

- 6E.04 A Quantitative Chemical Mechanism for Modeling the Formation of Secondary Organic Aerosol from the Reaction of OH Radicals with Linear Alkenes.** AIKO MATSUNAGA (1), Kenneth S. Docherty (2), Yong B. Lim (1), Paul J. Ziemann (1), (1) *University of California, Riverside* (2) *University of Colorado, Boulder*

11:45

- 6E.05 Development and Application of a Stochastic Particle-Resolved Aerosol Model.** NICOLE RIEMER (1), Matthew West (1), Rahul A. Zaveri (2), Richard C. Easter (2), James C. Barnard (2), (1) *University of Illinois at Urbana-Champaign*, (2) *Pacific Northwest National Laboratory, Richland*

Wednesday

12:00 PM - 1:15 PM

LUNCH (ON YOUR OWN)

Wednesday

1:15 PM - 2:45 PM

SESSION 7: PLATFORM

**7A SYMPOSIUM:
APPLICATIONS OF THE ELECTROSPRAY
SEBASTIAN L**

Weiwei Deng and Sang Soo Kim, chairs

1:15

- 7A.01 Use of Electrospray for Aerosolizing Viruses in Filter Testing.** SERGEY A. GRINSHPUN (1), Robert M. Eninger (1), Christopher H. Hogan, Jr. (2), Pratim Biswas (2), Atin Adhikari (1), Tiina Reponen (1), (1) *University of Cincinnati, Cincinnati, OH*; (2) *Washington University, St. Louis, MO*



1:30

- 7A.02 Using Electrospray to Form Plasmid DNA/Polyethylenimine (PEI) Polyplexes for Nonviral Gene Delivery.** YUN WU (1, 2), Zhengzheng Fei (1, 2), L. James Lee (1, 2), Barbara Wyslouzil(1, 2), (1)*Department of Chemical and Biomolecular Engineering, The Ohio State University* (2)*NanoScience and Engineering Center, The Ohio State University*

1:45

- 7A.03 Rapid Analysis of Organic Acids in Aerosols by Desorption Electrospray Ionization Mass Spectrometry (DESI-MS).** Mei Li, Hong Chen, XIN YANG, Jianmin Chen, *Department of Environmental Science and Engineering, Fudan University, Shanghai, China*

2:00

- 7A.04 Electrospray - DMA: A Probe for Surface Structure, Colloidal Stability and Kinetics.** D-H. Tsai (1), L. F. Pease III(2), R. Zangmeister (2), M.J. Tarlov (2), M.R. Zachariah(1,2), (1)*University of Maryland* (2)*National Institute of Standards and Technology*

2:15

- 7A.05 Highly Efficient Integrated Circuit Cooling by Multiplexed Electrosprays.** WEIWEI DENG, Alessandro Gomez, *Yale University*

2:30

- 7A.06 Hygroscopic Growth of Nanoparticles Containing Surface Active Molecules Prepared by an Electrospray Aerosol Source.** SERGEY A. NIZKORODOV, Chris W. Harmon, Ahmad Alshawa, Joelle S. Underwood, Douglas J. Tobias, *University of California, Irvine*

WEDNESDAY



7B SOURCE APPORTIONMENT: APPLICATIONS I SEBASTIAN I-1

Barbara Zielinska and Sara Pryor, chairs

1:15

7B.01 Highly Time-Resolved Organic Compounds Concentrations of Primary and Secondary Nature during the Baltimore PM_{2.5}-Supersite Study. Wolfgang F. Rogge (1), Anna Bernardo-Bricker (2), John M. Ondov (3), (1) *University of California, Merced*, (2) *Florida International University, Miami*, (3) *University of Maryland, College Park*

1:30

7B.02 Concentrations Of Polycyclic Aromatic Hydrocarbons And Metoxyphenols In Urban And Suburban Air Particulates In East Of France. Olivier Delhomme Maurice Millet, *University of Strasbourg I / CNRS, France*

1:45

7B.03 Carbohydrates as Molecular Markers for Source Apportionment of Ambient Fine and Course Particulate Matter to Agricultural and Native Soils in Central Arizona. ANDREA L. CLEMENTS (1), Yuling Jia (1), Matthew P. Fraser (2), (1) *Civil and Environmental Engineering, Rice University, Houston* (2) *Global Institute of Sustainability, Arizona State University, Tempe*

2:00

7B.04 Characterization of Ambient Southern California Organic Aerosols during the 2005 Study of Organic Aerosol in Riverside (SOAR-1) campaign using Positive Matrix Factorization of High Resolution Aerosol Mass Spectra. KENNETH S. DOCHERTY (1,2), Ingrid M. Ulbrich (1,2), Peter F. DeCarlo (1,3,9), Allison C. Aiken (1,2), John A. Huffman (1,2), Michael J. Cubison (1,2), Edward J. Dunlea (1,2,10), Donna Sueper (1,4), Joel R. Kimmel (1,4), Richard E. Peltier (5,11), Rodney J. Weber (5), Elizabeth A. Stone (6), David C. Snyder (6), James J. Schauer (6), Brett D. Grover (7,12), Delbert J. Eatough (7), Brent J. Williams (8),



Megan McKay (8), Allen Goldstein (8), and Jose L. Jimenez (1,2), (1) *Cooperative Institute for Research in Environmental Sciences, (2) Department of Chemistry and Biochemistry and (3) Department of Atmospheric and Oceanic Sciences, University of Colorado, Boulder, Colorado (4) Center for Aerosol and Cloud Chemistry, Aerodyne Research, Inc., Billerica, MA (5) School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, Georgia (6) Environmental Chemistry and Technology Program, University of Wisconsin, Madison, Wisconsin (7) Department of Chemistry and Biochemistry, Brigham Young University, Provo, Utah (8) Department of Environmental Science and Policy Management, University of California, Berkeley, California (9) Currently at Paul Scherrer Institut, Switzerland (10) Currently at United States National Oceanic and Atmospheric Administration, Boulder, Colorado (11) Currently at NYU School of Medicine, Department of Environmental Medicine, Tuxedo, New York (12) Currently at the United States Environmental Protection Agency, National Exposure Research Laboratory, Research Triangle Park, North Carolina*

WEDNESDAY

2:15

7B.05 Positive Matrix Factorization (PMF) Analysis of Organic Components in Urban Aerosol Measured with Aerosol Mass Spectrometry.

Nga Lee Ng (1), Manjula Canagaratna (1), Qi Zhang (2), Jian Tian (2), Ingrid Ulbrich (3), Jose Jimenez (3), Doug Worsnop (1), (1) *Aerodyne Research, Inc. (2) State University of New York, Albany (3) University of Colorado, Boulder*

2:30

7B.06 Redox Activity and Chemical Speciation of Size Fractioned PM in the Communities of the Los Angeles - Long Beach Harbor.

Shaohua Hu (1), Andrea Polidori (2), Mohammed Arhami (2), Martin M. Shafer (3), James J. Schauer (3), Arthur Cho (4) and Constantinos



Sioutas (2), (1) *California Air Resource Board (CARB)* (2) *University of Southern California* (3) *University of Wisconsin-Madison* (4) *University of California, Los Angeles*

7C HEALTH-RELATED AEROSOLS: FIELD SAMPLING SEBASTIAN I-2

William Findlay and Charles Purdy, chairs

1:15

7C.01 Indoor Air Bio-aerosols in varying Micro-environment: Prevalence of Bacteria, Fungi and Thermophilic Actinomycetes in Mumbai. RAKESH KUMAR(1), Varsha Kelkar (2), (1) *National Environmental Engineering Research Institute (NEERI), Mumbai*, (2) *Department of Life Sciences, University of Mumbai, Mumbai*

1:30

7C.02 Measurements of Airborne Influenza in a Healthcare Facility. WILLIAM G. LINDSLEY (1), Francoise M. Blachere (1), Terri A. Pearce (1), Stephen Davis (2), Melanie Fisher (2), Rashida Khakoo (2), Barbara J. Meade (1), Owen Lander (2), Robert E. Thewlis (1), Bean T. Chen (1), Ismail Celik (2), Don H. Beezhold (1), (1) *NIOSH, Morgantown*, (2) *West Virginia University*

1:45

7C.03 PM2.5 and PM10 Concentrations in Four Dairies on the Southern High Plains. CHARLES W. PURDY (1), R. Nolan Clark (1), David C. Straus (2), (1) *USDA-Agriculture Research Service*, (2) *Texas Tech University Health Sciences Center*

2:00

7C.04 Assessment of Recreational Exposure to Aerosols Containing Microcystin. YUNG SUNG CHENG (1), Yue Zhou (1), C. Mitch Irvin, Barbara Kirkpatrick (2), Lorraine Backer (3), (1) *Lovelace Respiratory Research Institute, Albuquerque*, (2) *Mote Marine Laboratory, Sarasota*, (3) *Centers for Disease Control and Prevention, Atlanta*



2:15

- 7C.05 Active Pharmaceutical Ingredients Released by Dispensing Robots.** DAVID ALBURTY (1), Pamela Murowchick (1), Andrew Page (2), (1) *AlburtyLab, Inc.* (2) *Page Applied Research, LLC*

2:30

- 7C.06 Examination of Simulated Workplace Aerosols for Nanoparticle Contamination Using Transmission Electron Microscopy.** NANCY JENNERJOHN (1), Arantza Eiguren-Fernandez (2), David C. Fung (1), William Hinds (1), Nola J. Kennedy (1), (1) *Environmental Health Sciences Department, UCLA*, (2) *Center for Occupational and Environmental Health, UCLA*

7D AEROSOL CHEMICAL COMPOSITION MEASUREMENTS I
SEBASTIAN I-3

Amy Sullivan and Yele Sun, chairs

1:15

- 7D.01 Development and Field-Deployment of an Online System to Measure Water Soluble Iron in Aerosols.** Michelle Oakes (1), Neeraj Rastogi (1), Rodney J. Weber (1), Brian Majestic (2), James J. Schauer (3), Martin Shafer (3), Deborah S. Gross (4), (1) *Georgia Institute of Technology, Atlanta*, (2) *Arizona State University, Tempe*, (3) *University of Wisconsin-Madison, Madison*, (4) *Carleton College, Northfield*

1:30

- 7D.02 Black Carbon Mass Measurements and Aerosol Composition using an Aerosol Mass Spectrometer.** Achim Trimborn (1), Tim Onasch (1), JOHN JAYNE (1), Jesse Kroll (1), Leah Williams (1), Doug Worsnop (1), Greg Kok (2), Eben Cross(3), Paul Davidovits (3), (1) *Aerodyne Research*, (2) *Droplet Measurement Technologies*, (3) *Boston College*

WEDNESDAY



1:45

7D.03 Development of Aerosol Laser Induced Breakdown Spectroscopy (Aerosol-LIBS) for determination of metals in ultrafine/fine/coarse particles in real time.

Ji-hyun Kwak, Gangnam Cho, Kihong Park,
Gwangju Institute of Science and Technology (GIST)

2:00

7D.04 Development of an IT-TOF Aerosol Mass Spectrometer.

Julie A. Lloyd, Murray V. Johnston,
University of Delaware

2:15

7D.05 Fast and Synchronous Measurements of Inorganic and Organic Components in Atmospheric Aqueous Samples.

YELE SUN(1), Qi Zhang(1), Olga Hogrefe(1), Brian P. Frank(2), Min-Suk Bae(1), James J. Schwab(1), Kenneth L. Demerjian(1), Douglas A. Orsini(1), Kevin P. Rhoads(3), Paul, Fusco(4), (1)*Atmospheric Sciences Research Center, University at Albany, State University of New York, Albany, New York 12203, USA*, (2)*Division of Air Resources, New York State Department of Environmental Conservation, 625 Broadway, Albany, NY 12233, USA*, (3)*Siena College, 515 Loudon Road, Loudonville, New York 12211, USA*, (4) *GE Analytical Instruments, 6060 Spine Road, Boulder, Colorado 80301, USA*

2:30

7D.06 A Thermodesorber-Particle Beam Mass Spectrometer System for the Study of Volatility and Composition of Organic Aerosol.

ANNELISE FAULHABER (1), Brenda M. Klingbeil (1), Jose L. Jimenez (2), John T. Jayne (3), Douglas R. Worsnop (3), Paul J. Ziemann (1), (1) *University of California, Riverside*, (2) *University of Colorado, Boulder*, (3) *Aerodyne Research Inc.*



7E ORGANIC AEROSOL CHEMISTRY I
SEBASTIAN I-4

Geoffrey Smith and David Cocker, chairs

1:15

- 7E.01 Formation of Methyl Tetrols and Secondary Organic Aerosol from the Reaction of Isoprene with OH in the Absence of Nitrogen Oxides.** TADEUSZ E. KLEINDIENST (1), Michael Lewandowski (1), John H. Offenberg (1), Edward O. Edney (1), Mohammed Jaoui (2), *U.S. EPA, National Exposure Research Laboratory, Alion Science and Technology*

1:30

- 7E.02 Can Secondary Organic Aerosol Formed in Atmospheric Simulation Chamber Be Continuously Aging?** Li Qi, Shunsuke Nakao, Quentin Malloy, Bethany Warren, and David Cocker III, Department of Chemical and Environmental Engineering, Bourns College of Engineering, Center for Environmental Research and Technology (CE-CERT), University of California, Riverside, CA 92507, USA

1:45

- 7E.03 SOA Production from Semivolatile and Intermediate Volatility Organic Compounds.** ALBERT A. PRESTO, Marissa A. Miracolo, Neil M. Donahue, Allen L. Robinson, *Center for Atmospheric Particle Studies, Carnegie Mellon University*

2:00

- 7E.04 Photodegradation of secondary organic aerosol derived from oxidation of terpenes.** SERGEY A. NIZKORODOV (1), Adam P. Bateman (1), Stephen A. Mang (1), Dana Henriksen (1), Xiang Pan (1), Mads P. S. Andersen (1), Donald R. Blake (1), Julia Laskin (2), Alexander Laskin (2), (1) *University of California, Irvine*, (2) *Pacific Northwest National Laboratory*

2:15

- 7E.05 Do Solid and Liquid Organic Particles Get Oxidized Differently in the Atmosphere?** GEOFFREY D. SMITH, Lindsay Renbaum, *University of Georgia*

WEDNESDAY



2:30

- 7E.06 Secondary Organic Aerosol Production from Complex Precursor Mixtures.** Meagan Hatfield, Hardik Amin, John Junge, Audrey Wagner, and Kara Huff Hartz, *Southern Illinois University Carbondale*

Wednesday

2:45 PM - 3:15 PM

BREAK

SEBASTIAN J/K

Wednesday

3:15 PM - 4:30 PM

SESSION 8: PLATFORM

8A URBAN AEROSOLS: SIZE DISTRIBUTIONS

SEBASTIAN L

Allen Robinson and Ming-Yeng Lin, chairs

3:15

- 8A.01 High-resolution Mapping of Ultrafine Particles and Carbon Monoxide in an Urban Near-road Environment.** Gayle S.W. Hagler (1), Eben D. Thoma (1), Richard W. Baldauf (1,2), (1) US EPA, *Office of Research and Development* (2) US EPA, *Office of Transportation and Air Quality*

3:30

- 8A.02 Microscale Variations of Ultrafine Particle Number and Size Distributions in the Urban Atmosphere.** Cheol-Heon Jeong, Greg Evans, *Southern Ontario Centre for Atmospheric Aerosol Research, University of Toronto, Toronto, Ontario, Canada*

3:45

- 8A.03 Mobile Measurements of Composition (AMS, MAAP) and Size Distributions (FMPS) in Different Cities and Regions.** Silke Weimer, Claudia Mohr, Claudia Good, M. Rami Alfarra, Andre S.H. Prevot, Urs Baltensperger, *Laboratory of Atmospheric Chemistry, Paul Scherrer Institute, Switzerland*



4:00

- 8A.04 Wintertime Submicron Aerosol in Rural Atmosphere: Case Study from Two Villages in the Czech Republic.** JAN HOVORKA, Jana Vrbova and Zuzana Stankova, Charles *University in Prague*

4:15

- 8A.05 Intra-community Spatial Variability of Particulate Matter Size Distributions in Southern California/Los Angeles.** MARGARET KRUDYSZ (1), Katharine Moore (2), Michael Geller (2), Constantinos Sioutas (2), John Froines (1), (1) *University of California, Los Angeles*, (2) *University of Southern California*

**8B SOURCE APPORTIONMENT: APPLICATIONS II
SEBASTIAN I-1**

Matt Fraser and Jim Flanagan, chairs

3:15

- 8B.01 The Use of Potential Source Contribution Functions to Examine Potential Source Areas and Transport Pathways of Nitrate and Sulfate in UK.** Yetan Li(1), Philip Hopke(2), Roy Harrison(2), (1) *Clarkson University* (2) *The University of Birmingham*

3:30

- 8B.02 Size-Segregated Inorganic and Organic Components of PM in the Communities of the Long Angeles Harbor.** MOHAMMAD ARHAMI (1), Markus Sillanpää(1), Shaohua Hu(1), Michael R. Olson(2), James J. Schauer(2) and Constantinos Sioutas(1), (1) *university of Southern California*, (2) *University of Wisconsin-Madison*

3:45

- 8B.03 Spatial and Temporal Trends in Carbonaceous Aerosols within two midwestern cities.** David C. Snyder(1), Rebecca C. Bader(1), Christopher Worley(1), Michael Olson(1), Martin Shafer(1,2), Timothy Dallmann(1), Andrew P. Rutter(1), and James J. Schauer(1,2), (1) *University of Wisconsin-Madison, Environmental Chemistry & Technology Program*, (2) *Wisconsin State Laboratory for Hygiene*

WEDNESDAY



4:00

8B.04

Urban Aerosol Chemistry in the City of

Edmonton. Paul Makar (1), CRAIG STROUD (1), Sunhee Cho (2), Brian Wiens (3), Win Lee (4), John Liggio (1), Shao-Meng Li (1), Lisa Graham (5), Jeff Brook (1), Mourad Sassi (6), Mike Moran (1), Wanmin Gong (1), Sunling Gong (1), Kevin Strawbridge (1), Kurt Anlauf (1), Cristian Mihele (1), Desiree Toom-Sauntry (1), (1) *Air Quality Research Division, Environment Canada, Toronto, Canada* (2) *Alberta Environment, Edmonton, Alberta, Canada* (3) *Prairie and Northern Region, Environment Canada, Edmonton, Alberta, Canada* (4) *CANMET Energy Technology Centre, Natural Resources Canada, Ottawa.* (5) *STB - ESTCD - Emissions Research and Measurement, Environment Canada, Ottawa* (6) *Air Quality Model Applications Unit, Environment Canada, Dorval, Quebec.*

4:15

8B.05

Single Particle Observations of Variability

within the Urban Aerosol. ANDREW AULT, Cassandra Gaston, Ying Wang, Melanie Zauscher, Robert Moision, Kimberly Prather, *University of California, San Diego*

8C HEALTH-RELATED AEROSOLS: CHARACTERIZATION

SEBASTIAN I-2

Paul Baron and Jake McDonald, chairs

3:15

8C.01

Medical Spray Dynamics in an Innovative

Hood-Shaped Inhaler. DAVID KATOSHEVSKI (1), TAL SHAKKED (1), DAVID M. BRODAY (2), ISRAEL AMIRAV (3), (1) *Ben-Gurion University, Beer-Sheva, Israel*, (2) *Technion, Haifa, Israel*, (3) *Sieff Hospital, Safed, Israel*

3:30

8C.02

Controlling the Size Distribution of Bioaerosol Droplets by Modifying the Viscoelastic

Properties of Mucus. M A Hasan (1), G. Zayas (2), M King (2) and C F. Lange (1), (1) *Department of Mechanical engineering, University of Alberta, Edmonton, T6G2G8, Alberta, Canada* (2). *Pulmonary Research Group, University of Alberta, Edmonton, T6G 2V2, Alberta, Canada*



3:45

- 8C.03 Characterization of Nanoparticles and Emission Variation from a LaserJet Under Different Printing Conditions.** Zhong-Min Wang, Jeff Wagner, Stephen Wall, *California Department of Public Health*

4:00

- 8C.04 Characterization of Virus Aerosols.** JIN-HWA LEE (1), Chang-Yu Wu (1), Christiana N. Lee (1), Diandra Anwar (1), Ariana N. Tuchman (1), Joseph Wander (2), (1) *University of Florida*, (2) *Air Force Research laboratory, Tyndall Air Force Base*

4:15

- 8C.05 Relationship between aerodynamic and mobility diameters of single- and multi-walled carbon nanotube aerosols.** PRAMOD KULKARNI, Gregory J. Deye, Bon-Ki Ku, and Paul A. Baron, *Centers for Disease Control and Prevention National Institute for Occupational Safety and Health Cincinnati, OH*

8D AEROSOL CHEMICAL COMPOSITION MEASUREMENTS II
SEBASTIAN I-3

Tim Raymond and Allison Aiken, chairs

3:15

- 8D.01 Calibration/Quantification Methods and Smog Chamber Measurements of Semivolatile Organic Compounds Using Thermal Desorption Aerosol GC-MS (TAG).** ANDREW T. LAMBE (1), Emily A. Weitkamp (1), Amy M. Sage (1), Allen L. Robinson (1), Neil M. Donahue (1), Nathan M. Kreisberg (2), Susanne V. Hering (2), David R. Worton (3), Allen H. Goldstein (3), (1) *Carnegie Mellon University*, (2) *Aerosol Dynamics Inc.*, (3) *University of California, Berkeley*

3:30

- 8D.02 Continuous Monitoring of Water-Soluble Aerosol Composition with Microfluidic Devices.** SCOTT D. NOBLITT (1), Susanne V. Hering (2), Jeffrey L. Collett, Jr. (1), Charles S. Henry (1), (1) *Colorado State University*, (2) *Aerosol Dynamics, Inc.*

WEDNESDAY



3:45

- 8D.03** **Minimization of Artifacts in Sulfuric Acid Mist Measurement Using NIOSH Method 7903.** YU-MEI HSU(1), Chang-Yu Wu(1), Dale A. Lundgren(1), Brian K. Birky(2), (1) *University of Florida* (2) *Florida Institute of Phosphate Research*

4:00

- 8D.04** **Improving the Collection Efficiency for the Aerodyne Aerosol Mass Spectrometer with Liquid Coatings on Particles.** Sally Ng (1), Eben Cross (2), LEAH WILLIAMS (1), Timothy B. Onasch (1), John T. Jayne (1), Jennifer McInnis (3), Douglas Worsnop (1), (1) *Aerodyne Research, Billerica, MA*, (2) *Boston College, Chestnut Hill, MA*, (3) *Cornell University, Ithaca, NY*

4:15

- 8D.05** **Novel Approaches for Speciation of Platinum and Vanadium in Mobile Source Emissions.** MARTIN SHAFER (1), James Schauer (1), Walter Copan (2), Alberto Ayala (3), Shaohua Hu (3), Jorn Herner (3), (1) *University of Wisconsin-Madison Environmental Chemistry and Technology*, (2) *Clean Diesel Technologies Inc*, (3) *California Air Resources Board*

8E ORGANIC AEROSOL THERMODYNAMICS SEBASTIAN I-4

Kelley Barsanti and John Offenberg, chairs

3:15

- 8E.01** **The Chemical Composition of alpha-Pinene SOA Particles is Increasingly Oxygenated at Lower Particle Mass Loadings.** SCOT T. MARTIN (1), John E. Shilling (1), Qi Chen (1), Stephanie M. King (1), Thomas Rosenoern (1), Jesse H. Kroll (2), Douglas R. Worsnop (2), Peter F. DeCarlo (3), Allison C. Aiken (3) Donna Sueper (2,3) Jose L. Jimenez (3), (1) *Harvard University, Cambridge* (2) *Aerodyne Research Inc, Billerica* (3) *University of Colorado, Boulder*



3:30

- 8E.02 Sensitivity of Organic PM Predictions to Thermodynamic and Concentration Input Data.** JAMES F. PANKOW, *Portland State University, Portland, Oregon*

3:45

- 8E.03 Simulations of Organic Particulate Matter Formation by Alpha-Pinene Ozonolysis Using the N*p + P Model Approach.** KELLEY BARSANTI (1), James Pankow (2), (1) NCAR, Boulder, (2) Oregon Health & Science University, Portland

4:00

- 8E.04 Effective Enthalpies of Vaporization of SOA Produced from Biogenic, Aromatic and Normal Aliphatic Hydrocarbons.** John H. Offenbergl(1), Michael Lewandowski(1), Edward O. Edney(1), Tadeusz E. Kleindienst(1), Mohammed Jaoui(2), (1) National Exposure Research Laboratory, U.S. Environmental Protection Agency, RTP, NC, (2) Alion Science and Technology, RTP, NC

4:15

- 8E.05 Enthalpy of Vaporization and Saturation Vapor Pressure for Semi-Volatile Organic Aerosols: the Integrated Volume Method.** RAWAD SALEH, Andrey Khlystov, *Duke University*

WEDNESDAY

*Wednesday***4:40 PM - 5:40 PM****WORKING GROUP MEETINGS I***Wednesday***5:50 PM - 6:50 PM****WORKING GROUP MEETINGS II***Wednesday***7:00 PM - onward****ALUMNI DINNERS I**



Thursday

8:00 AM - 9:15 AM

PLENARY III

SEBASTIAN L

8:00 Physical, Chemical and Toxicological Characteristics of PM from Mobile Sources
Constantinos Sioutas, *University of Southern California*

9:00 Presentation of the BYH Liu and David Sinclair Awards
David Ensor, *Awards Committee Chair*

Thursday

9:00 AM - 3:30 PM

EXHIBITS OPEN

SEBASTIAN J/K

Thursday

9:20 AM - 10:45 AM

SESSION 9: POSTER & CONTINENTAL BREAKFAST

SEBASTIAN J/K

9A SYMPOSIUM: MOBILE-SOURCE PM

SEBASTIAN J/K

9A.01 Chemical Speciation of PM Emissions from Heavy Duty Diesel Vehicles Equipped with Diesel Particulate Filter (DPF) and SCR Retrofits. SHAOHUA HU(1,3), Subhasis Biswas(1), Vishal Verma(1), James J. Schauer(2), Jorn Herner(3), Alberto Ayala(3) and Constantinos Sioutas(1), (1)*University of Southern California, Los Angeles*, (2)*University of Wisconsin-Madison, Madison*, (3)*Californian Air Resources Board, Sacramento*

9A.02 Parameters Affecting In-cabin to On-roadway (I/O) Ultrafine Particle Concentration Ratios. BIN XU and Yifang Zhu, *Texas A&M University, Kingsville*



- 9A.03 Ultrafine Particles Deposition inside Passenger Cars.** Longwen Gong, Bin Xu, Yifang Zhu, *Texas A&M University-Kingsville*
- 9A.04 Ultrafine Particles and Associated Pollutants inside School Buses before and after Retrofitting.** Qunfang Zhang, Yifang Zhu, *Texas A&M University-Kingsville*
- 9A.05 Carbonyls in Biodiesel and Diesel Exhaust in Gas and Particulate Phases and Effects of Photochemical Oxidation.** Kenneth G. Sexton Kim de Bruijne Seth Ebersviller Cassie O'Lenick Ruby Woodside Ilona Jaspers Harvey E. Jeffries, *University of North Carolina, Chapel Hill*
- 9A.06 Light- And Heavy-Duty Vehicle Emission Factors Of PM Species Based On Freeway Measurements And Comparison With Tunnel And Dynamometer Studies.** ZHI NING(1), Andrea Polidori(1), James J. Schauer(2), Constantinos Sioutas(1), (1) *Department of Civil and Environmental Engineering, University of Southern California* (2) *Environmental Chemistry and Technology Program, University of Wisconsin-Madison*
- 9A.07 Real-Time Characterization Of Particle-Bound Polycyclic Aromatic Hydrocarbons In Ambient Aerosols And From Motor-Vehicle Exhaust.** Andrea Polidori (1), Shaohua Hu (2), Subhasis Biswas (1), Ralph J. Delfino (3), and Constantinos Sioutas (1), (1) *University of Southern California* (2) *California Air Resource Board (CARB)* (3) *University of California Irvine*
- 9A.08 Construction and Utility of a Mobile Monitoring Platform to Measure Community Level PM and Characterize Point and Line Sources.** Steve Mara (1), Seong Suk Park (1), Kathleen Kozawa (1), Alberto Ayala (1), JORN HERNER (1) and Aruthru Winer (2), (1) *California Air Resources Board*, (2) *Environmental Science and Engineering, School of Public Health, UCLA*



- 9A.09** **Number Size Distributions of Ambient Ultrafine Particles During Traffic Rush-hour Periods.** YI-TING WANG, Ya-Wun Jhang, Cheng-Hang Sie, Li-Hao Young, *China Medical University, Taiwan*
- 9A.10** **Traffic Emission of Aerosols.** M. VOGT (1), E.D. NILSSON (1), E. M. MÅRTENSSON (1), L. AHLM (1), K. ROSMAN (1), L. BÄCKLIN (2), C. JOHANSSON (3), (1)*Department of Applied Environmental Science (ITM), Stockholm Univ* (2)*Central Workshop, Stockholm University,* (3)*City of Stockholm Environment and Health Administration, Stockholm Luft Buller analys (SLB),*
- 9A.11** **Characterization of Air Contamination at a Busy Roadside of Seoul, Korea in Spring.** Gwi-Nam Bae (1), Seung-Bok Lee (1), Su-Mi Park (1), Jungho Hwang (2), (1) *Korea Institute of Science and Technology, Seoul, Korea,* (2) *Yonsei University, Seoul, Korea*
- 9A.12** **Maximum Exposure Levels of Particulate Matters Caused by Vehicles.** Seung-Bok Lee, Su-Mi Park, Hyun-Cheol Jin, Gwi-Nam Bae, *Korea Institute of Science and Technology*
- 9A.13** **Emission Measurements at Sea.** Harshit Agrawal (1,2), William A. Welch (2), J. Wayne Miller (1,2), David R. Cocker (1,2), (1) *University of California, Riverside,* (2) *College of Engineering-Center for Environmental Research and Technology (CE-CERT), Riverside*
- 9A.14** **Heterogeneous Reaction Products of Bio-versus Petro-diesel Particles with Ozone.** N. Tucker Stevens Dan Nielsen Britt A. Holmen, *University of Vermont*
- 9A.15** **Comparison of Diesel Crankcase and Tailpipe PM Emissions with Species Collected in School Bus Cabins.** BARBARA ZIELINSKA(1), Robert Ireson(2), Christopher Weaver(3), Timothy Larson(4), Douglas Lawson(5), Thomas Hesterberg(6), and L.-J. Sally Liu(4), 1 *Desert Research Institute, Reno, NV;* 2 *Air Quality Management Consulting, Greenbrae, CA;* 3



Engine, Fuel, and Emissions Engineering, Inc., Rancho Cordova, CA; 4 Dept. of Environmental and Occupational Health Sciences, Univ. of Washington, Seattle WA; 5 National Renewable Energy Laboratory, Golden, CO; 6 International Truck and Engine Corp., Warrenville, IL

- 9A.16 Light scattering measurements of soot agglomerate size, mass, and primary particle number for diesel engines.** Donald Holve, Process Metrix, *Pleasanton, CA*
- 9A.17 Using Natural Isotope Variations of Iron and Copper to Determine the Source of Automobile Emissions.** BRIAN J MAJESTIC, Ariel D. Anbar, Pierre Herckes, *Arizona State University, Tempe*
- 9A.18 Size-resolved reactivity of engine combustion particulate matter with ozone.** DAN NIELSEN, Tucker Stevens, Britt Holmen, *University of Vermont*
- 9A.19 Evaluation Of Diesel Nanoparticle Emissions With The European Pmp Methodologies Using Chassis Dynamometer And On-Road Testing.** Ajay Kumar Chaudhary (1), Thomas D. Durbin (1), Kent C. Johnson (1), Heejung Jung (1), David R. Cocker III (1), Jorn D. Herner (2), William H. Robertson (2), Alberto Ayala (2), Tao Huai (2), and David Kittelson (3), (1) *University of California, College of Engineering, Center for Environmental Research and Technology (CE-CERT), Riverside, CA* (2) *California Air Resources Board (CARB), Sacramento, CA* (3) *University of Minnesota, Department of Mechanical Engineering, Minneapolis, MN*
- 9A.20 Chemical Characteristics of Diesel Exhaust Particulates.** Jaehyun Lim (1, 3), Liya E. Yu (2), Cheolsoo Lim (3), Jungho Ryu (3), Jongchoon Kim (3), (1) *Department of Chemical & Biomolecular Engineering and (2) Division of Environmental Science & Engineering, National University of Singapore, Singapore* (3) *Division of Transportation Pollution Research Center, National Institute of Environmental Research, Korea*



- 9A.21 Spatial Distribution of the Ambient Fine Aerosol in Syracuse, NY.** Edmund, McAddy (1), Jennifer Ehrhardt (1), Philip K. Hopke (1), Thomas Holsen (1), Xing Wang (2), K. Max Zhang (2), Myron Mitchell (3), (1) *Clarkson University* (2) *Cornell University* (3) *SUNY College of Environmental Science and Forestry*
- 9A.22 The impact of the change in the public transport system in air pollution emissions: a study at a street level in Santiago, Chile.** Pablo Ruiz (1) Pedro Oyola (1) Ernesto Gramsch (2) Gianni Lopez (1) Jorge Caceres (1), (1) *Centro Mario Molina Chile* (2) *Universidad de Santiago*
- 9A.23 Horizontal Profiling to Assess the Spatial Influence of Main Roads on PM₁₀ and Ultrafine Particle Number Concentrations in South Manchester, UK.** ANNA LEAVEY (1), Ian Longley (2), Frank de Vocht (1), Carl Percival (1), Martin Gallagher (1), (1) *University of Manchester*, (2) *National Institute of Water and Atmospheric Research Ltd*
- 9A.24 Modeling the Impact of Diesel Emissions on Air Quality in South Bronx: Methodology and Preliminary Results.** PRUEK PONGPRUEKSA (1), Ke Zhang (1), Huaizhu Gao (1), Steven Denero (1), James Reagan (1), Vladilen Isakov (2), Patrick Kinney (3), Molini Patel (3), Steven Chillrud (3), (1) *Cornell University, Ithaca* (2) *NOAA/EPA, Research Triangle Park* (3) *Columbia University, New York City*
- 9A.25 Air Pollution in Beijing: A \Particulate\ Experience.** Dane Westerdahl (1), Xing Wang (1), K. Max Zhang (1), Xiaochuan Pan (2), Yuping Jia (2), (1) *Cornell University*, (2) *Peking University School of Public Health*
- 9A.26 Elements Emitted from Advanced Technology Heavy Duty Diesel Vehicles.** JORN D. HERNER (1), Martin Shafer (2), William Robertson (1), Shaohua Hu (1), John Collins (1), Tao Huai (1), James J. Schauer (2), Constantinos Sioutas (3), Alberto Ayala (1), (1) *Californian Air Resources*



Board, Sacramento/El Monte, CA, (2) University of Wisconsin-Madison, Madison, MA, (3) University of Southern California, Los Angeles, CA

- 9A.27 The Impact of Alternative Fuels on Aircraft Emissions.** B. E. ANDERSON (1), A. Bhargava (2), A. J. Beyersdorf (1), E. L. Winstead (1), K. L. Thornhill (1), D. S. Liscinsky (3), J. Souza (4), C. Wey (5), K. Tacina (6), M. T. Timko(7), Z. Yu (7), T. B. Onasch (7), R. C. Miake-Lye (7), E. Corporan (8), Robert Howard (9) M.J. DeWitt (10), and C.Klingshirn (10), (1) *NASA Langley Research Center* (2) *Pratt & Whitney, East Hartford* (3) *United Technologies Research Center* (4) *Pratt & Whitney, West Palm Beach* (5) *ASRC Aerospace Corp* (6) *NASA Glenn Research Center* (7) *Aerodyne Research Inc.* (8) *Air Force Research Laboratory* (9) *AEDC/ATA* (10) *University of Dayton Research Institute*

- 9A.28 A Hybrid Urban Air Pollution Model.** Meilu He, Pier Marzocca, Suresh Dhaniyala, *Clarkson University*

**9B AEROSOLS, CLOUDS AND CLIMATE:
MEASUREMENTS**
SEBASTIAN J/K

- 9B.01 Formation of Secondary Organic Aerosol through Cloud Processing of Anthropogenic VOCs.** JAMES W. HUTCHINGS III, Pierre Herckes, *Arizona State University*

- 9B.02 Cluster Analysis of UV Laser Induced Fluorescence Spectra of Ambient Aerosols.** HERMES HUANG (1), Yong-Le Pan (1), Steven Hill (2), Ronald Pinnick (2), Richard Chang (1), (1) *Yale University*, (2) *Army Research Laboratory, Adelphi, MD*

- 9B.03 Measuring Homogeneous Freezing with a Continuous Flow Diffusion Chamber.** MATHEWS RICHARDSON, Paul DeMott, Sonia Kreidenweis, *Department of Atmospheric Science, Colorado State University*

THURSDAY



- 9B.04 Oceanic Trace Gases: Quantification and Climate Impact.** BRETT GANTT, Nicholas Meskhidze, Daniel Kamykowski, *North Carolina State University*
- 9B.05 New Approach for Inversion of Tandem Differential Mobility Analyser Measurements.** M. Gysel (1), G. B. McFiggans (2), H. Coe (2), (1) Paul Scherrer Institut, Villigen, Switzerland, (2) SEAES, *The University of Manchester, UK*
- 9B.06 Morphological Analysis of Mobility Classified Submicron Atmospheric Particles by Transmission electron Microscopy (TEM) and Atomic Force Microscopy (AFM).** LAARNIE TUMOLVA, Kihong Park, *Gwangju Institute of Science and Technology*
- 9B.07 Hygroscopic Growth and Cloud Condensation Nuclei Activity of Secondary Organic Aerosol Formed Through Photo-Oxidation of Alpha-Pinene.** Martin Gysel (1), Zsófia Jurányi (1), Jonathan Duplissy (1), Torsten Tritscher, Joseph Dommen (1), Silvia Henning (2), Markus Ziese (2), Alexej Kiselev (2), Frank Stratmann (2), Ingrid George (3), Ernest Weingartner (1), Urs Baltensperger (1), (1) *Paul Scherrer Institut, Villigen PSI, Switzerland*, (2) *Institute for Tropospheric Research, Leipzig, Germany*, (3) *Dept. of Chemistry, University of Toronto, Canada*
- 9B.08 CCN Activity of SOA Mixed Organic-Sulfate Particles at Atmospheric Mass Loadings.** SCOT T. MARTIN, Stephanie M. King, Thomas Rosenoern, John E. Shilling, Qi Chen, *School of Engineering and Applied Sciences & Department of Earth and Planetary Sciences, Harvard University, Cambridge, Massachusetts, USA*
- 9B.09 Ubiquitous Influences of CCN on Small Cumulus Microphysics.** JAMES G. HUDSON Stephen Noble Vandana Jha, *Desert Research Institute*



- 9B.10 Exploring the Differences in Aerosol and Cloud Properties Observed by the MODIS Twin Sensors.** NICHOLAS MESKHIDZE (1), Robinson Negrón Juárez (2), Lorraine A. Remer (3), Steven Platnick (3) 1 Marine Earth and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 27695 2 Ecology and Evolutionary Biology, Tulane University, New Orleans, LA 70118 3 NASA Goddard Space Flight Center, Greenbelt, MD, 20771, (1) *Marine Earth and Atmospheric Sciences, North Carolina State University, Raleigh, NC* (2) *Ecology and Evolutionary Biology, Tulane University, New Orleans, LA* (3) *NASA Goddard Space Flight Center, Greenbelt, MD*
- 9B.11 Overview of Tropical Aerosol Properties Derived from NASA TC4 DC-8 Airborne Observations.** G. Chen (1), B. E. Anderson (1), K. Lee Thornhill (1,2), M. M. Kleb (1), E. Winstead (1,2), J. Hair (1), C. Butler (1,2), J. E. Dibb (3), E. Scheuer (3), and Terry L Latham (4), (1) *NASA Langley Research Center*, (2) *Science Systems and Applications, Inc.*, (3) *University of New Hampshire*, and (4) *Georgia Institute of Technology*
- 9B.12 Using polydisperse CCN activity measurements to understand aerosol compositional impacts on droplet growth kinetics.** ATHANASIOS NENES (1), Sara Lance (2), Akua Asa-Awuku (1), Luz Padro (1), Richard Moore (1), (1) *Georgia Institute of Technology, Atlanta, GA* (2) *NOAA, Boulder, CO*

9C INDOOR AEROSOLS AND AEROSOL EXPOSURE
SEBASTIAN J/K

- 9C.01 Assessing PM Exposure from Woodsmoke in Guatemalan Kitchens Using CO Concentrations.** Amanda L Northcross(1), Zohir Chowdhury (2), John McCracken (1), Ryan Johnson(3), Eduardo Canuz(4), Kirk R Smith(1), (1) *University of California Berkeley* (2) *San Diego State University* (3) *California Air Reseouces Board* (4) *Univesity del Valle Guatemala*



- 9C.02 A Typical Day's Exposure to Ultrafine and Fine Particulate Matter in Toronto, Canada.** KELLY SABALIAUSKAS (1) Greg Evans (1) Dave Stieb (2) Amanda Wheeler (2) Jeff Brook (3) Monica Campbell (4), (1) *Department of Chemical Engineering and Applied Chemistry, University of Toronto* (2) *Health Canada* (3) *Environment Canada* (4) *Toronto Public Health*
- 9C.03 Personal Exposure to Indoor PM_{2.5} from Woodsmoke in the CRECER Study Using Inexpensive Datalogging Sensors for Time-Activity and Particle Pollution.** Ilse Ruiz-Mercado (1), Nick Lam (1), Amanda Northcross (1), Gian Allen-Piccolo (2), Eduardo Canuz (3), Kirk Smith (1), (1) *University of California, Berkeley* (2) *EME Systems, Berkeley* (3) *Universidad del Valle, Guatemala*
- 9C.04 Contribution of outdoor and wall fungus to indoor airborne fungus in residents.** Ning Huang (1) Yahui Hsu (1) Chunchieh Tseng (2) Chihchieh Chen (1) Yueliang Leon Guo (3), Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University (1) *Department and Graduate Institute of Public Health, Tzu Chi University* (2) *Department of Environmental and Occupational Medicine, National Taiwan University College of Medicine and NTU Hospital* (3)
- 9C.05 Microbial Particles in Confinement Animal Buildings Measured Using a Six-stage Impactor.** JONGMIN LEE, Yuanhui Zhang, *University of Illinois at Urbana-Champaign*
- 9C.06 Measurement of endotoxin and aeroallergens in PM₁₀ and settled dust in the homes and school rooms of asthmatic children.** Suresh Raja, Ying Xu, Andrea R. Ferro, Peter A. Jaques, Philip K. Hopke, *Clarkson University, Center for Air Resources Engineering and Science, Potsdam, NY*



- 9C.07** **Number Size Distributions of Ambient Submicrometer Particles Inside and Outside a Hospital.** Ya-Wen Jhang, Cheng-Hang Sie, Yi-Ting Wang, LI-HAO YOUNG, *China Medical University, Taiwan*
- 9C.08** **The impact of different type of heaters on indoor PM_{2.5} and gases concentrations: A study in Santiago, Chile.** Pablo Ruiz (1) Claudia Toro (1) Pedro Oyola (1) Jorge Caceres (1) Petros Koutrakis (2), (1) *Centro Mario Molina Chile* (2) *Harvard School of Public Health*
- 9C.09** **Redistribution of Semivolatile Organics Associated with Airborne Particles as a Consequence of Outdoor-to-Indoor Transport.** CHARLES J WESCHLER, William W Nazaroff, (1) *Environmental & Occupational Health Sciences Institute, UMDNJ & Rutgers*, (2) *University of California, Berkeley*
- 9C.10** **PM_{2.5} and heavy metal measurements in residential areas of Agra, India.** AJAY TANEJA, Aditi Kulshrestha, David Massey and Jamson Masih, *School of Chemical Sciences, Department of Chemistry, St. John*
- 9C.11** **Personal Exposure Measurements from the Traditional Household and Commercial Scale Stoves in Rural Areas of Orissa, India.** MANORANJAN SAHU (1), Gautam Yadama (2), Jagdeesh Puppala (3), Pratim Biswas(1), (1)*Aerosol and Air Quality Research Laboratory, Washington University in Saint Louis* (2) *Brown School of Social Work, Washington University in Saint Louis* (3) *Foundation for Ecological Security, India*
- 9C.12** **Mass and Number Concentrations of Size Segregated Aerosol in a Large Sport-Hall.** MARIN BRANIS, Jan Hovorka, *Charles University in Prague, Faculty of Science, Institute for Environmental Studies, Prague, Czech Republic*
- 9C.13** **Resuspension of Indoor Particles From Floor Due to Human Walking.** Xinyu Zhang, Jing Qian, Goodarz Ahmadi, Andrea Ferro, *Clarkson University*



- 9C.14 Estimation of PM Exposure from Human Activities on Real Floorings.** SASIKALA MANTHENA (1), Jing Qian (2), Andrea R Ferro (3), *Department of Civil and Environmental Engineering, Clarkson University, Potsdam, NY*
- 9C.15 Droplet Transport and Deposition in a Room.** Mazyar Salmanzadeh Goodarz Ahmadi, *Clarkson University*
- 9C.16 Nonspherical Particle Adhesion and Removal in Turbulent Flows.** Goodarz Ahmadi, Shiguang Guo, *Clarkson University, Potsdam*
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9D SOURCE APPORTIONMENT: APPLICATIONS SEBASTIAN J/K

- 9D.01 Source apportionment of urban aerosol by bilinear PMF2 from highly-time resolved data: Prague winter 2007/2008.** DEVRAJ THIMMAIAH (1), Martin Civiš (1), Jan Hovorka (1), Philip K. Hopke (2), (1) *Charles University in Prague, Czech Republic*, (2) *Department of Chemical and Biomolecular Engineering, Clarkson University, USA*
- 9D.02 PMF Source Apportionment for PM2.5 at the Five National Air Pollution Surveillance (NAPS) Sites across Canada.** Cheol-Heon Jeong(1), Maygan McGuire(1), Greg Evans(1), Tom Dann(2), Dennis Herod(3), (1) *Southern Ontario Centre for Atmospheric Aerosol Research, University of Toronto, Ontario, Canada* (2) *Environmental Science and Technology Centre, Environment Canada, Ottawa, Ontario, Canada* (3) *Air Emissions Priorities Division, Environment Canada, Gatineau, Quebec, Canada*
- 9D.03 Source contribution to fine PM in the Los Angeles-Long Beach harbor area.** MARIA CRUZ MINGUILLON (1), Mohammad Arhami (1), James J. Schauer (2), Constantinos Sioutas (1), (1) *University of Southern California* (2) *University of Wisconsin-Madison*



- 9D.04 Source Apportionment of Elevated Wintertime PAH in a Northern Swedish Town by Compound Specific Radiocarbon Analysis.** REBECCA J. SHEESLEY, Orjan Gustafsson, Patricia Krecl, Christer Johansson, Martin Krus, *Department of Applied Environmental Science (ITM), Stockholm University, Sweden*
- 9D.05 Receptor Modeling of Data with Species-Dependent Time Resolution: Results from the St. Louis — Midwest Supersite.** Yetan Li(1), Philip Hopke (2), Jay Turner(2), (1) *Clarkson University* (2) *Washington University in St. Louis*
- 9D.06 Apportionment of the PM_{2.5} Contribution of Point Sources using Single Particle Mass Spectra and Positive Matrix Factorization (PMF).** David C. Snyder(1), James J. Schauer(1,2), Deborah S. Gross(3) and Jay R. Turner(4), (1) *University of Wisconsin-Madison*, (2) *Wisconsin State Laboratory of Hygiene*, (3) *Carleton College*, (4) *Washington University, St. Louis*
- 9D.07 Source Apportionment of Total Suspended Particulate.** (1)Sandeep Gupta*(2)Arun Srivastava, (3)V. K. Jain, *School of Environmental Sciences, Jawaharlal Nehru University, New Delhi*
- 9D.10 Quantification of organic molecular tracers in urban aerosols collected in Strasbourg (France).** Audrey Lottmann (1) Catherine Grand (2) Claire Veilleraud (2) Olivier Delhomme (1) Marie-France Benassy (2) Maurice Millet (1), (1) *University of Strasbourg I / CNRS* (2) *TOTAL France, CRES*
- 9D.11 Characterization of Organic Fine Particulate Matter in Big Bend National Park and Source Apportionment using PMF.** YULING JIA (1), Matthew P. Fraser (2), (1) *Rice University, Houston* (2) *Arizona State University, Tempe*



- 9D.12 Particulate Matter in Central California: Winter Concentrations and Sensitivity to Emission Controls.** BETTY K. PUN, Rochelle T.F. Balmori, Christian Seigneur, *Atmospheric and Environmental Research, Inc.*

9E AEROSOL CHEMISTRY

SEBASTIAN J/K

- 9E.01 Numerical Modeling of Si Nanoparticle Formation during Silane Pyrolysis.** Jaejung Seo, Taesung Kim, *Sungkyunkwan University, Suwon*
- 9E.02 TDMA and DMA/APM Measurement of Nickel Nanoparticle Oxidation Kinetics.** LEI ZHOU, Ashish Rai, Michael R. Zachariah, *University of Maryland*
- 9E.03 Impact Of The Condensed Metter Metastable States On Vapor Nucleation Rate Surface Topology.** Michael P. ANISIMOV, *Institute of Chemical Kinetics and Combustion, Siberian Division of the Russian Academy of Sciences, Novosibirsk, Russia.*
- 9E.04 Phase-Transition Behavior of Ammonium/Hydrogen/Sulfate Aerosol Nanoparticles of Varying Acidity.** MACKENZIE SMITH, Amanda Mifflin, Scot Martin, *School of Engineering and Applied Sciences, Harvard University*
- 9E.05 Sign preference in binary sulfuric acid-water nucleation.** ALEXEY NADYKTO, Fangqun Yu, Jason Herb, *State University of New York at Albany, ASRC, Albany, NY 12203, USA*
- 9E.06 Atmospheric Observations of Aerosol Sizes and Aerosol Precursors Measured in Kent, Ohio.** Chandra Mouli PAVULURI, Rifkha Kameel, Brian Dailey, Dave Benson, Shan-Hu Lee, *Kent State University, Department of Chemistry, Kent, Ohio*
- 9E.07 A study on real-time formation and neutralization of secondary inorganic species by considering different calibrations for NH₄⁺ in PM_{2.5} in Toronto, Canada.** Xiaohong Yao, Kerolyn Shairsingh, Greg J. Evans, *University of Toronto*



- 9E.08 Spatial distribution of settled under influence of atmospheric and air pollution in Mitrovica with heavy metals.** Syle Tahirsylaj (1), Letafete Latifi (2), Merita Shkodra (3), (1)*University of Prishtina, Faculty of Mining and Metallurgy 40000 Mitrovica, Kosova* (2)*Ministry of Environment and spatial Planning, 10000, Prishtin, Kosova* 3.*University SHTUL, in Tetova, FRY Macedonia*
- 9E.10 Sources of submicron particles in the Mexico City Metropolitan Area from FTIR and XRF Analyses with PMF.** SHANG LIU(1), Satoshi Takahama(1), Lynn M. Russell(1), Stefania Gilardoni(2), (1) *Scripps Institution of Oceanography, University of California, San Diego, La Jolla, USA* (2) *Joint Research Centre, Ispra, Italy*
- 9E.11 An automated sampling system for particle bound reactive oxygen species.** LIPING SUN, Jelica Pavlovic, Xi Chen, Philip K. Hopke, *Center for Air Resources Engineering and Science, Clarkson University, Potsdam*
- 9E.12 Laboratory Investigation of Secondary Organic Aerosol Production from Photo-oxidation of Motor Vehicle Emissions Surrogates.** MARISSA MIRACOLO, Albert Presto, Neil Donahue, Allen Robinson, *Carnegie Mellon University*
- 9E.13 A Flash Vaporization Method for Organic Aerosol Generation.** ALBERT A. PRESTO, Andrew T. Lambe, Scott A. Epstein, Neil M. Donahue, Allen L. Robinson, *Center for Atmospheric Particle Studies, Carnegie Mellon University*
- 9E.14 Formation of 1,2- and 1,4-Naphthoquinone from the Photo-oxidation of Naphthalene with the Hydroxyl Radical.** JIYI LEE, Douglas A. Lane, *Environment Canada, Science and Technology Branch, Toronto, Canada*
- 9E.15 Characterization of Products from the Photo-oxidation of Phenanthrene with the Hydroxyl Radical using GCxGC/TOF-MS.** JIYI LEE, Douglas A. Lane, *Environment Canada, Science and Technology Branch, Toronto, Canada*



- 9E.16 Photooxidation Kinetics and Intermediates of Substituted Dicarboxylic Acids.** YANG LIMING (1), Liya E. Yu (2), (1) & (2) *National University of Singapore, Singapore*
- 9E.17 Spectroscopic Characterization of the Ozonolysis of Octadecene Aerosols via AFT-FTIR.** CINDY DEFOREST HAUSER, Moses Kim, Jonathan Huggins, *Davidson College, Davidson*
- 9E.18 Effect of Hydrophilic Organic Aerosols on the Formation of Secondary Organic Aerosol from Ozonolysis of alpha-Pinene.** CHEN SONG, Rahul Zaveri, Lizabeth Alexander, Alla Zelenyuk, Matt Newburn, *Pacific Northwest National Laboratory*
- 9E.19 Multi-box Model Studies of the Secondary Organic Aerosol Formation from Alpha-Pinene Oxidation under a wider range of conditions.** ADAM XIA, Craig Stroud, Paul Makar, *Environment Canada*
- 9E.20 Predicting Secondary Organic Aerosol Formation: PM-SAPRC08.** Bethany Warren (1), Chen Song (2), William P.L. Carter (1), David R. Cocker III (1), (1) *University of California, Riverside* (2) *Pacific Northwest National Laboratories*

9F HISTORY OF AEROSOL MEASUREMENTS

SEBASTIAN J/K

- 9F.01 Ariel A. Andersen - 50 Years of Cascade Impactors.** KEVIN GOOHS, *Thermo Fisher Scientific, Inc.*

9G AEROSOL SIZE MEASUREMENTS

SEBASTIAN J/K

- 9G.01 Temperature and humidity controlled resuspension chamber as a tool for measuring size distribution of fugitive dust.** MARTIN CIVIS, Devraj Thimmaiah, Jan Hovorka, *Charles University in Prague, Czech Republic*



- 9G.02 Particle Neutralization using a Carbon Fiber Charger for Fine and Ultra-fine Aerosol Particles.** BANGWOO HAN (1,2), ZHI NING (1), NEELAKSHI HUDDA (1), CONSTANTINOS SIOUTAS (1), HAK-JOON KIM (2), YONG-JIN KIM (2), (1) *Department of Civil and Environmental Engineering, University of Southern California* (2) *Environmental System Research Division, Korea Institute of Machinery and Materials*
- 9G.03 Application of Inlet and Transport Diffusion Loss Correction to SMPS Data: Effects on Reported Size Distributions at Urban and Rural Locations in New York.** MIN-SUK BAE (1), James J. Schwab (1), Brian Frank (2), Olga Hogrefe (1), G. Garland Lala (1), Kenneth L. Demerjian (1), (1) *Atmospheric Sciences Research Center, University at Albany, State University of New York*, (2) *Air Resources Division, Bureau of Mobile Sources, New York State Department of Environmental Conservation, Albany, New York*
- 9G.04 Effect of Particle Properties on Determination of Mean Particle Size Using the Electrical Aerosol Detector.** BRIAN P. FRANK (1), Olga Hogrefe (2), (1) *NY State Dept of Environmental Conservation, Albany*, (2) *Atmospheric Sciences Research Center, SUNY-Albany*
- 9G.05 Size Distributions of Lead-containing Particles From Aerosol Sampler Filter and Wall Deposits as Determined by Scanning Electron Microscopy.** TAEKHEE LEE (1), William P. Chisholm (1), James E. Slaven (2), Martin Harper (1), (1) *Exposure Assessment Branch, Health Effects Laboratory Division, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Morgantown, West Virginia*, (2) *Biostatistics and Epidemiology Branch, Health Effects Laboratory Division, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Morgantown, West Virginia*



- 9G.06 Design Modifications to TSI 3071 Differential Mobility Analyzer (DMA) for High Sheath Flow Operation.** Meilu He, and Suresh Dhaniyala, *Clarkson University*
- 9G.07 Influence of Aerosol Generation Methods on Size Distribution Parameters of Standard Particles.** KEIJI TAKAHATA, Kensei Ehara, *National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*
- 9G.08 Aerosol Sample Collection with the In-Tox Products Cascade Impactor.** LARRY BOWEN (1), Larry Bowen, Sr. (2), (1) *Southern Research Institute, Birmingham*, (2) *In-Tox Products, Albuquerque*
- 9G.09 Performance of Aerosol Measurement Devices under Extreme Environmental Conditions.** JASON QUIZON, Shanna Ratnesar, Christopher Bare, Neal Baker, Jerome Gilberry and Joshua L. Santarpia, *Johns Hopkins University Applied Physics Laboratory*
- 9G.10 Characterization of a High Flow Rate Water-Based Condensation Particle Counter for Clean-Room Monitoring.** Jinhong Ahn(1), Kitai Kang(1), Jinuk Yoon(1), Youngtaek Kwon(1), KiSoo Jeon (2), Kangho Ahn(2), (1) *HCT CO.,LTD.* (2) *Hanyang University*
- 9G.11 Water-based CPCs Models 3781, 3785 and 3786 Design Enhancements.** KATHLEEN A. ERICKSON (1), Derek R. Oberreit (2), Fredrick R. Quant (2), Brian L. Osmondson (1), (1) *TSI Inc., Shoreview, MN, USA* (2) *Quant Technologies, LLC, Blaine, MN, USA*
- 9G.12 Direct-Reading Nanoaerosol Instrument Comparison.** TERRI PEARCE, Christopher Coffey, *National Institute for Occupational Safety and Health, Division of Respiratory Disease Studies, Laboratory Research Branch*



- 9G.13 High Speed Particle Size Distributions Measurements of Diesel Exhaust using a Standard SMPS.** Laura A. Kranendonk, John M. Storey, Teresa L. Barone, *Oak Ridge National Laboratory - Fuels, Engines, and Emissions Research Center*
- 9G.14 Determination of dissolved and suspended nanoparticles in water using an aerosolization method combined with membrane filtration technique.** JIYEON PARK, Kihong Park, *Gwangju Institute of Science and Technology*
- 9G.15 New Approach for Engineered Nanoparticle Sizing Studies.** SHERRIE ELZEY, VICKI GRASSIAN, *University of Iowa, Iowa City, IA*

9H AEROSOL FOCUSING AND OPTICAL SEPARATION
SEBASTIAN J/K

- 9H.01 High Flow Rate Aerodynamic Lens System.** GUAN ZHAO (1), Parsa Zamankhan (2), Philip K. Hopke (1), and Suresh Dhaniyala (1), (1) *Clarkson University, Potsdam NY*, (2) *City College of New York*
- 9H.02 Aerosol Focusing in the Size Ranges of 30~300nm and 5~50nm in Air Using the Two Types of Aerodynamic Lenses.** KWANG-SEUNG LEE, Songkil Kim, Yongsuk Oh, Donggen Lee, *Pusan National University, South Korea*
- 9H.03 Separation of Optically Different Particles in a Microchannel Using Radiation Force.** Eunjung Jung, Sang Bok Kim, Sang Soo Kim, *Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology*

9I AEROSOL CHARACTERIZATION: FACILITIES AND MODELING
SEBASTIAN J/K

- 9I.01 Development and Characterization of an Ice Nucleation Chamber.** ANDREW GLEN, Sarah Brooks, Auromeet Saha, Brandon Dooley, *Texas A&M University, Texas*

THURSDAY



- 9I.02 Design and Development of an Energy-Dispersive X-ray Spectrometer: A tool for Environmental Research in Kenya.** Michael J. Gatari Gichuru (1), Johan Boman (2), (1) *University of Nairobi, Kenya*, (2) *Goteborg University, Sweden*
- 9I.03 Computer Modelling Of An Axial Vapor-Gas Flow.** M. P. ANISIMOV (1), V. M. Kovenja (2), and M. O. Romanovskiy (3), (1) *Institute of Chemical Kinetics and Combustion SB RAS, Novosibirsk, Russia* (2) *Institute of Computational Technologies SB RAS, Novosibirsk, Russia* (3) *Novosibirsk State University, 630090 Novosibirsk, Russia*
- 9I.04 Aerosol Penetration and Deposition through Individual Protective Equipment: Modeling and Experiments.** Lucas Craig, *Clarkson University, Potsdam*

9J AEROSOL PHYSICS

SEBASTIAN J/K

- 9J.01 Transport And Deposition Of Submicrometer Particles In A Human Nasal-Laryngeal Model During Expiration.** Jinxiang Xi (1), Xiuhua Si (2), Worth P. Longest (3,4), (1) *Department of Systems Engineering University of Arkansas, Little Rock, AR* (2) *Department of Engineering Calvin College, Grand Rapids, MI* (3) *Department of Mechanical Engineering Virginia Commonwealth University, Richmond, VA* (4) *Department of Pharmaceutics Virginia Commonwealth University, Richmond, VA*
- 9J.02 Optical Properties of Size-resolved Aerosol Observed in the Mega-city of Seoul and the National Park Area of Gyeongju, Korea.** KYUNGWON KIM (1), Young J. Kim (2), Jinsang Jung (2), (1) *Gyeongju University, Korea*, (2) *Gwangju Institute of Science and Technology, Korea*
- 9J.04 Charging State of Submicron Aerosol in Relation to Rain Droplets Size Evolution.** JAN HOVORKA and Devraj Thimmaiah, *Charles University in Prague*



- 9J.05 Collective Protection Airflow Mapping.** KENT REDWINE (1), Mark Hanning-Lee (1), Daryl Ward (2), Darren Jolley (2), (1) *Jacobs Technology Advanced Systems Group* (2) *U.S. Government*
- 9J.06 Aircraft-Based Aerosol Cloud Sampler Design.** ARASH MOHARRERI, Kevin J. Gucwa and Suresh Dhaniyala, *Clarkson University, Potsdam, NY*
- 9J.07 A Web-Based Course for Particle Transport, Deposition and Removal.** GOODARZ AHMADI (1), Suresh Dhaniyala (1), Cetin Cetinkaya (1), John McLaughlin (1), Stephen Doheny-Farina (1), Kambiz Nazridoust(1), David J. Schmidt (1), Xinli Jia (1), and Xiangwei Liu (1), Jeffrey Taylor (1), Mark Glauser (2) *Syracuse University*, Fa-Gung Fan (3), and Ahmed Busnaina (4), (1) *Clarkson University* (2) *Syracuse University* (3) *Xerox Corporation* (4) *Northeastern University*
- 9J.08 Change of the particle extinction coefficient during the aerosol dynamic processes.** C. H. Jung (1), Y.P.Kim (2), (1) *Kyungin Women's College, Incheon, Korea* (2) *Ewha Womans University, Seoul, Korea*
- 9J.09 Large Eddy Simulation of Particle Transport and Deposition in a Turbulent Channel Flow.** Mazyar Salmanzadeh (1,2) Mohammad Rahnema (1,2) and Goodarz Ahmadi (1), (1) *Clarkson University, Potsdam* (2) *Shahid Bahonar University of Kerman, Kerman*
- 9J.10 Quantum Mechanical Investigation of New Particle Formation.** HUA DU, Fangqun Yu, *State University of New York, Albany*
- 9J.11 Making Colloidal Suspensions of Initially Hydrophobic Black Carbon: Applications and Interference from Black Conductive Silicon Tubing.** THOMAS W. KIRCHSTETTER (1), Odelle Hadley (2), Tami Bond (3), Chris Roden (3), (1) *Lawrence Berkeley National Laboratory, Berkeley, California* (2) *Scripps Institution of Oceanography, La Jolla, California* (3) *University of Illinois, Urbana-Champaign, Urbana, Illinois*



- 9J.12 Fast-response particle sizers open a pathway for studying short-term new particle formation events in the atmosphere.**
Xiaohong Yao, Cheol-Heon Jeong, Greg J. Evans, *University of Toronto*
- 9J.13 Simulation of in situ ultrafine particle formation in the Eastern United States using PMCAMx-UF.** JAEGUN JUNG(1), Peter J. Adams(1), Spyros N. Pandis (1, 2), (1) *Carnegie Mellon University* (2) *University of Patras*
- 9J.14 Experimental Estimation for Ion Induced-Nucleation.** Eriko Nakatani Natsuko Yokoyama Motoaki Adachi, *Osaka Prefecture University*
- 9J.15 Aerodynamic Properties of Test Aerosols.** SHANNA RATNESAR-SHUMATE, Joshua L. Santarpia, Jason Quizon, Neal Baker, Christopher Bare, Jerome Gilberry, *Johns Hopkins University Applied Physics Laboratory*
- 9J.16 Effects of Particle-Particle Collisions and Two-Way Coupling on Dispersed and Carrier Phase Fluctuations in DNS Channel Flow.**
Hojjat Nasr (1), Goodarz Ahmadi (1) and John B. McLaughlin (2), (1) *Department of Mechanical and Aeronautical Engineering* (2) *Department of Chemical and Biomolecular Engineering Clarkson University, Potsdam, NY*

9K NANOPARTICLE PHYSICS

SEBASTIAN J/K

- 9K.01 Structural Analysis to Formation of CuO(I) and SiO₂ Aggregates in Aqueous Systems using 3D Off Lattice Monte Carlo Simulation.**
SONGKIL KIM, Kwang-Seung Lee, Yongsuk Oh, Donggeun Lee, *Pusan National University, South Korea*
- 9K.02 Charging Efficiency of a Nanoparticle Charger.** Chuen-Jinn Tsai, Guan-Yu Lin, Huei-Lin Chen, Sheng-Chieh Chen, *National Chiao Tung University, Hsinchu, Taiwan*



- 9K.03 Agglomerate Stability in Orifices.** Burkhard Stahlmecke, Sandra Wagener, CHRISTOF ASBACH, Heinz Kaminski, Heinz Fissan, Thomas A. J. Kuhlbusch, *Institute of Energy and Environmental Technology (IUTA), Division Air Quality and Sustainable Nanotechnology, Duisburg, Germany*
- 9K.04 Modeling Low Energy VUV-Induced Photoelectron Emission from NaCl Nanoparticles.** Matthew J. Berg(1), Kevin R. Wilson(2), Christopher M. Sorensen(1), and Amit Chakrabarti(1), *(1) Kansas State University, Department of Physics, Manhattan, KS (2) Chemical Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA*
- 9K.05 Mass-Mobility Relationship for Silica Agglomerates: Implications for Transport and Morphological Properties.** Jacob H. Scheckman (1), Peter H. McMurry (1), Sotiris E. Pratsinis (2), *(1) University of Minnesota, (2) ETH Zurich*
- 9K.06 Electrical Mobility, Mass, and Size for Nanodrops 1-3.5 nm in Diameter.** Bon Ki Ku (1), Juan Fernandez de la Mora (2), *(1) National Institute for Occupational Safety and Health (NIOSH), Cincinnati, (2) Yale University, New Haven*
- 9K.07 Dynamic shape factor of silver nanoparticle agglomerates.** Weon Gyu Shin (1), Seong Chan Kim (1), George W. Mulholland (2), Jing Wang (1), Mark S. Emery (1), and David Y.H. Pui (1), *(1)Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN (2)Department of Mechanical Engineering, University of Maryland, College park, MD*
- 9K.08 The Crystalline Phase Transition Following Morphology Exchange Of Copper (I) Oxide Nanoparticles During Spray Pyrolysis.** DUDI ADI FIRMANSYAH, Taeil Kim, and Donggeun Lee, *Pusan National University, Busan, South Korea*



9L LATE-BREAKING POSTERS

SEBASTIAN J/K

- 9L.01 Modeling and Monitoring of Particulate Matter in a Semi-arid/Arid Area in Support of Health Assessment Study.** R. Dimitrova, H. J. S. Fernando, B.C. Hedquist, P. Hyde, J. Anderson, *Arizona State University, Tempe*
- 9L.02 Vehicular Fine Particles Transport and Formation in the Urban Atmosphere of Sao Paulo.** BEATRIZ SAYURI OYAMA Maria de Fatima Andrade, *Atmospheric Sciences Department, University of Sao Paulo, Sao Paulo, Brazil*
- 9L.03 Synthesis of hydrogenated silicon nanoparticle and its application to secondary battery.** Kwangsu Kim(1), Jin-Hwan Park(2), Seok-Gwang Doo(2) and T Kim(1.3), (1) *SKKU Advanced Institute of Nanotechnology(SAINT), Sungkyunkwan University* (2) *Energy & Environment Lab, Samsung Advanced Institute of Technology* (3) *School of Mechanical Engineering, Sungkyunkwan University*
- 9L.04 Monitoring of Transient Ultrafine Particle Size Distribution at a Roadside Using SMPS and TR-DMPS.** Dawkwang Woo(1), Seungbok Lee(2), Gwinam Bae(2) and Taesung Kim(1,3), (1) *School of Mechanical Engineering, Sungkyunkwan University* (2) *Environmental Technology Research Center, Korea Institute of Science and Technology* (3) *SKKU Advanced Institute of Nanotechnology(SAINT), Sungkyunkwan University*
- 9L.05 Rain-Aerosol Coupling In the Tropical Atmosphere of Southeast Asia.** Jun He, RAJASEKHAR BALASUBRAMANIAN, Division of Environmental Science & Engineering, *National University of Singapore*
- 9L.06 Direct Comparative Measurements of Aerosol Hygroscopicity.** KATE L. HANFORD, Laura Mitchem, Nana-Owusua A. Kwamena and Jonathan P. Reid, *University of Bristol, UK*



- 9L.07 Physical Characteristics of Ultrafine Particles Generated from Cooking Ranges.** David Cha-Chen Fung, William C. Hinds, Nola Kennedy, Nancy Jennerjohn, *University of California, Los Angeles*
- 9L.08 Radiological Dispersal Device Outdoor Simulation Test: Cesium Chloride Particle Characteristics.** Sang Don Lee (1), Emily G. Snyder (1), Robert Willis (1), Robert Fisher (2), Dianne Gates-Anderson (2), Brian Vianni (2), John Drake (1), John MacKinney (3), (1) *Environmental Protection Agency* (2) *Lawrence Livermore National Laboratory* (3) *US Department of Homeland Security*
- 9L.09 Size-specific Real-time Measurements of Roadside PM₁/UFP Concentration and Charge.** MATTHEW D. WRIGHT, Alison J. Buckley, Denis L. Henshaw, *Department of Physics, University of Bristol, UK*
- 9L.10 From NANO Particles to large Aerosols - Ultrafast Measurement Methods for Size and Concentration.** JUERGEN SPIELVOGEL (1), Dr. Lothar Keck (2), Dr. Hans Grimm (3),

Thursday

10:45 AM - 12:00 PM

SESSION 10: PLATFORM

10A SYMPOSIUM: CHARACTERIZING MOBILE PM SOURCES I
SEBASTIAN L

Alberto Ayala and Tom Kirchstetter, chairs

10:45

- 10A.01 Size-Resolved and Total Particle Number Emission Factors for On-Road Gasoline and Diesel Motor Vehicles.** George Ban-Weiss (1), MELISSA LUNDEN (2), Thomas Kirchstetter (2), Robert Harley (3), (1) *University of California, Dept. of Mechanical Engineering, Berkeley* (2) *Lawrence Berkeley National Laboratory, Atmospheric Science Dept., Berkeley* (3) *University of California, Dept. of Civil and Environmental Engineering, Berkeley*

THURSDAY



11:00

- 10A.02 Understanding the PM Emissions from Heavy-Duty Diesel Trucks Compliant for 2010 PM Regulation.** Ajay Kumar Chaudhary (1,2), Kent Johnson (1,2), Varalakshmi Jayaram (1,2), Thomas D. Durbin (1), David R. Cocker III (1,2), (1) *Bourns College of Engineering, Center for Environmental Research and Technology (CE-CERT)*, (2) *Department of Chemical and Environmental Engineering, University of California, Riverside, CA*

11:15

- 10A.03 Toxicity of Particulate Matter from Heavy-Duty Vehicles Retrofitted with Emission Control Technologies.** Subhasis Biswas (1), Andrea Polidori (1), Vishal Verma(1), Shaohua Hu(2), Jorn Herner(2), Alberto Ayala(2), James J. Schauer(3), Arthur K. Cho(4), Constantinos Sioutas(1), (1)*University of Southern California, Los Angeles* (2)*Californian Air Resources Board, Sacramento* (3)*University of Wisconsin-Madison, Madison* (4)*University of California, Los Angeles*

11:30

- 10A.04 Distributions of Soot and Ultrafine Particle Emissions from Heavy-Duty Trucks.** George Ban-Weiss (1), ROBERT HARLEY (1), Melissa Lunden (2), Thomas Kirchstetter (2), (1) *University of California, Berkeley*, (2) *Lawrence Berkeley National Laboratory*

11:45

- 10A.05 Ionic and Organic Species in PM Emissions from Advanced Technology Heavy Duty Diesel Vehicles.** ALBERTO AYALA (1), Shaohua Hu (1), Jorn Herner (1), M.-C.Oliver Chang (1), William Robertson (1), John Collins (1), Tao Huai (1), Paul Rieger (1), Constantinos Sioutas (2), (1) *California Air Resources Board, Sacramento/El Monte, CA*, (2) *University of Southern California, Los Angeles, CA*



10B AEROSOLS, CLOUDS AND CLIMATE II
SEBASTIAN I-1

Barbara Ervens and Jeffrey Pierce, chairs

10:45

10B.01 How accurately can CCN concentrations be calculated without measuring aerosol chemical composition? BARBARA ERVENS (1,2), Mike Cubison (1), Elisabeth Andrews(1,2), Graham Feingold(2), Jose Jimenez (1,3), John Ogren(2), (1) *CIRES, University of Colorado, Boulder* (2) *NOAA, Earth System Research Laboratory, Boulder* (3) *Dept. Chemistry and Biochemistry, University of Colorado, Boulder*

11:00

10B.02 Uncertainty in global CCN concentrations from aerosol nucleation, primary emissions and SOA. JEFFREY PIERCE, Peter Adams, *Carnegie Mellon University*

11:15

10B.03 The Production Probability of Cloud Condensation Nuclei Based on Measured Particle Growth Rates. Chongai Kuang (1), Kenjiro Iida (2), Alon V. McCormick (1), Peter H. McMurry (2), (1) *University of Minnesota, Department of Chemical Engineering & Materials Science*, (2) *University of Minnesota, Department of Mechanical Engineering*

11:30

10B.04 Airborne Size-Resolved CCN Activity and Droplet Growth Kinetic Measurements in Pristine and Polluted Airmasses. LUZ T. PADRO (1), Harmony Gates (2), Shane M. Murphy (2), Armin Sorooshian (2), Hafliði Jonsson (3), Richard Flagan (2), John H. Seinfeld (2), Athanasios Nenes (1), (1) *Georgia Institute of Technology* (2) *California Institute of Technology* (3) *Center for Interdisciplinary Remotely-Piloted Aircraft Studies*

THURSDAY



11:45

- 10B.05 The Importance of Mixing and Ageing for the Evolution of CCN in Urban Plumes: Airborne CCN Measurements and Closure during TEXAQS 2006.** AKUA ASA-AWUKU (1), Richard Moore (1), Chuck Brock (2), Roya Bahreini (2), Ann Middlebrook (2), Joshua Schwarz (2,3), Ryan Spackman (2, 3), John Holloway (2,3), Dave Tanner (1), Greg Huey (1), Athanasios Nenes (2), (1) *Georgia Institute of Technology*, (2) *NOAA, Boulder*, (3) *University of Colorado, Boulder*
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10C AEROSOL EXPOSURE

SEBASTIAN I-2

Jacky Rosatti and Tiina Reponen, chairs

10:45

- 10C.01 A Spatial and Seasonal Profile of Fine Particle Nickel in New York City: Estimating Exposures For Health Research.** RICHARD E PELTIER, Morton Lippmann, *NYU School of Medicine, Department of Environmental Medicine*

11:00

- 10C.02 Measurement and Modeling of Airborne Emissions from Nanoscale Material Manufacturing Operations.** TRACEY A. RISSMAN, Catherine A. Barton, Susanne R. Veith, Keith A. Swain, Mark D. Wetzel, Robert J. Giraud, E. I. *Dupont de Nemours and Company, Wilmington*

11:15

- 10C.03 Lung deposited surface area concentration and particle size distribution in welding fumes measured in real workplaces with high time resolution.** CHRISTOF ASBACH (1), Astrid C. John (1), Joakim Pagels (2) Christina Isaxon (2), Anders Gudmundsson (2), Jan-Eric Karlsson (3), Ronny Kammer (3), Hakan Tinnerberg (3), Jorn Nielsen (3), Thomas A.J. Kuhlbusch (1), Mats Bohgard (3), (1) *Institute of Energy and Environmental Technology (IUTA), Division Air Quality & Sustainable Nanotechnology*,



Duisburg, Germany (2) Div. Aerosol Technology (EAT), Lund University, Sweden (3) Div. Occupational and Environmental Medicine, Lund University, Sweden

11:30

- 10C.04 Effectiveness of Air Cleaner on reducing indicators of airway inflammation in asthmatic children.** Ying Xu (1), Suresh Raja (1), Andrea R. Ferro (1), Peter A. Jaques (1), Sean McMahon (1), Yang Qi (1), Philip K. Hopke (1), Cheryl Gressani (2), Larry E. Wetzel (2), (1) *Clarkson University*, (2) *Air Innovations, Inc, North Syracuse*

11:45

- 10C.05 Indoor Secondary Organic Aerosol Formation due to Ozone/Terpene Surface Reactions.** MICHAEL S. WARING (1), Jeffrey A. Siegel (1), Glenn C. Morrison (2), Richard L. Corsi (1), (1) *University of Texas at Austin*, (2) *Missouri University of Science and Technology*

10D NEW INSTRUMENTATION AND METHODS SEBASTIAN I-3

Andrey Khlystov and Gregory Lewis, chairs

10:45

- 10D.01 A New Optical Instrument for Real-time Size Segregated Mass Concentration Measurement.** XIAOLIANG WANG, Jim E. Farnsworth, Avula Sreenath, Anthony E. Hase and Jugal K. Agarwal, *TSI Inc., Shoreview*

11:00

- 10D.02 Quantification of Mass Dependent Response Factors in a Novel Chemical Ionization Mass Spectrometer for Detecting Neutral Molecular Clusters.** Mari Titcombe (1), Jun Zhao (2), Peter McMurry (1), Fred Eisele (2), Jeff Roberts (1), (1) *University of Minnesota* (2) *National Center for Atmospheric Research, Boulder, CO*

THURSDAY



11:15

- 10D.03 Scanning Flow CCN Analysis for Fast Measurements of CCN Spectra.** RICHARD H. MOORE (1), Greg Kok (2), Athanasios Nenes (1,3), (1) *School of Chemical and Biomolecular Engineering, Georgia Institute of Technology*, (2) *Droplet Measurement Technologies, Boulder*, (3) *School of Earth and Atmospheric Sciences, Georgia Institute of Technology*

11:30

- 10D.04 Recent Progress in the Detection and Sizing of 1 to 3 Nano-meter Particles.** Chongai Kuang (1), Kenjiro Iida (2), Peter H. McMurry (2), (1) *University of Minnesota, Department of Chemical Engineering & Materials Science*, (2) *University of Minnesota, Department of Mechanical Engineering*

11:45

- 10D.05 Dynamic Characteristics of an Aerosol Size Spectrometer.** Jason Olfert Jian Wang, *Brookhaven National Laboratory*

10E PARTICLE FORMATION AND GROWTH SEBASTIAN I-4

Barbara Wyslouzil and Kihong Park, chairs

10:45

- 10E.01 The Nucleation Rate Experimental Data Inconsistencies.** MICHAEL P. ANISIMOV (1) Philip K. Hopke (2), (1) *Institute of Chemical Kinetics and Combustion, Siberian Division of the Russian Academy of Sciences, Novosibirsk* (2) *Clarkson University, Potsdam*,

11:00

- 10E.02 Case studies of particle formation events observed in boreal forests: Implications for nucleation mechanisms.** FANGQUN YU (1), Richard Turco (2), (1) *State University of New York, Albany* (2) *University of California, Los Angeles*



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11:15

- 10E.03 Homogeneous nucleation rates of aluminum, based on atomistic simulations of cluster free energies and condensation rate constants.** STEVEN L. GIRSHICK (1), Zhen Hua Li (2), Donald G. Truhlar (1), (1) *University of Minnesota*, (2) *Fudan University, Shanghai*

11:30

- 10E.04 On the role of sulfuric acid and organics in the first steps of atmospheric particle formation and growth.** ILONA RIIPINEN (1), Hanna E. Manninen (1), Tuomo Nieminen (1), Mikko Sipila (1), Heikki Junninen (1), Mikael Ehn (1), Sanna-Liisa Sihto (1), Tuukka Petaja (1, 2), Miikka Dal Maso (1, 3), Taina Yli-Juuti (1), Frank Arnold (4), Veli-Matti Kerminen (5), Ari Laaksonen (5), Kari E.J. Lehtinen (5,6), Markku Kulmala (1), (1) *University of Helsinki, Finland*, (2) *NCAR, Boulder, USA*, (3) *Julich Forschungszentrum, Germany*, (4) *Max Planck Institute for Nuclear Physics, Germany*, (5) *Finnish Meteorological Institute, Finland*, (6) *University of Kuopio, Finland*

11:45

- 10E.05 Can cosmic rays possibly affect clouds by altering new particle formation rates?** JEFFREY PIERCE, Peter Adams, *Carnegie Mellon University*

THURSDAY



Thursday

12:00 PM - 1:30 PM

LUNCH

Thursday

1:30 PM - 3:00 PM

SESSION 11: PLATFORM

11A SYMPOSIUM: MOBILE SOURCES AND NEAR-ROAD IMPACTS

SEBASTIAN L

Jorn Herner and Ke Max Zhang, chairs

1:30

11A.01 Temporal and Spatial Variations of Ultrafine Particles at a Busy Urban Intersection.

YIFANG ZHU, Yungang Wang, Robert Salinas, David Ramirez, Saritha Karnae, Kuruvilla John, *Texas A&M University-Kingsville, Kingsville, TX.*

1:45

11A.02 Characterization of Near-Roadway Air Pollution in Syracuse, NY. XING WANG (1), K. Max Zhang(1), Jennifer Ehrhardt(2), Philips K. Hopke(2), Thomas Holsen(2), Myron Mitchell(3), (1)*Cornell University* (2)*Clarkson University* (3)*SUNY College of Environmental Science and Forestry*

2:00

11A.03 Characterization of Aerosol at Several Near-roadway Schools in Las Vegas, NV. STEVEN G. BROWN (1), Paul T. Roberts (1), Taehyoung Lee (2), Jeff L. Collett (2), (1)*Sonoma Technology, Inc.* (2)*Colorado State University*

2:15

11A.04 Size-dependent Concentration Gradients of Ultrafine Aerosol in a Near-roadway Community: Effects of a Sound Barrier and Mature Vegetation. MING-YENG LIN, Rawad Saleh, Andrey Khlystov, *Duke University*



2:30

- 11A.05 Real-Time Characterization of Pollutant Concentrations and Their Gradients in West and Downtown Los Angeles Using an EV Mobile Platform.** Shishan Hu (1), Kathleen Kozawa (1,2), Steve Mara (2), Scott Fruin (3), Suzanne Paulson (1), Arthur Winer (1), 1 *University of California, Los Angeles* 2 *California Air Resources Board* 3 *University of Southern California*

2:45

- 11A.06 Characterization of Pollution Concentrations On and Near Heavily Traveled Roadways in Communities Adjacent to the Ports of Los Angeles and Long Beach Using a Mobile Monitoring Platform.** Kathleen Kozawa (1, 3), Jorn Herner (1), Scott Fruin (2), Arthur Winer (3), (1) *California Air Resources Board, Research Division* (2) *Preventive Medicine, Environmental Health Division, Keck School of Medicine, University of Southern California* (3) *Environmental Science and Engineering Program, School of Public Health, University of California, Los Angeles*

11B SOURCE APPORTIONMENT: MODELING I
SEBASTIAN I-1

Phil Hopke and Kristina Wagstrom, chairs

1:30

- 11B.01 Coupling of Positive Matrix Factorization with TOMS to Identify Saharan Dust Transport: Eastern Mediterranean Atmosphere.** FATMA OZTURK (1), Ridvan Kirmaz (2), Abdullah Zararsiz (2), Gurdal Tunce (1), (1) *Middle East Technical University, Environmental Engineering Department, Ankara, TURKEY* (2) *Turkish Atomic Energy Authority, Saraykoy Nuclear Research and Education Center, Ankara, TURKEY*

1:45

- 11B.02 Source Apportionment using Daily Organic Molecular Marker Speciation in Denver.** STEVEN J DUTTON (1), Michael P Hannigan (1), Shelly L Miller (1), Jana B Milford (1), Daniel E

THURSDAY



Williams (1), Sverre Vedal (2), Jessica Garcia (3), (1) *University of Colorado, Boulder*, (2) *University of Washington, Seattle*, (3) *California Polytechnic State University*

2:00

11B.03 Application of Advanced Rotational Tools in ME-2 to Improve Receptor Modeling Analysis. KATIE S. WADE, Steven G. Brown, *Sonoma Technology, Inc.*

2:15

11B.04 An enhanced understanding of sources in Windsor, Ontario obtained using advanced receptor modeling tools. MAYGAN MCGUIRE (1), Cheol-Heon Jeong (1), Greg Evans (1), Tom Dann (2), Dennis Herod (3), (1) *Southern Ontario Centre for Atmospheric Aerosol Research, University of Toronto, Ontario, Canada*, (2) *Environmental Science and Technology Centre, Environment Canada, Ottawa, Ontario, Canada*, (3) *Air Emissions Priorities Division, Environment Canada, Gatineau, Quebec*

2:30

11B.05 Identification of Local PM_{2.5} Sources using Highly Time Resolved Samples and a New Hybrid Receptor Modeling Framework. GARY A. NORRIS (1), Rachele M. Duvall (1), Joseph R. Graney (2), Jay R. Turner (3), Ram Vedantham (1), Matthew S. Landis (1), (1) *National Exposure Research Laboratory, US Environmental Protection Agency, Research Triangle Park, NC USA* (2) *Geological Sciences and Environmental Studies, Binghamton University, NY USA* (3) *Department of Energy, Environmental & Chemical Engineering, Washington University, St. Louis, MO USA*

2:45

11B.06 Evaluation of Multiple Rotational Controls in Multi-linear Engine-based Receptor Modeling. SHELLY EBERLY (1), Adam Reff (2), (1) *Geometric Tools, LLC, Scottsdale*, (2) *EPA, RTP*



11C INDOOR AEROSOLS I
SEBASTIAN I-2

Andrea Ferro and Jon Thornburgh, chairs

1:30

11C.01 Size and Speciation of Ultrafine Indoor Airborne Particulate Matter and Correlation With Outdoor Values in Mechanically Ventilated Buildings. SHELLY MILLER (1), Nick Facciola (2), Darin Toohey (1), (1) *University of Colorado, Boulder*, (2) *Ryerson Master and Associates, Inc.*

1:45

11C.02 Size Fractionated Mass Concentration of Aerosol in a School Gym. MARTIN BRANIS (1), Jiri Safranek (2), Adela Hytychova (1), (1) *Charles University in Prague, Faculty of Science, Institute for Environmental Studies, Prague, Czech Republic* (2) *Charles University in Prague, Faculty of Physical Education, Department of Outdoor Sports, Prague, Czech Republic*

2:00

11C.03 Integrated and Real-time PM_{2.5} Concentrations in Kitchens, Bedrooms, and Outdoors in Highland Guatemala Using both Gravimetric and UCB Particle Monitor. ZOHIR CHOWDHURY (1), John McCracken (2), Eduardo Castro (3), Rufus Edwards (4), Tracy Allen (5), Kirk R. Smith (2), 1 *Graduate School of Public Health, San Diego State University* 2 *School of Public Health, University of California, Berkeley* 3 *MERTU, Universidad del Valle de Guatemala* 4 *College of Health Sciences, University of California, Irvine* 5 *EME Systems, Berkeley*

2:15

11C.04 Correlations Among Personal, Indoor, and Ambient Pollutant Concentrations: Implications for Studying Exposure to Size Fractionated PM. MOHAMMAD ARHAMI (1), Andrea Polidori (1), Thomas Tjoa (2), Ralph J. Delfino (2) and Constantinos Sioutas (1), (1) *University of Southern California*, (2) *School of Medicine, University of California*

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2:30

- 11C.05 Particle Re-suspension and Deposition near Foot during a Simulated Walking.** Jung-Il Choi (1), Jack R. Edwards (1), Alfred Eisner (2), Jacky A. Rosati (3), (1) North Carolina State University, Raleigh, NC (2) Alion Technologies, RTP, NC (3) US Environmental Protection Agency, RTP, NC

2:45

- 11C.06 Effect of Airflow Characteristics on Indoor Particle Resuspension.** Catherine Mukai, Jeffrey A. Siegel, ATILA NOVOSELAC, *University of Texas at Austin*

11D PERSONAL AND PORTABLE INSTRUMENTS *SEBASTIAN I-3*

Andrea Polidori and Paola Massoli, chairs

1:30

- 11D.01 Development and Evaluation of the IOSH-NCTU Personal Nanoparticle Sampler.** CHUEN-JINN TSAI (1), Cheng-Han Wu (1), Sheng-Chieh Chen (1), Shi-Nan Uang (2), Tung-Shung Shih (2,3), (1) *National Chiao Tung University, Taiwan* (2) *Institute of Occupational Safety and Health, Taiwan* (3) *China Medical University and Hospital, Taiwan*

1:45

- 11D.02 Evaluation of IOM Personal Samplers at High Flow Rate.** YUE ZHOU, Jun Wu, and Yung-Sung Cheng, *Lovelace Respiratory Research Institute*

2:00

- 11D.03 A Miniature Water Condensation Aerosol Collector.** GREGORY S LEWIS, Nathan Kreisberg, Susanne Hering, *Aerosol Dynamics Inc., Berkeley CA*

2:15

- 11D.04 Compact Sampler for Secondhand Tobacco Smoke and Other Airborne Particles.** Michael Apte, Michael Spears, Lara Gundel, *Lawrence Berkeley National Laboratory*



2:30

- 11D.05 Miniature Ultrafine Particulate Sensor (MUPS): Design, Development, and Testing.** Manish Ranjan and Suresh Dhaniyala, *Department of Mechanical and Aeronautical Engineering, Clarkson University, Potsdam, NY, USA*

2:45

- 11D.06 Development of a Miniature Particle Size Magnifier with Saturated Water Vapor as the Condensing Fluid.** JIN YOUNG CHOI, Sang Young Son, *University of Cincinnati*

11E NANOPARTICLE PHYSICS*SEBASTIAN I-4*

Judy Xiong and Christof Asbach, chairs

1:30

- 11E.01 Coagulation in a Nanodusty Plasma.** Lavanya Ravi, STEVEN L. GIRSHICK, *University of Minnesota*

1:45

- 11E.02 Nanoparticle deposition on inverse surfaces under low pressure.** CHRISTOF ASBACH (1), Burkhard Stahlmecke (1), Heinz Fissan (1), Thomas A.J. Kuhlbusch (1), Jing Wang (2), David Y.H. Pui (2), (1) Institute of Energy and Environmental Technology (IUTA), Duisburg, Germany (2) University of Minnesota, Minneapolis

2:00

- 11E.03 Langevin Dynamics for a Nanorod in an Electric Field.** CHARLES HAGWOOD (1), George Mulholland (2), (1) *National Institute of Standards and Technology* (2) *University of Maryland and NIST*

2:15

- 11E.04 Density Measurement of Size Selected Multiwalled Carbon Nanotubes.** Soo H. Kim (1), GEORGE W. MULHOLLAND (2), Michael R. Zachariah (2), (1) *Pusan National University, Busan*, (2) *University of Maryland, College Park*

2:30

- 11E.05 Friction coefficient of silver nanoparticle agglomerates.** Weon Gyu Shin (1), George W. Mulholland (2), Seong Chan Kim (1), Jing Wang (1), Mark S. Emery (1), and David Y. H. Pui (1),

THURSDAY



(1) *Department of Mechanical Engineering,
University of Minnesota, Minneapolis, MN* (2)
*Department of Mechanical Engineering,
University of Maryland, College park, MD*

2:45

- 11E.06** **A study on nanoparticle formation and growth at urban and coastal sites in Korea by measuring hygroscopicity and volatility of atmospheric nanoparticles.** KIHONG PARK, Jae-Seok Kim, Seungho Park, *Gwangju Institute of Science and Technology*

Thursday

3:00 PM - 3:30 PM

BREAK

SEBASTIAN J/K

Thursday

3:30 PM - 5:00 PM

SESSION 12: PLATFORM

12A SYMPOSIUM: MOBILE SOURCES AND NEAR-ROAD TO URBAN-SCALE IMPACTS

SEBASTIAN L

Alan Vette and Gayle Hagler, chairs

3:30

- 12A.01** **Intra-community Variability in Ultrafine Particle Number Concentrations in the San Pedro Harbor area (Los Angeles, California).** KATHARINE MOORE (1), Margaret Krudysz (2), Payam Pakbin (1), Neelakshi Hudda (1), Constantinos Sioutas (1), (1) *University of Southern California*, (2) *University of California, Los Angeles*

3:45

- 12A.02** **Spatial Gradients of Ultrafine Particles between Neighborhoods in Toronto, Canada.** KELLY SABALIAUSKAS (1) Greg Evans (1) Cheol-Heon Jeong (1) Jeff Brook (2) Dave Stieb (3)



Monica Campbell (4), (1) *Department of Chemical Engineering and Applied Chemistry, University of Toronto* (2) *Environment Canada* (3) *Health Canada* (4) *Toronto Public Health*

4:00

12A.03 Ultrafine Particle Fluxes from London, Manchester, Edinburgh and Gothenburg.

CLAIRE L. MARTIN (1), Ian D. Longley (2), Rick M. Thomas (1,3), James R. Dorsey (1), Martin W. Gallagher (1), Eiko Nemitz (3), (1) *University of Manchester, UK* (2) *NIWA Ltd, Newmarket, New Zealand* (3) *CEH, Penicuik, UK*

4:15

12A.04 Urban and Rural Concentrations of Motor Vehicle Markers in the NY, NJ and CT Airshed.

MONICA A. MAZUREK (1), Min Li (1), Claire Belisle (1), Zhiqiang Sun (2), Jessica Sagona (1), Stephen McDow (3), (1) *Civil & Environmental Engineering Department, Rutgers The State University of NJ, Piscataway, NJ*, (2) *Environmental Monitoring Center of Shijiazhuang, Hebei Province, Peoples Republic of China* (3) *National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC*

4:30

12A.05 Simulating Airborne Particulate Matter in a Near-Road Environment Using a Source-Oriented Three-dimensional Air Quality Model.

QI YING and Yunlong Zhang, *Zachry Department of Civil Engineering, Texas A&M University*

4:45

12A.06 Comparing the Toxicity of Fresh and Aged Diesel Exhaust Using a Newly Developed in vitro Exposure System.

K. de Bruijne (1), K. G. Sexton (1), S. Ebersviller (1), C. Olenick (1), R. Woodside (1), M. Doyle-Eisele (1), H. Jeffries (1), I. Jaspers (1,2), (1) *University of North Carolina Environmental Sciences & Engineering* (2) *CEMALB*

THURSDAY



12B AEROSOLS, CLOUDS AND CLIMATE III SEBASTIAN I-1

Paul Demott and Kerri Pratt, chairs

3:30

12B.01 Cloud chemistry in eastern China. Jeffrey L. Collett, Jr. (1), Xinhua Shen (1), Taehyoung Lee (1), Xinfeng Wang (2), Wenxing Wang (2), and Tao Wang (3), (1) *Atmospheric Science Department, Colorado State University, Fort Collins, CO* (2) *Environment Research Institute, Shandong University, Jinan, China* (3) *Civil and Structural Engineering Department, Hong Kong Polytechnic University, Hong Kong*

3:45

12B.02 Multi-component Organic Aerosols: Relationships among Hygroscopic Growth, CCN Activity, and Phase State as Measured with HTDMA, CCNC, and AFM. TIMOTHY RAYMOND, Juan Alberto Lopez Ruiz, *Bucknell University, Lewisburg, PA*

4:00

12B.03 Flight-based measurements of the role of aerosol chemistry on cloud formation using on-line single-particle mass spectrometry. KERRI A. PRATT (1), Cynthia H. Twohy (2), Kimberly A. Prather (1), (1) *University of California, San Diego*, (2) *Oregon State University*

4:15

12B.04 The Mixing State of Atmospheric Aerosols and the Influence on Cloud Formation and Optical Properties. KIMBERLY A. PRATHER, Ryan C. Sullivan, and Kerri Pratt, *University of California, San Diego*

4:30

12B.05 Closure-type Experiments Comparing Ice Nucleation by Atmospheric Aerosols and Ice Formation in Clouds. PAUL DEMOTT (1), Markus Petters (1), Anthony Prenni (1), Trude Eidhammer (1), Sonia Kreidenweis (1), Cynthia Twohy (2), Ottmar Moehler (3), Kerri Pratt (4), Kim Prather (4), David Rogers (5), Andrew



Heymfield (5), Daniel Cziczo (6,7) and Stephane Gallavardin (7), (1) *Colorado State University* (2) *Oregon State University* (3) *Forschungszentrum Karlsruhe* (4) *University of California, San Diego* (5) *NCAR* (6) *Pacific Northwest National Laboratory* (7) *ETH-Zurich*

4:45

- 12B.06 Black Carbon in Cloud Residual Nuclei during ICE-L: Combining the Single Particle Soot Photometer and the Counterflow Virtual Impactor.** R Subramanian (1), Gregory Kok (1), Darrel Baumgardner (2), Cynthia Twohy (3), (1) *Droplet Measurement Technologies, Boulder* (2) *Universidad Nacional Autónoma de México* (3) *Oregon State University*

12C INDOOR AEROSOLS II

SEBASTIAN I-2

Arantza Eiguren-Fernandez and Jana Kesavan, chairs

3:30

- 12C.01 Distribution of Aeroallergens Measured in Homes.** Suresh Raja, Ying Xu, Andrea R. Ferro, Peter A. Jaques, Philip K. Hopke, *Clarkson University, Center for Air Resources Engineering and Science, Potsdam, NY*

3:45

- 12C.02 Isolating Factors that Govern Bioaerosol Inactivation in Weak Electric Fields.** Edward Lachendro (1), Peter McKinney (2), MARK HERNANDEZ(1), (1) *University of Colorado at Boulder*, (2) *Strion Air Inc., Louisville Colorado*

4:00

- 12C.03 The Effect of Coagulation on Size Distributions of Ultrafine Particles Created by Gas and Electric Stoves.** Lance A. Wallace (1) Fang Wang (2) Cynthia Howard Reed (1), (1) *National Institute of Standards and Technology, Gaithersburg, MD USA* (2) *Harbin Institute of Technology, Harbin, CHINA*

THURSDAY



4:15

- 12C.04 Inhalation Intake of Secondary Organic Aerosol from Ozone-initiated Indoor Chemistry.** CHARLES J WESCHLER (1), William W Nazaroff (2), (1) *Environmental & Occupational Health Sciences Institute, UMDNJ & Rutgers*, (2) *University of California, Berkeley*

4:30

- 12C.05 Speciation of the Ozonolysis Products of Household Volatile Organic Compounds.** Hardik Amin, Meagan Hatfield, John Junge, Audrey Wagner, Kara Huff Hartz, *Southern Illinois University, Carbondale.*

4:45

- 12C.06 Secondary organic aerosol from alpha-pinene ozonolysis in a dynamic chamber system: density and particle bound reactive oxygen species (ROS) measurements.** XI CHEN and Philip K. Hopke, *Clarkson University*

12D SAMPLING LARGE PARTICLES, BIOAEROSOLS AND OTHER AEROSOLS

SEBASTIAN I-3

Suresh Dhaniyala and Tiina Reponen, chairs

3:30

- 12D.01 Characterization of a Large Particle Concentrator.** ANDREW MAY (1), Sang-Rin Lee (2), Suresh Dhaniyala (1), Thomas M. Holsen (1), (1) *Clarkson University* (2) *University of Iowa*

3:45

- 12D.02 Design and Development of a Annular Inverted Impactor (All) for Large Particles (PM₁₀) Size Separation.** Krishanu Banerjee, Thomas Holsen, Suresh Dhaniyala, *Clarkson University*

4:00

- 12D.03 Characterization of Bioaerosol Sampling Devices Using ATP Bioluminescence.** SATYANARAYANAN SESHADRI, Taewon Han, Valdis Krumins, Donna E. Fennell, and Gediminas Mainelis, *Rutgers University, New Brunswick*



4:15

- 12D.04 A New Sampler to Collect Infectious Viruses from Exhaled Breath.** JAMES MCDEVITT(1,2), Stephen Feguson (1), Jack Wolfson (1), Patricia Fabian (1,2), Marco Martins (1), Petros Koutrakis (1), Donald Milton (1,2), (1) *Harvard School of Public Health*, (2) *University of Massachusetts Lowell*

4:30

- 12D.05 A Fundamental Study of the Effect of Multiple Round Nozzles on Particle Deposits in Inertial Impactors.** Joshua M. Rocklage (1), Virgil A. Marple (2), Bernard A. Olson (2), (1) *Solar Turbines, San Diego, CA* (2) *Particle Calibration Laboratory, Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN*

4:45

- 12D.06 Experimental study and modeling of two-phase heat and mass transfer in an air-blast atomized wetted-wall cyclone.** JOSH HUBBARD, John Haglund, Ofodike Ezekoye, *Applied Research Laboratories at the University of Texas at Austin*

12E ORGANIC AEROSOL CHEMISTRY II SEBASTIAN I-4

Simon Clegg and Betty Pun, chairs

3:30

- 12E.01 Sesqui-MADRID: formulation and simulation of the southeastern United States.** BETTY K. PUN, *Atmospheric and Environmental Research, Inc.*

3:45

- 12E.02 Secondary Organic Aerosol Formation from Reactions of Tertiary Amines with Nitrate Radical.** MARK ERUPE (1), Derek Price (1), Philip Silva (1), Quentin Malloy (2), Li Qi (2), Bethany Warren (2), David Cocker (2), (1) *Utah State University*, (2) *CE-CERT, University of California, Riverside*

THURSDAY



4:00

- 12E.03 A Community Aerosol Thermodynamics Platform for Systems Containing Organic and Inorganic Compounds: the Extended AIM Model (E-AIM).** SIMON L. CLEGG (1,2), Anthony S. Wexler (2), (1) *University of East Anglia, U.K.*, (2) *University of California at Davis*

4:15

- 12E.04 New Pathway of SOA Formation through Nitrate Aerosol Photochemistry.** Yong Yu (1), Michael J. Ezell (1), Stanley N. Johnson (1), Veronique Perraud (1), Emily Bruns (1), Barbara J. Finlayson-Pitts (1), Alla Zelenyuk (2), Elizabeth M. Alexander (2), Dan Imre (3), (1) *Department of Chemistry, University of California Irvine, Irvine* (2) *Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, Richland* (3) *Imre Consulting, Richland*

4:30

- 12E.05 Importance of Particle Phase in Heterogeneous Organic Nitrate Formation.** Lindsay Renbaum, Geoffrey D. Smith, *University of Georgia*

4:45

- 12E.06 Influence of Heterogeneous Chemistry on the Gas and Particle Partitioning of Semivolatile Organic Compounds.** GANG CAO (1), Myoseon Jang (2), (1) *the University of North Carolina at Chapel Hill* (2) *University of Florida*

Thursday

7:00 PM - onward

ALUMNI DINNERS II

**Friday****8:00 AM - 9:15 AM****PLENARY IV****SEBASTIAN L**

- 8:00** **Particles, Drops and Crystals: Recent Advances in Understanding Aerosol-Cloud Interactions.**
Sonia M. Kreidenweis, *Colorado State University*
- 9:00** **Presentation of the Thomas Mercer Joint Prize**
- 9:00** **Presentation of Student Poster Awards**
- 9:00** **Acknowledgements for 2008, Welcome to AAAR 2009**
William Nazaroff, *Conference Chair 2008*
CY Wu, *Conference Chair 2009*

Friday**9:30 AM - 10:45 AM****SESSION 13: PLATFORM****13A CARBONACEOUS AEROSOL MEASUREMENTS I****SEBASTIAN L****Andrey Khlystov and Maria Facchini, chairs**

9:30

- 13A.01** **Important contribution of secondary organic nitrogen to marine aerosol.** MARIA CRISTINA FACCHINI (1), Matteo Rinaldi (1), Stefano Decesari (1), Claudio Carbone (1), Fabio Moretti (2), Colin. D. O'Dowd (3), (1) *Institute of Atmospheric Sciences and Climate, CNR, Bologna Italy* (2) *Department of Chemistry, University of Bologna, Italy* (3) *School of Physics and Centre for Climate and Air Pollution Studies, Environmental Change Institute, National University of Ireland, Galway.*

9:45

- 13A.02** **Effects of Pre-Heating on the Numbers of Atmospheric Aerosol in Classes Defined by their Single-Particle Laser-Induced Fluorescence Spectra.** STEVEN C. HILL (1), Hermes Huang (2), Ron G. Pinnick (1), Yong-Le Pan (2), James M. Rosen (3), Elena Fernandez (3), Richard K. Chang (2), (1) *US Army Research Laboratory, Adelphi* (2) *Yale University* (3) *New Mexico State University*

FRIDAY



10:00

- 13A.03 Quantification of Oxalic and Malonic Acids in Organic Aerosols: Measurements and Atmospheric Implications.** LIMING YANG (1), Liya E. Yu (2), (1) & (2) *National University of Singapore, Singapore*

10:15

- 13A.04 Organic Nitrogen Budget in PM_{2.5} Atmospheric Aerosol Measured at a Site in South Eastern USA.** MING-YENG LIN, Andrey Khlystov, *Duke University*

10:30

- 13A.05 Analysis of polar compounds by methylation- and silylation-thermal desorption GCMS with time-of-day resolution for Riverside and Fresno.** REBECCA J SHEESLEY (1), James J Schauer (1), Jeff DeMinter (2), Mark Mieritz (2), David C Snyder (1), Michael J Kleeman (3), (1) *Environmental Chemistry and Technology Program, University of Wisconsin-Madison* (2) *Wisconsin State Laboratory of Hygiene, University of Wisconsin* (3) *University of California, Davis*

13B SOURCE APPORTIONMENT: MODELING II SEBASTIAN I-1

Roger Tanner and Anmarie Carlton, chairs

9:30

- 13B.01 Source apportionment of wintertime secondary organic aerosol during the California Regional Particulate Air Quality Study.** Jianjun Chen (1), Qi Ying (2), Robert Griffin (3), Michael Kleeman (1), (1) *University of California, Davis* (2) *Texas A&M University, College Station* (3) *University of New Hampshire*

9:45

- 13B.02 Modeling of a PM Episode at Santiago, Chile.** HECTOR JORQUERA (1), Julio Castro (2), (1) *Departamento de Ingenieria Quimica y Bioprocesos, Pontificia Universidad Catolica de Chile, Santiago, Chile.* (2) *Area Soluciones Ambientales, DICTUC, Santiago, Chile.*



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10:00

- 13B.03 A Technique for Considering Aerosol Dynamics in Size Resolved Near-Road Models at High Spatial Resolution.** SANG-RIN LEE, Jay Raife, Charles O Stanier, *University of Iowa, Iowa City*

10:15

- 13B.04 Source Apportionment of Particulate Matter Using the Natural Variation of Trace Metal Isotopes.** BRIAN J MAJESTIC, Ariel D Anbar, Pierre Herckes, *Arizona State University, Tempe*

10:30

- 13B.05 Particulate Air Quality Model Predictions using Prognostic vs. Diagnostic Meteorology in California.** Jianlin Hu (1), Qi Ying (2), Zhan Zhao (1), Michael Kleeman (1), (1) *University of California, Davis*, (2) *Texas A&M University*

13C CONDENSATION AND PHASE EQUILIBRIUM SEBASTIAN I-2

Cliff Davidson and David Kane, chairs

9:30

- 13C.01 Deliquescence and Water Uptake of Salt Nanoparticles from MD Simulations.** LYNN RUSSELL and Ranjit Bahadur, *Scripps Institution of Oceanography, University of California, San Diego, La Jolla, USA*

9:45

- 13C.02 Advantages Of A Semiempirical Design Of The Nucleation Rate Surfaces Over Phase Equilibria Diagram.** MICHAEL P. ANISIMOV (1) Philip K. Hopke (2), (1) *Institute of Chemical Kinetics and Combustion, Siberian Division of the Russian Academy of Sciences, Novosibirsk, Russia*, (2) *Clarkson University, Potsdam*,

10:00

- 13C.03 The effects of porosity and surface concentration on condensation mass-transfer.** Michael Buhmann, Sean Garrick, *University of Minnesota, Minneapolis, MN*

FRIDAY



10:15

- 13C.04 Grouping of Aerosol Particles in Oscillating Flows.** DAVID KATOSHEVSKI, TAL SHAKKED, *Ben-Gurion University, Israel*

10:30

- 13C.05 Modeling Polydisperse Soil Particle Resuspension accounting for Saltation and Aerodynamic Entrainment.** Allison Harris (1), Cliff Davidson (2), (1) *Cleveland Executive Fellowship, Cleveland* (2) *Carnegie Mellon University*

13D AEROSOL CHARGING AND SIZE DISTRIBUTION MEASUREMENTS

SEBASTIAN I-3

Jason Olfert and Suresh Dhaniyala, chairs

9:30

- 13D.01 Study of A New Corona-Based Unipolar Aerosol Charger.** LIN LI, Da-Ren Chen, *Department of Energy, Environmental & Chemical Engineering, Washington University in St. Louis*

9:45

- 13D.02 The effect of initial charging state on NSAM's response.** CHAOLONG QI (1), Christof Asbach (2), Weon Gyu Shin (1), Heinz Fissan (2), David Pui (1), (1) *University of Minnesota, Minneapolis* (2) *Institute for Energy and Environmental Technology (IUTA), Duisburg, Germany*

10:00

- 13D.03 Charging of concentration-enriched aerosol particles via water-based condensation growth and ozone-free unipolar charging.** Bangwoo HAN (1,2), Neelakshi HUDDA (1), Zhi NING (1), Constantinos SIOUTAS (1), (1) *Department of Civil and Environmental Engineering, University of Southern California* (2) *Environmental System Research Division, Korea Institute of Machinery and Materials*

10:15

- 13D.04 Analysis Of Scanning DMA Transfer Functions.** Praney Dubey, Suresh Dhaniyala, *Clarkson University, New York*



10:30

- 13D.05 Measurement of nanoparticles at low pressure conditions using the GRIMM SMPS+E.** Dae-Geun Cho (1), Jihun Mun (1), Young-Jin Kim (1), Sang-Woo Kang (2), Ju-Young Yun (2), Yong-Hyeon Shin (2), Taesung Kim (1), (1) *Sungkyunkwan University, Suwon*, (2) *Korea Research Institute of Standards and Science, Daejeon*

13E ORGANIC AEROSOL CHEMISTRY III
SEBASTIAN I-4

Christopher Hennigan and Scott Epstein, chairs

9:30

- 13E.01 Temperature Programmed Reaction Spectroscopy of the Primary Ozonide: Towards a Better Understanding of Ozonolysis Kinetics.** SCOTT A. EPSTEIN Neil M. Donahue, *Carnegie Mellon University, Center for Atmospheric Particle Studies*

9:45

- 13E.02 Insights into Fog and Cloud Chemistry from High Resolution Mass Spectrometry.** YELE SUN(1), Qi Zhang(1), Lynn Mazzoleni(2), Jeff Collett(3), Utpal Rowchowdhury(1), (1)*Atmospheric Sciences Research Center, University at Albany, State University of New York, Albany, New York, 12203, USA*, (2)*Los Alamos National Laboratory, Los Alamos, NM 87545, USA*, (3) *Department of Atmospheric Science, Colorado State University, Fort Collins, CO 80523, USA*

10:00

- 13E.03 In-Cloud SOA Formation: Effects of Acidic Sulfate and Precursor Concentration on Organic Acid Yields.** YI TAN (1), Mark Perri (1), Annmarie Carlton (2), Sybil Seitzinger (1), Barbara Turpin (1), (1) *Rutgers University, New Brunswick* (2) *US Environmental Protection Agency, Research Triangle Park*

FRIDAY



10:15

- 13E.04 Enhanced SOA formation due to water uptake by ambient particles.** CHRISTOPHER J. HENNIGAN (1), Michael H. Bergin (1), Jack E. Dibb (2), and Rodney J. Weber (1), (1) *Georgia Institute of Technology* (2) *University of New Hampshire*

10:30

- 13E.05 Aerosol Hygroscopicity at Nearly-activating (RH>99%) Conditions.** CHRIS RUEHL (1), Patrick Chuang (1), Athanasios Nenes (2), (1) *University of California, Santa Cruz*, (2) *Georgia Institute of Technology*

Friday

10:45 AM - 11:15 AM

BREAK

SEBASTIAN L FOYER

Friday

11:15 AM - 12:30 PM

SESSION 14: PLATFORM

14A SYMPOSIUM: CHARACTERIZING MOBILE PM SOURCES II
SEBASTIAN L

Alberto Ayala and Tom Kirchstetter, chairs

11:15

- 14A.01 Particulate Matter Emissions from Aircraft Engines.** PREM LOBO, Donald Hagen, Philip Whitefield, *Missouri University of Science and Technology*

11:30

- 14A.02 The Impact of Alternative Fuels on Aircraft Emissions.** B. E. ANDERSON (1), A. Bhargava (2), A. J. Beyersdorf (1), E. L. Winstead (1), K. L. Thornhill (1), D. S. Liscinsky (3), J. Souza (4), C. Wey (5), K. Tacina (6), M. T. Timko(7), Z. Yu (7), T. B. Onasch (7), R. C. Miake-Lye (7), E. Corporan (8), Robert Howard (9) M.J. DeWitt (10), and C. Klingshirn (10), (1) *NASA Langley Research Center* (2) *Pratt & Whitney, East Hartford* (3)



United Technologies Research Center (4) Pratt & Whitney, West Palm Beach (5) ASRC Aerospace Corp (6) NASA Glenn Research Center (7) Aerodyne Research Inc. (8) Air Force Research Laboratory (9) AEDC/ATA (10) University of Dayton Research Institute

11:45

- 14A.03 Modeling Study of Nanoparticle Formation in the Exhaust of Vehicles Running on Ultra-low Sulfur Fuel.** HUA DU, Fangqun Yu, *State University of New York, Albany*

12:00

- 14A.04 Measurements of Black Carbon from Diesel and Biodiesel using Thermo-Optical and Other Techniques.** Albert Chung (1), and SUZANNE E. PAULSON (2), *Dept. of Chemical Engineering, University of California at Los Angeles Dept. of Atmospheric and Oceanic Sciences, University of California at Los Angeles*

12:15

- 14A.05 Analysis of Nitrated Polycyclic Aromatic Hydrocarbons in Diesel Emissions with Gas Chromatography/Mass Spectrometry.** VERA SAMBUROVA, Shar Samy, Barbara Zielinska, *Desert Research Institute, Reno, NV*

14B CARBONACEOUS AEROSOL MEASUREMENTS II SEBASTIAN I-1

David Worton and Shane Murphy, chairs

11:15

- 14B.01 Diurnal and daily variations of organic aerosol composition at a polluted rural site in Po Valley, Italy.** Sanna Saarikoski (1), Kimmo Teinila (1), Minna Aurela (1), RISTO HILLAMO (1), Stefano Decesari (2), Emanuela Finessi (2), Maria Cristina Facchini (2), Fabio Moretti (3), Emilio Tagliavini (3), Doug Worsnop (4), Markku Kulmala (5), (1) *Finnish Meteorological Institute, Helsinki, Finland*, (2) *National Research Council, Bologna, Italy*, (3) *University of Bologna, Bologna and Ravenna, Italy*, (4) *Aerodyne Research, Inc., Billerica, USA*, (5) *University of Helsinki, Helsinki, Finland*

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11:30

- 14B.02 Comparison of Different Wood Smoke Markers in Ambient Aerosol.** A.S.H. Prevot (1,8), J. Sandradewi (1), M.R. Alfarra (1), S. Szidat (2), M.N. Wehrli (2), M. Ruff (2), S. Weimer (1,7), V.A. Lanz (3), E. Weingartner (1), N. Perron (1), A. Caseiro (4,6), A. Kasper-Giebl, H. Puxbaum (4), L. Wacker (5), U. Baltensperger (1), (1) *Laboratory of Atmospheric Chemistry, PSI, Villigen, Switzerland* (2) *Department of Chemistry and Biochemistry, University of Bern 3012, Bern, Switzerland*, (3) *Laboratory for Air Pollution and Environmental Technology, Swiss Federal Laboratories for Materials Testing and Research, 8600 Duebendorf, Switzerland*, (4) *Institute for Chemical Technologies and Analytics, Vienna University of Technology, 1060 Vienna, Austria*, (5) *Institute for Particle Physics, ETH Hönggerberg, 8093 Zurich, Switzerland*, (6) *CESAM and Department of Environment and Planning, University of Aveiro, 3810-193 Aveiro, Portugal*, (7) *Laboratory for Internal Combustion engines, Swiss Federal Laboratories for Materials Testing and Research, 8600 Duebendorf, Switzerland*, (8) *Department of Chemistry, University of Gothenburg, Sweden*

11:45

- 14B.03 Origins of Fine Atmospheric Carbonaceous Aerosol in the Sierra Nevada Mountains, California.** DAVID R. WORTON (1), Allen Goldstein (1), Brent J. Williams (1), Yunliang Zhao (1), Nicole C. Bouvier-Brown (1), Daniel M. Matross (1), Nathan M. Kreisberg (2), Susanne V. Hering (2), Graham Bench (3), Kenneth Docherty (4), Delphine K. Farmer (4), Jose-Luis Jimenez (4), (1) *University of California, Berkeley* (2) *Aerosol Dynamics Inc.* (3) *Lawrence Livermore National Laboratory* (4) *University of Colorado, Boulder*



12:00

- 14B.04 Carbon Isotope Analysis of Individual Organic Compounds in the SEARCH Study.** LI XU(1), Mei Zheng (2), Xiang Ding (2), Christopher Reddy (1), Eric Edgerton(3), (1) *Woods Hole Oceanographic Institution, Woods Hole*, (2) *Georgia Institute of Technology, Atlanta* (3) *Atmospheric Research & Analysis, Inc., Cary, NC*

12:15

- 14B.05 Evaluating the Relationship between Dicarboxylic Acids and Oxygenated Organic Aerosol Measured by Aerosol Mass Spectrometry in Urban, Marine and Agricultural Environments.** SHANE MURPHY (1), Armin Sorooshian (1), Harmony Gates (1), Scott Hersey (1), Richard C. Flagan (1), John H. Seinfeld (1), Graham Feingold (2), Hafliði Jonsson (3), (1) *California Institute of Technology, Pasadena* (2) *National Oceanic and Atmospheric Administration, Boulder* (3) *Naval Postgraduate School, Monterey*

14C AEROSOL PHYSICS AND TECHNOLOGY SEBASTIAN I-2

George Mulholland and Weiwei Deng, chairs

11:15

- 14C.01 Spray Current and Droplet Size in a Dual-capillary Electro spray System.** FAN MEI (1), Da-Ren Chen (2), (1) *Washington University in St. Louis*, (2) *Washington University in St. Louis*

11:30

- 14C.02 Aerosol Formation by Laser Ablation of Organic Solids for Stable Isotope Analysis Using a Miniature Flow Reactor.** M. Lizabeth Alexander, Matt Newburn, Albert Mendoza, Helen Kreuzer, Robert Dagle, Bradley Johnson and Nathan Canfield, *Pacific Northwest National Laboratory, Richland, WA*

11:45

- 14C.03 Charge injection into dielectric liquids from electro sprays of highly conducting liquids.** CARLOS LARRIBA, *Yale University*

FRIDAY



12:00

- 14C.04 Electro spray Deposition Characteristics of Titanium Dioxide Nanoparticles Suspensions for Thin Film Fabrication For Use in Solar Cells.** LUIS MODESTO, Elijah Thimsen, Pratim Biswas, Aerosol and Air Quality Research Laboratory, Washington University in St. Louis

12:15

- 14C.05 Complex-valued variable and solutions for boundary layers with a discrete phase.** RO'EE ORLAND (1), David Broday (2), David Katoshevski (1), (1) *Ben Gurion University of the Negev, Israel*, (2) *Technion - Israel Institute of Technology, Israel*

14D AEROSOL MASS, DENSITY AND PHYSICAL PROPERTIES

SEBASTIAN I-3

Alla Zelenyuk and Anshuman Lall, chairs

11:15

- 14D.01 A New Real-Time Method for Determining Particles Sphericity and Density: Application to Secondary Organic Aerosol Formed by Ozonolysis of α -Pinene.** ALLA ZELENYUK (1), Juan Yang (1), Chen Song (1), Rahul A. Zaveri (1), Dan Imre (2), (1) *Pacific Northwest National Laboratory, Richland, WA*, (2) *Imre Consulting, Richland, WA*

11:30

- 14D.02 Real-Time Aerosol Density Determination Utilizing a Modified Scanning Mobility Particle Spectrometer-Aerosol Particle Mass Analyzer (SMPS-APM) System.** QUENTIN G.J. MALLOY, Li Qi, Shunsuke Nakao, David R. Cocker III, *University of California-Riverside, Bourns College of Engineering, Department of Chemical and Environmental Engineering*



11:45

- 14D.03 Online Nanoparticle Mass Measurement by Aerosol Particle Mass Analyzer and Differential Mobility Analyzer: Comparison of Theory and Measurements.** ANSHUMAN AMIT LALL, Xiaofei Ma, Suvajyoti Guha, George W. Mulholland and Michael R. Zachariah, *University of Maryland, College Park*

12:00

- 14D.04 Uncertainty in light scattering measurements by nephelometer with absorbing particles: results from laboratory studies and implications for ambient measurements.** PAOLA MASSOLI (1,2), Tahllee Baynard (1,2)*, Edward Lovejoy (2), Charles Brock (2), Daniel Lack (1,2), Adam Wollny (1,2)#, Daniel Murphy (2), (1) *University of Colorado, Boulder* (2) *NOAA ESRL CSD, Boulder* * *Now at Lockheed Martin Inc.* # *Now at Max Plank Institute, Mainz*

12:15

- 14D.05 Kelvin Effect Measurement of the Surface Energy of Nanocrystals.** XIAOFEI Ma, George W. Mulholland, Michael R. Zachariah, *University of Maryland*

14E INORGANIC AEROSOL CHEMISTRY

SEBASTIAN I-4

Chak Chan and Satoshi Takahama, chairs

11:15

- 14E.01 Study of phase transition and hygroscopic properties of internally mixed ammonium sulfate and adipic acid (AS-AA) particles by Optical observation and Micro-Raman Spectroscopy.** Ming Chee YEUNG (1), Alex K.Y. LEE (2), Chak K. CHAN (2), (1) *Environmental Engineering Program, Hong Kong University of Science and Technology, Hong Kong* (2) *Department of Chemical Engineering, Hong Kong University of Science and Technology, Hong Kong*

FRIDAY



11:30

- 14E.02 Effects of mineral dust, NO_x, and NH₃ emissions on the formation of secondary inorganic aerosol components.** VLASSIS KARYDIS (1), Alexandra Tsimpidi (1), Christos Fountoukis (1), Athanasios Nenes (2), Miguel Zavala (3), Wenfang Lei (3), Luisa Molina (3), Spyros Pandis (1), (1) *Dept. of Chemical Engineering, University of Patras, Greece*, (2) *Dept. of Chemical and Biomolecular Engineering, and Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA*, (3) *Dept. of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology (MIT), and Molina Center for Energy and the Environment (MCE2), USA.*

11:45

- 14E.03 Single-particle Oxidation State and Morphology of Atmospheric Iron Aerosols from Spectromicroscopy Analysis.** SATOSHI TAKAHAMA(1), Stefania Gilardoni (2), Lynn Russell (1), (1) *Scripps Institution of Oceanography, La Jolla, CA* (2) *Climate Change Unit, Institute for Environment and Sustainability, JRC, Ispra, Italy*

12:00

- 14E.04 Heterogeneous Chemistry of Mineral Dust Particles and its Effects on their Ability to Nucleate Clouds.** RYAN SULLIVAN (1), Meagan Moore (1), Markus Petters (2), Sonia Kreidenweis (2), Greg Roberts (1), Alexander Laskin (3), Kimberly Prather (1), (1) *University of California, San Diego* (2) *Colorado State University, Fort Collins* (3) *Pacific Northwest National Laboratory*



12:15

- 14E.05 Understanding the important mechanisms of Br₂ production from NaBr aerosols.** PAUL NISSENSON (1), Donald Dabdub (1), Daniel Packwood (2), Barbara Finlayson-Pitts (3), Jennie Thomas (4), (1) *Department of Mechanical and Aerospace Engineering, University of California, Irvine*, (2) *Department of Chemistry, University of Canterbury, New Zealand*, (3) *Department of Chemistry, University of California, Irvine*, (4) *Department of Atmospheric and Oceanic Sciences, University of California, Los Angeles*



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Tuesday, October 21

Presentation of the

Sheldon K. Friedlander Award 9:00 AM

Presentation of the Kenneth T. Whitby Award 9:00 AM

Wednesday, October 22

Recognition of the

Inaugural Class of AAAR Fellows 9:00 AM

Thursday, October 23

Presentation of the Benjamin Y. H. Liu Award 9:00 AM

Presentation of the David Sinclair Award 9:00 AM

Friday, October 24

Presentation of the Thomas T. Mercer Joint Prize . . . 9:00 AM

Presentation of Student Poster Awards 9:00 AM

AAAR FUTURE CONFERENCES

AAAR 28th Annual Conference

October 26-30, 2009

Hyatt Regency Minneapolis

Minneapolis, MN

AAAR 2010 International Specialty Conference

March 22-26, 2010

Sheraton San Diego Hotel & Marina

San Diego, CA

AAAR 29th Annual Conference

October 25-29, 2010

Oregon Convention Center

Portland, OR

