

# PARTICULARS

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## Letter from the Editor

Tom Peters, The University of Iowa

Welcome to the winter 2012/2013 edition of Particulars on behalf of the current Newsletter Committee (Akua Asa-Awuku, Jesse Kroll, and me). A primary goal of Particulars is to promote scientific communication among AAAR members. To that end, this issue includes messages from the President and the Past Meeting Chair, along with other important announcements. We also like to keep you abreast on current events relevant to our association through "In Case You Missed It" and "Aerosols in the Spotlight" features.

For the first time, we plan to send these stories out via our Facebook page in response to Barbara Turpin's challenge to bring Particulars up to date. - [Like us!](#)

Enjoy!

Tom Peters  
[thomas-m-peters@uiowa.edu](mailto:thomas-m-peters@uiowa.edu)

## President's Message

AAAR is a technically-literate community committed to aerosol research and education. In this, our 31st year as an organization, 73% of our members are in academia. Women account for 34% of our membership and 47% of our student membership.

**Initiative on Distance Learning** - The most compelling reason to join AAAR is the opportunity to remain abreast of the current advancements in aerosol science at our conference and through our prestigious journal. Yet, there are people who would benefit from an AAAR education that are not able to attend our conference and others who are not even aware of what they are missing. Currently the AAAR Education Committee, working collaboratively with the Internet and Membership Committees, are examining a variety of approaches to bring aerosol science education to a broader cross-section of potential members. We want to do this to spread science literacy, expand our membership, and broaden the impact of our Association. I hypothesize that such an effort could help AAAR to reach more government and industry professionals and to retain more student members who enter those employment sectors. We are only at the beginning of this effort, and I would be interested in hearing from members with expertise in distance learning.

**Awards** - AAAR has several awards that recognize exceptional contributions to aerosol research and aerosol technology. Such recognition from one's scholarly community is influential in hiring and promotion. The Friedlander Award recognizes an outstanding dissertation by an individual who has earned a doctoral degree. Interesting, while one-third of our members and one-half of our student members are women, only 18% of the nominees for the Friedlander Award (7% for the Whitby Award) are women. Given the importance of these awards to our community, I encourage you to play an active role in

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## Our Organizational Members

The companies below support the American Association for Aerosol Research year round by becoming corporate sponsors. AAAR thanks them for their continued support of our organization.

### Droplet Measurement Technologies

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### MSP Corporation

5910 Rice Creek Pkwy

ensuring that the top male and female candidates across all areas of aerosol science get nominated for awards.

**Aerosol Science and Technology** - The manuscript submission rates for our journal continue to increase. The Aerosol Research Letter (ARL) is a new AS&T submission category for novel and exciting papers. ARL papers are freely available to the world immediately upon publication. All AS&T papers are open access one year after publication. In addition, authors can choose to make their paper immediately open access for a \$1500 fee. The increase in manuscript submission creates a challenge for the journal. Authors need to make use of the on-line supplementary information, when possible, to keep their manuscripts concise.

**2013 AAAR Annual Conference** - I hope to see you at the 2013 Annual Conference, which will be held in Portland, OR, September 30-October 4.

**SAVE THE DATE** - The 2018 International Aerosol Conference will be held in St Louis, September 2-7, 2018.

**Facebook** - AAAR is now on Facebook. Please like us.

Sincerely,

Barbara Turpin  
AAAR President

## 31st Annual Conference Recap ([back to top](#))

*Sergey Nizkorodov, Conference Chair of the 31<sup>st</sup> Annual Conference*

The 31<sup>st</sup> AAAR Annual Conference took place in Minneapolis, Minnesota in October. The record-breaking numbers of registered attendees and exhibitors at the meeting amply demonstrated that aerosol science is a booming field. The conference welcomed 845 attendees, who gave 370 platform talks and 350 poster presentations. The conference hosted three special symposia with excellent attendance:

- Synthesis of functional materials using flames, plasmas and other aerosol methods
- Aerosol nucleation: from clusters to nanoparticles
- The indoor microbiome

The week started with 14 tutorials on Monday, which were attended by 336 people, followed by a technical writing workshop for young aerosol scientists in the evening. Tuesday morning opened with the Friedlander Lecture on the physics of homogeneous and heterogeneous particle nucleation by Paul Wagner from Universität Wien. The Wednesday AEESP Lecture on the state-of-the-art analytical instrumentation for organic aerosol research was presented by Allen Goldstein from the University of California, Berkeley. Charles Weschler from the UMDNJ-Robert Wood Johnson Medical School spoke about the significant effect of room occupants on the indoor aerosols and ozone. The Friday plenary lecture by Jonathan Abbatt from the University of Toronto covered a number of ranging from field studies of cloud-aerosol interactions to health effects of aerosols.

The number of exhibiting companies reached 24, setting a new record, hopefully to be beaten again next year. The exhibitors provided impressive displays of the latest in aerosol technology and publishing. AAAR acknowledges the generous support of the conference sponsors: EPA, ESPNano, American Chemistry Council, and Sunset Laboratory. TSI Incorporated sponsored the student poster awards and the young investigator workshop. The Department of Energy provided support for the aerosol nucleation symposium. The AEESP and Clarkson's Institute for Sustainable Environment provided support for the AEESP lecture. Thanks also to the AAAR members (William Nazaroff, Philip Hopke, Sergey Nizkorodov, John Ogren, Mark

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Swihart, Cynthia Twohy, Jose-Luis Jimenez, Murray Johnston, Chang-Yu Wu, Suzanne Paulson, Sonya Kreidenweis, Andrea Ferro, Jian Wang, Barbara Turpin) who provided a total of \$2,500 in matching funds for student travel!

A great number of dedicated people made this conference a success. I want to especially recognize Melissa Baldwin, Deanna Bright, Ann Mitchell (who sent me about 200 e-mails in 2012), and Caroline Olson from Association Headquarters for the million things they had to do for this conference. I am also deeply grateful to Donald Dabdub (abstract submission website and on-line program), Philip Silva (tutorials), Xiaoliang Wang (young investigators event), Barbara Turpin (development), Peter DeCarlo (student poster competition), Francisco Romay (exhibits), the working group chairs and special symposia conveners (technical program), the session chairs, and the student assistants. The conference would not stand a chance without their concerted efforts.

The conference received great evaluations from the attendees. Chocolate fountains at the reception were a big hit. A few people felt there was a bit too much chemistry in the plenary talks but this is why the conference chairs change every year - to give each conference a different flavor. The next conference will be organized by Murray Johnston from the University of Delaware, who is well known for his elegant work on aerosol instrumentation, so the level of "chemical contamination" should decrease a bit. The 32<sup>nd</sup> AAAR Conference will be held in Portland, OR on September 30 - October 4, 2013. Notice that it is more than a week earlier than this year, so you can expect an earlier abstract submission deadline, perhaps as soon as March 2013. Stay tuned!

\*\*\* REMINDER \*\*\*

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## 2013 Membership Dues

If you missed us at the 2012 conference in Minneapolis, your membership dues are **DUE!** Don't miss out on the benefits of membership or the distinction of being a **MEMBER** of the American Association for Aerosol Research.

### Benefits of Membership:

- **Subscription to Aerosol Science & Technology** - All members receive a one year online subscription to the official Association journal *Aerosol Science & Technology* (AS&T). The journal publishes papers covering the full range of topics in aerosol science including basic theoretical developments, new instrumentation, ambient aerosol properties, respiratory deposition, aerosol drug delivery, aerosol climatology, etc. **NEW FOR 2013:** Full members may also receive a print copy of the journal for \$40/year (12 issues mailed quarterly). Student and retired members must pay the full subscription price of \$80 because the cost of your online subscription was already subsidized.
- **Newsletter** - The member newsletter, *Particulars*, contains up-to-date information about meetings, conferences, symposia, awards, job opportunities and other official AAAR business.
- **Online Membership Directory** - The AAAR membership directory lists the address, phone, fax, and email for all current members. In addition, the PDF version includes a list of AAAR board officers and directors, committee members, working group chairs, organizational members, past award recipients, past and future conferences, and the AAAR bylaws.
- **Election of Board Officers, Directors & Working Group Vice Chairs** - AAAR members elect their own board officers and directors and working group vice chairs annually by an online ballot vote. Full members are eligible for peer or self nomination for any open position.
- **Working Groups & Committees** - Members are encouraged to participate in technical working groups representing many topics in aerosol science. Working

group members help plan technical symposia, exchange ideas, and recommend programs. Members may also join committees to assist the AAAR board in building and strengthening the Association in important areas such as education, publications, awards, finance, bylaws, and newsletters.

- **Awards Program** - The prestigious AAAR awards program offers support and recognition of individuals who have shown outstanding achievement in aerosol science.
- **1 FREE Abstract Submission** - Each AAAR member will be granted one free abstract submission credit to the AAAR 2013 Annual Conference. Credits are transferable so they can be gifted or traded. Additional abstract submissions will cost \$50 each. This abstract fee is intended to enhance the quality of the AAAR presentations in part by reducing the number of no-shows. The conference registration rate will be reduced for all attendees to keep this fee revenue neutral.

See previous emails or contact Deanna Bright ([info@aaar.org](mailto:info@aaar.org)) for details on how to renew.

## Important Announcements [\(back to top\)](#)

### Call for Nominations - Thomas T. Mercer Joint Prize

The Awards Committees of the American Association for Aerosol Research (AAAR) and the International Society for Aerosols in Medicine (ISAM) invite you to submit nominations for the Thomas T. Mercer Joint Prize. Deadline for nominations February 15, 2013. This award will be presented at the [ISAM 2013 Congress](#), April 6-10, 2013 in Chapel Hill, NC. The [Thomas T. Mercer Joint Prize](#) recognizes excellence in the areas of pharmaceutical aerosols and inhalable materials.

#### SUBMISSION OF NOMINATIONS

Nominations and supporting documentation for this award must be received by February 15, 2013 at the AAAR national office: AAAR, 15000 Commerce Parkway, Suite C, Mt. Laurel, NJ 08054. Telephone: 856-439-9080, Fax: 856-439-0525, E-mail: [info@aaar.org](mailto:info@aaar.org)

All AAAR members are encouraged to submit nominations for this prestigious award. If you have any questions, please contact Deanna Bright direct at the national office, 856-642-4202 or [dbright@ahint.com](mailto:dbright@ahint.com)

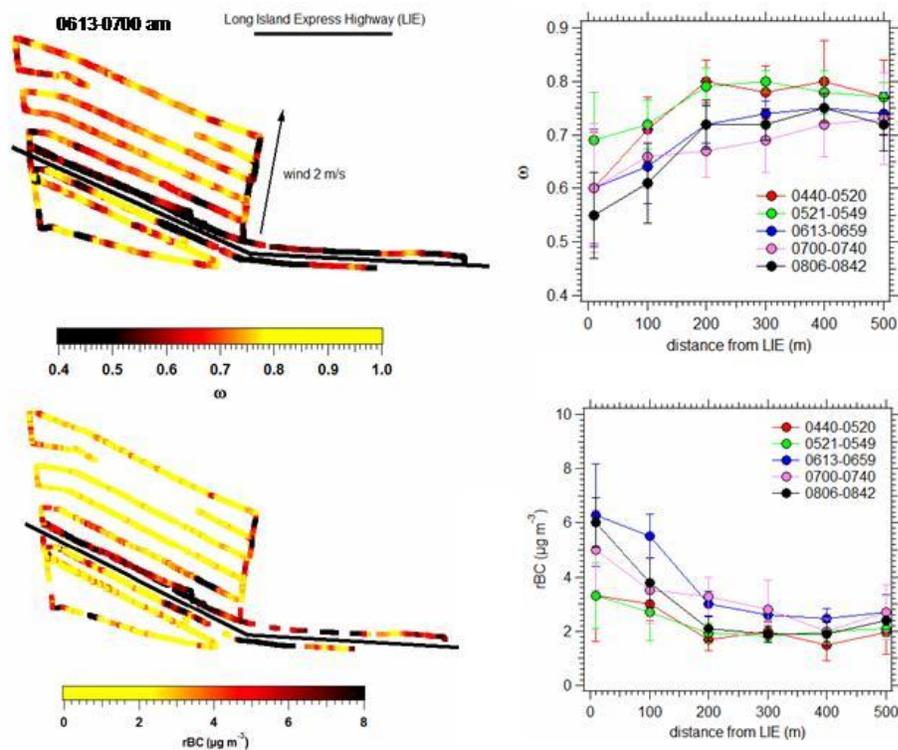
## Aerosols in the Spotlight [\(back to top\)](#)

Pollution Gradients and Chemical Characterization of Particulate Matter from Vehicular Traffic near Major Roadways: Results from the 2009 Queens College Air Quality Study in NYC

Traffic-related emissions of particulate and gas-phase species represent a major potential health risk, particularly for those who live or work near highways. However, the detailed characterization of such emissions can be challenging, because of their large spatial and temporal heterogeneity. This is especially problematic for fine and ultrafine particles, whose number, mass concentration, and composition can evolve dramatically within a very short timeframe after emission. In a recent study by Massoli et al. (2012), a team from Aerodyne Research, Inc. and the University of Albany-SUNY confronted these challenges by making systematic measurements downwind of a major highway using a mobile laboratory. This collaborative work, carried out as part of the 2009 Queens College Air Quality Study, focused on a stretch of the Long Island Expressway (I-495), a major thoroughfare passing through Queens, New York. Measurements were carried out over two morning rush-hour periods in July 2009, using the Aerodyne Mobile Laboratory (AML), equipped with numerous instruments for the measurement of particle size, composition, and optical properties, as well as

concentrations of gas-phase species. The AML made several repeated raster-pattern loops through the neighborhoods just upwind and downwind of the expressway, allowing for sampling to be made as a function of time of day and proximity to the traffic. It was found that many quantities of interest - particle number concentration, black carbon content, NO and CO<sub>2</sub> concentrations, etc. - drop off dramatically in the first 200 m downwind of the highway, indicating exposures to pollutants will be substantially higher for people living within 1-2 blocks of major highways than for those living further away. The authors note, however, the details of such effects are likely to be a strong function of meteorology and detailed traffic patterns, requiring the need for a wider range of near-roadway measurements of traffic-related pollutants.

P. Massoli et al., AS&T 46(11):1201-1218 (2012)



Measurements of the particle single-scattering albedo (top panels) and black carbon mass concentration (bottom panels) as a function of distance from the Long Island Expressway and time of day. The left panels are color maps showing the spatial variation of the two quantities during a single loop; the right panels show variation with downwind distance for all loops.

## In Case You Missed It [\(back to top\)](#)

**In Books:** *Air: The Restless Shaper of the World* by William Bryant Logan.

Released in August of 2012 this book is the third of author's William Bryant Logan's intriguing look into the world around us. His previous novels, *Oak* and *Dirt* have gone on to be award-winning documentaries. His third book, *Air*, highlights the importance of the atmosphere and the roles aerosol play to sustain and influence life on earth. A link to the book on Amazon.com is below:

[http://www.amazon.com/Air-Restless-William-Bryant-Logan/dp/039306798X/ref=sr\\_1\\_10?s=books&ie=UTF8&qid=1353443008&sr=1-10&keywords=aerosol](http://www.amazon.com/Air-Restless-William-Bryant-Logan/dp/039306798X/ref=sr_1_10?s=books&ie=UTF8&qid=1353443008&sr=1-10&keywords=aerosol)

**In Reports and Policy:** *The EPA's Report to Congress on Black Carbon*. Released in March 2012, the report provides a comprehensive review of the current and future impacts of Black Carbon (BC). The executive summary provides a quick 9-page read that summarizes the goals and highlights major findings of the study. Notably, the EPA also worked with other federal agencies and drew upon recent BC assessments of the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), the Convention on Long Range Transboundary Air Pollution (CLRTAP), and the Arctic Council. <http://www.epa.gov/blackcarbon/>

**In Journal Publications:** *Household Light Makes Global Heat: High Black Carbon Emissions From Kerosene Wick Lamps*. It may be time to find a new way to keep those holiday party food catering trays warm! Lam et al. (2012) report that kerosene-fueled wick lamps convert the fuel to almost pure BC; the amount of co-emitted organic carbon is low. They further show that these emissions have a definite positive forcing on climate. The article was published on Nov. 19<sup>th</sup>, 2012 in *Environmental Science and Technology*.

<http://pubs.acs.org/doi/abs/10.1021/es302697h>

*Nature Materials: Fractionalization of interstitials in curved colloidal crystals*. Particles have also been in the news in materials. A team of researchers (Irvine et al., 2012) discovered that a defect in the structure of a single-layer crystal, caused simply by inserting an extra particle, would cause the crystal to "heal" itself and form a curved surface. The induced thermodynamic instability promotes the colloidal particle structures to rearrange and redistribute interstitial energies. Technological Magic = Science! The full article, published in September 30 2012 can be found in *Nature Materials*.

<http://www.nature.com/nmat/journal/v11/n11/full/nmat3429.html>

*Aerosol Deposition in Health and Disease*. The publication by Chantal Darquenne in the Journal of Aerosol Medicine and Pulmonary Drug Delivery reviews the main mechanisms affecting the transport and deposition of inhaled aerosol in the human lung. Darquenne highlights that particle sizes (greater than 6  $\mu\text{m}$  and less than 2  $\mu\text{m}$ ) have different spatial distributions of deposited particles. Hence the delivery and drug efficiency of inhaled therapeutic medicine is strongly affected by particle size.

<http://online.liebertpub.com/doi/pdfplus/10.1089/jamp.2011.0916>

## References:

Darquenne, C. *Aerosol Deposition in Health and Disease*. Journal of Aerosol Medicine and Pulmonary Drug Delivery. June 2012, Vol. 25, No. 3: 140-147

Irvine, W. T. M. and M. J. Bowick, and P. M. Chaikin. Fractionalization of interstitials in curved colloidal crystals. *Nature Materials*. 11, 948-951 (2012). doi:10.1038/nmat3429

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Logan, William Bryant. *Air: The Restless Shaper of the World*. Hardcover: 416 pages  
W. W. Norton & Company (August 20, 2012). ISBN-10: 039306798X

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