

2006 International Aerosol Conference

By David Y. H. Pui

Dear colleagues:

We invite you to participate in the 7th International Aerosol Conference in Saint Paul, Minnesota's capital city, on the banks of the Mississippi River. This IAC will bring together much of the worldwide aerosol research community to share the results of recent work.

On Sunday, September 10, we will enjoy a choice of many tutorials taught by experts in the field. The conference begins in earnest on Monday, September 11, and continues through Friday, September 15, with a full schedule of oral and poster sessions covering a wide variety of aerosol topics.

Each morning begins with a plenary lecture on a current or emerging topic of aerosol science. We anticipate nearly 1,200 high-quality papers on the latest aerosol science and technology. Participants may tour local areas of interest, such as the Science Museum of Minnesota, University of Minnesota's Particle Technology Laboratory, TSI, Donaldson Company, MSP Corporation, 3M, and the Mall of America. Wednesday evening we will enjoy a conference dinner on a riverboat on the Mississippi.

The 2006 IAC will be preceded by a special symposium on the history of aerosol science, Friday and Saturday, September 8-9, 2006. The history symposium will have its own registration fee. This is the third in a series of symposia on aerosol history, the first in 1999 in Vienna and the second in Portland in 2001. A peer reviewed proceedings book of the symposium contributions is planned. Learn more about the history symposium on the AAAR Web site, www.aaar.org.



A special event will mark the 25th Annual Conference of AAAR. The Fuchs Award will be given to one or more individuals for their lifetime achievements in the field of aerosol science. The first Fissan/Pui/TSI Award will recognize excellence in intercontinental cooperation in the field of aerosol science and technology. The Smoluchowsi Award and International Aerosol Fellow Award will also be given.

Your participation at this conference is very important to its success. We look forward to seeing you in September!

Sincerely, David Y. H. Pui and Gilmore J. Sem Conference Co-Chairs

Letter from the Editor

Well, it's spring already, and preparations are gearing up for the International Conference in St. Paul this year. You'll hear lots about that conference, which is AAAR's 25th, in other articles in this newsletter. Did you know that AAAR's first annual conference was held in Santa Monica in 1982, the same year that the association was founded? I've always been interested in things with a past, including genealogy, vintage books, and historical fiction. Seeing that we're coming up on our silver anniversary, I thought it might be interesting to share a bit of the history of AAAR and its publications.

A July, 1981 organizing meeting held by David S. Ensor, Sheldon K. Friedlander, Benjamin Y. H. Liu, and David T. Shaw led to the birth of AAAR. These founding fathers saw a need for a better way to communicate and promote technical advances in the rapidly evolving field of aerosol research. This group not only officially launched the organization in 1982, but somehow managed to hold their first conference and produce the first volume of *Aerosol Science and Technology* that same year. At the Santa Monica conference during a general business meeting, the bylaws of AAAR as an organization were accepted and the first board of directors¹ was elected. At the subsequent board meeting, David Shaw (President), Simon Goren (Vice-President), and David Ensor (Secretary/Treasurer) were elected.

A membership roster of 200 was rapidly assembled. This has grown steadily over the years to more than 1,000 total members today. Twenty-two percent of these are student members. While large, AAAR remains a "grass-roots" organization where members are encouraged to get involved. Volunteers are active in all areas (more on that in the next issue)!



Founding editors of the journal, *AS&T*, were Ben Liu, David Shaw, and David Ensor. Thirty-four papers were published in 1982. The journal was distributed four times per year in a 7 by 10 inch format initially. Editorship passed to Phil Hopke in 1993 and on to Rick Flagan in 2003. Over the years, the journal has increased the page size and grown to about 120 papers a year. In the mid-1990's, the *Particulars*² newsletter was born to provide AAAR members with notification of upcoming national and international meetings, committee reports, news about members, and information of general interest. Hence the document you see on your screen.

If you're interested in learning more, you might want to check out the books *The History of Aerosol Science* or *History³ and Reviews of Aerosol Science⁴*. AAAR even has a History of Aerosols Working Group! The Third History of Aerosol Science Symposium will be held on September 8 and 9, 2006, just before the International Conference in St. Paul. For more information, contact David Ensor, Symposium Chair, at dse@rti.org.

Particularly Yours, Cynthia Twohy

1. The first Board of Directors included Peter Dietz, Sheldon K. Friedlander, Milton Kerker, Alvin Lieberman, Benjamin Y.H. Liu, Roger O. McClellan, Morris S. Ojalvo, William R. Pierson and Adel Sarofim in addition to the officers subsequently elected.

2. Did you know that a contest was held to name the new newsletter and that Tony Wexler won?

3. Preining, O. and E. J. Davis (eds), 2000: History of Aerosol Science. Proceedings of the Symposium on the History of Aerosol Science. Vienna, Austria. 31 Aug. - 2 Sept., 1999.

4. Sem, G. J., D. Boulaud, P. Brimblecombe, D. S. Ensor, J. W. Gentry, J. C. M. Marijinnsen and O. Preining (eds), 2005: History and Reviews of Aerosol Science. Am. Assoc. for Aer. Rsch. Copies are available from Gil Sem.

CALL FOR AEROSOLS IN THE SPOTLIGHT



Do you have an interesting image related to aerosols, not published elsewhere, to feature in the "Aerosols in the Spotlight" section? If so, please share your find with like-minded aerosol enthusiasts in a future issue of *Particulars*. Please send an image, along with a brief caption (no more than 50 words) to the editor, Cynthia Twohy, at twohy@coas.oregonstate.edu.

Particle Instruments Measure Size Distribution, Number Concentration, and Surface Area of Nanoparticles

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International Aerosol Fellow Award (2006)

The International Aerosol Fellow Award will be bestowed during the 2006 International Aerosol Conference in Minneapolis.

This award, granted by the International Aerosol Research Assembly (IARA), recognizes outstanding contributions to Aerosol Science and Technology through research, technical development, education and service. Further information can be found at:

http://homepage.univie.ac.at/helmuth.horvath/lafa06.html

Please send nominations at the latest by May 1, 2006, to the chairman of the award committee:

Helmuth Horvath

Institute for Experimental Physics, University of Vienna Boltzmanngasse 5, 1090 Vienna, Austria E-mail: Helmuth.Horvath@univie.ac.at

AEROSOLS IN THE SPOTLIGHT

A stereo pair of three-dimensional soot images produced using bright-field electron tomography with a transmission electron microscope. The electron tomograph permits improved estimation of the overall particle morphology in part through the better resolution of the interstices and cavities. The bar represents 200 nm.

Image courtesy of Peter Buseck, Arizona State University.

Original citation: van Poppel et al., Electron tomography of nanoparticle clusters: Implications for atmospheric lifetimes and radiative forcing of soot, Geophysical Research Letters, 32, L24811, doi:10.1029/2005GL024461, 2005. Copyright 2005, American Geophysical Union. Reproduced/modified by permission of the American Geophysical Union.



Fuchs Memorial Award (2006)

The Fuchs Memorial Award Committee invites nominations for the 2006 Award, to be presented at the 7th International Aerosol Conference in St. Paul, Minn., USA, September 10-15, 2006.

This award, established in honor of the late Professor Nikolai Albertovich Fuchs (1895-1982), is given every four years in recognition of exceptionally meritorious research contributions to the field of aerosol science and technology. The award is intended as a continuing recognition of Professor Fuchs' contributions to the international scientific community, as well as a means of encouraging the same high standards among contemporary scientists in conducting aerosol research.

The regulations and procedures are published on the International Aerosol Research Assembly (IARA) Web site, www.iara.org. Questions concerning the award can be directed to the Award Committee Chair, Prof. John H. Seinfeld at seinfeld@caltech.edu. The deadline for all nominating materials is April 1, 2006. Nomination material (in six copies) should be submitted to the Award Committee Chair by the deadline date:

John H. Seinfeld

California Institute of Technology 1200 E. California Blvd., 210-41 Pasadena, CA 91125 USA Phone: (626) 395-4635 • Fax: (626) 796-2591 • E-mail: seinfeld@caltech.edu

The Fuchs Award is jointly administered by the Gesellschaft für Aerosolforschung, the Japan Association of Aerosol Science and Technology, and the American Association for Aerosol Research.

President's Column

By Tony Wexler

A New Phrase for my Vocabulary: In-Sourced Retrodigitization

Ah, spring. Warm temperatures, flowers, light rain, and insourced retrodigitization are in the air.

But first, a financial aside. As you may have heard, AAAR had some financial difficulties a few years ago when the stock market dove and our previous management organization decided that this was a good time to increase their fees. This occurred while I was AAAR treasurer, which just demonstrates that correlation does not necessarily prove causation.

Since that time, the AAAR board instituted a number of cost containment measures to rebuild our cash reserves to a level where we feel financially secure and are able to weather another such hit. As president, I am happy to report that we have completed rebuilding these financial reserves as of the end of the 2005 fiscal year, which again demonstrates that correlation does not necessarily prove causation.

Thank you for patiently waiting to hear about in-sourced retrodigitization. It is not what you think: Taking old vinyl records and converting them to CDs, or taking those old, tired 1's and 0's and retreading them, but close. Retrodigitization is the word used by the publishing industry when taking pre-digital era journals, such as AS&T before 1999, and converting them to online digital form. You may have seen other journals joining the digital age via this mechanism. This is done using a clever feature of Adobe PDF files.

As you may know, these files can display scanned images of a document. But they can also store in the background an optical character recognition (OCR) of the words in the image so that when you search for a key word in the document, it finds and locates it for you on the image via the background OCR.

Over the last few months Rick Flagan, editor of AS&T, and I have been researching venders to retrodigitize (it must be a verb too) AS&T's non-digital past issues. Turns out that it was cheaper to retrodigitize in this country than to outsource it, thus in-sourced retrodigitization.

And the OCR is great. It is smart enough to recognize that words hyphenated at the end of a line are really one word, and it catches words that are in figure images in the paper too, something that post-retrodigitization does not handle. We tried it and we liked it. Quite a pre-stidigitization.

Rick and I are now negotiating with Taylor and Francis, publishers of AS&T, to retrodigitize and post all those golden oldies to the regular AS&T Web site. Stay tuned for further progress reports.

Welcome New Members

Subhas Bhowmick, Sun Pharma Advanced Research Center Leonid Ye. Bulychev, Research Institute Aerobiology Mark Copley Maryam Darbeheshti*, University of Denver Samiran De, Chrysalis Technologies Caroline Duchaine, Universite Laval Adam P. Eisele*, University of Colorado at Boulder Jonathan P. Eshbaugh, Battelle Memorial Institute Amit Gupta, Battelle Memorial Institute Bernhard A. Heiden, University of Technology - Graz Chih-Wei Lin*, National Taiwan University Dylan Miller, Harvard University Seong Moon*, Texas A&M University Francois-Xavier Ouf*, IRSN James L. Regens, University of Oklahoma William H. Robertson, California Air Resources Board Gilman H. Rogers, Jr., Southern Filters, Inc. Vinod K. Saxena, San Jose State University James Scherer, Nova Wave Technologies Martin Schmidt, Palas GmbH Daniel R. VanReenen, US Army RDECOM Jacques Vendel, IRSN Edgar Vidrio*, University of California, Davis Vaugh E. Wagner, Salisbury University Marc Whalen, Corning Incorporated B. Scott Williams, US Army, Dugway Proving Ground Haifeng Zhang, Seagate Technology **denotes a student member*

"In Case You Missed It"

Aerosols Strengthen Thermohaline Circulation

In a new climate modeling effort, Delworth and Dixon report that higher anthropogenic aerosol concentrations delay, by several decades, the 21st century weakening of North Atlantic thermohaline circulation (THC) caused by greenhouse gases. However, increases in ocean temperatures are ultimately restored because century-long greenhouse gas residence times out-compete week-long aerosol atmospheric lifetimes. (Geophysical Research Letters, 33, doi:10.1029/2005GL024980, 2006)

Lidar Shows California Central Valley Aerosol Profiles

DeYoung et al., measured three-dimensional aerosol vertical profiles using a NASA airborne lidar. The authors created interactive 3-D visualization software to include terrain topography, air mass backward trajectories, and the 1064-nm lidar aerosol scattering ratio versus altitude. Significant boundary layer aerosol loadings accumulated or originated near Bakersfield. Surrounding mountains confined the aerosol layers, but evidence for "mountain pumping" of aerosols to the free troposphere was also documented. (*Environmental Science & Technology*, 39 (21) 8351-8357, 2005)

Real-time Sizing of On-Chip Nanoparticles

Using confocal correlation spectroscopy, Kuyper and coworkers demonstrate the capabilities of the technique for accurate size measurements of fluorescent and nonfluorescent nanoparticles in very small detection volumes (~3 femtoliters). The authors were able to size 5.5 to 150 nm particles in microfluidic channels and suggest future improvements in the technique will enable broad use for nanoparticle and macromolecule sizing. (*J. Amer. Chemical Soc.*, 128 (3), 730-731, 2006)

National Ambient Air Quality Standards

The U.S. Environmental Protection Agency has recently proposed revisions to the National Ambient Air Quality Standards for particulate matter. Further information can be found at: www.epa.gov/oar/particlepollution/actions.html.

Rule 9510

The San Joaquin Valley Air Pollution Control District recently passed Rule 9510, Indirect Source Review. Taking effect on March 1, 2006, the new rule requires developers of large residential, industrial and commercial projects to reduce emissions of particulate matter and smog precursors. The rule is the first of its kind in the United States and can be found at: www.valleyair.org/rules/currntrules/Rule%209510%201205.pdf

New Source Review Ruling Keeps Clean Air Act Intact

A Federal Appeals Court ruled in favor of 14 states, the public, and environmental health groups on Friday March 17, 2006, by denying an EPA change to the Clean Air Act known as Equipment Replacement Provision for Stationary Sources. In taking this action, aging power plants and industrial facilities will be required to install updated emissions controls whenever facility physical or operational changes are made that increase air pollution. The full text of the ruling can be accessed at: www.earthjustice.org/news/documents/3-06/ERP-ruling-3-17-06.pdf

A Gift from AAAR

By Rick Flagan

Tony Wexler has expounded upon the coming retrodigitization. Through this project, the publication legacy of the first two decades of the AAAR will no longer be limited to the graying few who were present at its inception. The editors who preceded me – Dave Ensor, Ben Liu, Dave Shaw, and Phil Hopke – assembled an important collection of papers that chronicles a period of rapid advance in aerosol research. Retrodigitization will bring this entire collection to all of you.

Actually, it will do much more. In a historic decision a few years ago, the AAAR board of directors granted open access to the electronic archives of our journal to all. When a paper is first published, it is available to subscribers in both print and electronic forms. One year after a paper published in *Aerosol Science and Technology* appears in print, electronic access to it is opened to the whole world. Through this action, the AAAR recognizes the debt that we all have to the society that has supported our research.

Admittedly, the AAAR benefits from increased awareness of the role of aerosol research in diverse scientific,

technological, and environmental endeavors. Societal benefits are obvious. However, authors and their institutions will benefit most. Open access gives authors what they want, more readers and, hence, more recognition for their discoveries, inventions, theories, and other contributions to the scholarly literature. This increases the impact of their papers. As we digitize

the older volumes of our journal, they will join the electronic archives that are openly accessible through the Internet. The AAAR has already joined a growing cadre of scholarly and professional societies in allowing open access to its electronic archives. With retrodigitization, the AAAR joins a much smaller group by opening our entire archives to the world, leading the way into a new era of scholarly communication.

Rick Flagan Editor-in-Chief, *Aerosol Science and Technology*

CALENDAR OF EVENTS

| April 24-25, 2006 | September 3-6, 2006 |
|--|---|
| Overcoming Obstacles to Effective Research Design in Nanotoxicology | Conference on Visibility, Aerosols, and Atmospheric Optics |
| Hotel Marlowe, Cambridge, MA | Vienna, Austria |
| To register, visit | The conference will address all aspects of atmospheric aerosol |
| www.tfilearning.com/tfi/c/portal_public/layout?p_l_id=27.48 | particles: their interaction with light, resulting with degradation of |
| April 30-May 2, 2006 | visual quality and/or alteration of radiative balance, the origin and |
| An International Conference: Ultrafine Particles–The Science, | processes leading to these particles, the documentation of visibility |
| Technology, and Policy Issues | and its trends, as well as the effectivity of air pollution strategies on |
| Wilshire Grand Hotel, Los Angeles, CA | improvement of visual quality. |
| www.agmd.gov/tao/UltrafineParticleConf.htm | The deadline for submission of abstracts to the |
| For more information, contact Larry Kolczak, 909 396 3215, | Visibility Conference is April 15, 2006 |
| Ikolczak@aqmd.gov | For details see http://visibility.exp.univie.ac.at |
| For exhibitor information, contact Drue Ramirez, 909 396 3237, | For further information please contact: |
| dramirez@aqmd.gov | Helmuth Horvath |
| May 13-18, 2006 | Institute for Experimental Physics, University of Vienna |
| AlHce 2006 | Boltzmanngasse 5, 1090 Vienna, Austria |
| Co-located with VENT 2006 (May 14-16, 2006) | E-mail: Helmuth.Horvath@univie.ac.at |
| Chicago, IL | September 8-9, 2006 |
| For more information or to submit a presentation, please visit | Third History of Aerosol Science Symposium St. Paul, Minnesota |
| www.aiha.org/aihce.htm. | For more information, contact David Ensor |
| June 6, 2006 The Industry Application of Aerosol Science & Technology Host: Chinese Society of Particuology Organizer: Worldwide Exhibitions Service Co., Ltd Place: INTEX Shanghai (No. 77, XingYi Road), Conference Room, 1st Floor (limited to 40-50 participants) For more information, visit the official Web site of International Powder/Bulk Conference & Exhibition 2006 | Symposium Chair, at dse@rti.org September 10-15, 2006 International Aerosol Conference 2006 Radisson Riverfront Hotel, St. Paul, Minnesota For more information, please visit: www.aaar.org/IAC2006/index.htm |

PARTICULARS

Particulars is published by the American Association for Aerosol Research as the primary information source for Association members.

AAAR

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Who's Who at the AAAR Office

AAAR staff is here to help with any and all questions you may have on the association, benefits, dues, the annual conference and more. Office hours are Monday - Friday 8:30 AM - 5:00 PM (EST). Phone calls and e-mails are typically answered within 24 hours.

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Amy Williams, CAE <u>awilliams@ahint.com</u> *Oversees all day-to-day operations and committee and board issues*

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Assistant Meeting Manager Assists in annual conference planning and execution

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AAAR JOB POSTINGS

Career Opportunities in Aerosol Research

To post a job opening on the AAAR Web site (and a short version in the newsletter), please submit a description of the job electronically by e-mail or in an ACSII text file to AAAR (e-mail: info@aaar.org). The price is \$150 U.S. for a maximum of 200 words. The posting will remain as long as needed, up to six months. Please send a check (payable to the AAAR) to AAAR, Attn: Deanna Bright, 15000 Commerce Parkway, Suite C, Mt. Laurel, NJ 08054, and note that this is payment for a job posting on the AAAR Web Site. Sorry, we are not able to accept resumes.

Southern Company Services Environmental Research Specialist

University of Colorado at Boulder Faculty Position in Mechanical Engineering

NCH Aerosol Chemist

Quantum Resources Postdoctoral Research Fellow – Aerosol Research

Washington State University, Department of Civil and Environmental Engineering and the Laboratory for Atmospheric Research Tenure-track Faculty Position

Research Development & Engineering Division of S. C. Johnson & Son, Inc. Postdoctoral Fellow Center for Emerging and Re-Emerging Pathogens Department of Medicine New Jersey Medical School Postdoctoral Fellow

MRI Aerosol Engineering Manager

Environmental Fluid Dynamics and Particle Transport – The University of Cincinnati Assistant or Associate Professor

Scripps Institution of Oceanography at University of California San Diego Property Prediction for Measured Organic Aerosol Particles Postdoctoral Scholar

Battelle Senior Research Scientist

Kent State University Chemistry Department Aerosol Research Postdoctoral Position

To see full descriptions of classified ads, please visit www.aaar.org/career.htm.



International Aerosol Conference Planning in Full Swing (AAAR will turn 25!)

The 7th International Aerosol Conference will be held in St. Paul, Minn. between September 10 to 15, 2006. AAAR (www.aaar.org) will be sponsoring and hosting the Conference on behalf of the International Aerosol Research Assembly (www.iara.org). Planning for the Conference is in full swing by members of the Advisory, Organizational, and Technical Program Committees who come from AAAR, and several member nations of the IARA. The Technical Program Committee, consisting of 36 members, are organizing a Conference Technical Program that will highlight the broad spectrum of fundamentals and application areas of aerosol science and engineering. There will be tutorials on topical areas presented by noted scientists, plenary lectures, special symposia, and poster and platform sessions.



Landmark Center Located in downtown Saint Paul.

This is a very special year for AAAR – it will mark our 25th Anniversary, and will be the 25th Annual Conference that will be organized. Hence, we hope to organize some activities that will mark the Silver Jubilee of AAAR. Please mark your calendars and look out for updated information on the AAAR Web site.



Key dates:

- 1. Notification to Authors: May 1, 2006
- 2. Early Bird Registration Deadline: June 15, 2006
- 3. 7th International Aerosol Conference, September 10-15, 2006

David Y.H. Pui University of Minnesota Conference Co-Chair

Pratim Biswas Washington University in St. Louis Technical Program Co-Chair Gilmore J. Sem TSI Incorporated Conference Co-Chair

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