



# THE DAYTON SECTION

*Fostering scientific education and research and promoting public understanding of science*

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<http://www.udayton.edu/~acs/>

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**BULLETIN****Autumn 2004**

**October 5:** Dr. Kash Mittal, will present “*Adhesion Science: Recent Developments, Unsolved Problems, and Prospects.*”

**October (date TBD):** Prof. Larry Dalton will present “*Organic Electro-optic Materials,*” jointly sponsored by the Materials & Manufacturing Enabling Technologies Series.

**October 17-23:** Celebrate National Chemistry Week with this year’s theme, *Health and Wellness!*

**Also Inside:**

- Call for Nominations for 2005 Dayton Section Officers.
- Highlights of previous meetings.

DATE MATERIAL - MEETING ANNOUNCEMENT - DO NOT DELAY

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American Chemical Society  
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Dayton, OH 45402-1267

## UPCOMING MEETING

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**OCTOBER**

### **“ORGANIC ELECTRO-OPTIC MATERIALS”**

Jointly sponsored by the  
Materials & Manufacturing Enabling Technology Series

Speaker: Professor Larry Dalton, Department of  
Chemistry, Washington University

**Biography:** Larry Dalton joined the University of Washington as Professor of Chemistry and as Adjunct Professor in the Department of Electrical Engineering in 1998. Professor Dalton is the author of over 425 peer-reviewed publications. He currently serves as Director of the National Science Foundation Science & Technology Center on Materials & Devices for Information Technology Research, Director of the Department of Defense Multidisciplinary University Research Initiative Center on Polymeric Smart Skin Materials, and Director of the National Science Foundation Nanotechnology Integrated Team on Optoelectronic Materials. Professor Dalton is the recipient of numerous high-profile awards, including the 2003 American Chemical Society Award in the Chemistry of Materials and the 2000 Distinguished Alumni Award of Michigan State University.

Date, time, and venue will be announced on the web.  
Alternatively, contact James Grote at 255-4474-x3263 or  
james.grote@wpafb.af.mil.

## SECTION ACTIVITIES

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# NATIONAL CHEMISTRY WEEK

OCTOBER 17-23

**THIS YEAR'S THEME: *HEALTH AND WELLNESS***



Each year the American Chemical Society's (ACS) National Chemistry Week (NCW) campaign reaches millions of people with positive messages about the contributions of chemistry to daily life. It is the one time during the year that chemists, regardless of background, unite with the common goal of spreading the word that chemistry is good for our economy, our health, and our well-being. Some ways that you can contribute to the NCW campaign are: performing chemical demonstrations at a neighborhood school; conducting hands-on activities with children at museums, malls, or libraries; or writing articles or letters to the editor of your local paper.



**To volunteer, contact Dr. Susan Marine at:  
(513) 727-3377 or mariness@muohio.edu.**

## UPCOMING MEETING

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**OCTOBER 5:**

### **“ADHESION SCIENCE: RECENT DEVELOPMENTS, PROBLEMS, AND PROSPECTS”**

**Speaker: Dr. K.L Mittal, Editor, *Adhesion Science & Technology***

**Time and venue will be announced on the web. Alternatively, contact Joy Rogers at 255-3808-x3179 or joy.rogers@wpafb.af.mil**

#### **Synopsis**

A recent flurry of research activity has attempted to unravel the mechanisms by which materials adhere together. Although adhesion is generally considered to be an interfacial phenomenon, strictly speaking, an interface is a sharp boundary (with no thickness) and interfaces rarely occur in adhering systems. It is the interfacial region or the interphase that is prevalent and if it can be characterized and tailored, then much progress can be made in adhesion science. The subject of adhesion, however, is truly inter-, multi- and trans-disciplinary and for a holistic approach, a synergistic interaction is required among the various disciplines, viz., surface chemistry, rheology and fracture mechanics. It is apparent from even a cursory look at the literature, that there has been a quantum leap in our knowledge of why things stick together and all indicators show that this trend will continue unabated. Because a complete discussion of the many facets of adhesion science would be prohibitively long, only, recent advances in the following areas will be discussed: acid-base interactions and their relevance to adhesion; polymer surface modification and adhesion; investigation of interfacial interactions; understanding of the chemistry of coupling agents or adhesion promoters; and adhesion enhancement of thin films. As an epilogue, some of the unsolved problems that require intensified R&D efforts will be highlighted.

#### **Biography**

Dr. Kashmiri Lal Mittal was associated with the IBM corporation from 1972 through 1993. He is currently teaching and consulting worldwide in the areas of adhesion and surface cleaning. He has initiated, organized and chaired a large number of international symposia and is the editor of 79 published books and others that are currently in print dealing, *inter alia*, with adhesion measurement, adhesion of polymeric coatings, polymer surfaces, adhesive joints, adhesion promoters, thin films, polyimides, surface modification, surface cleaning and surfactants. Dr. Mittal has received many awards and honors including the 1990 Dudley Award of the ASTM, the 1995 Thomas D. Callinan Award of the Electrochemical Society, the 1997 John A. Wagon Technical Achievement Award of the IMAPS, the Adhesives Age Award, is a Robert L. Patrick Fellow member of the Adhesion Society and is listed in many biographical reference works. He is the Editor of the International *Journal of Adhesion Science and Technology*, and is/has been a member of the editorial boards of a number of scientific and technical journals. Dr. Mittal was recognized for his contributions and accomplishments by the worldwide adhesion community, who organized, in his honor, the 1<sup>st</sup> International Congress on Adhesion Science and Technology in Amsterdam in 1995. In 2002, he was honored by the global surfactant community by the inauguration of the Kash Mittal Award, sponsored by the Nestle Research Center in Lausanne, Switzerland, in the surfactant field for his vast efforts and significant contribution to the field of colloid and interface chemistry. In October 2003, he was honored by the Maria Curie-Skłodowska University, Lublin, Poland with the awarded title of Doctor *Honoris Causa*.

## Recent Meetings

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### The Dayton Air Show

Professor John Fortman and a host of Dayton-Section ACS volunteers demonstrated the *Chemistry of Flight*.



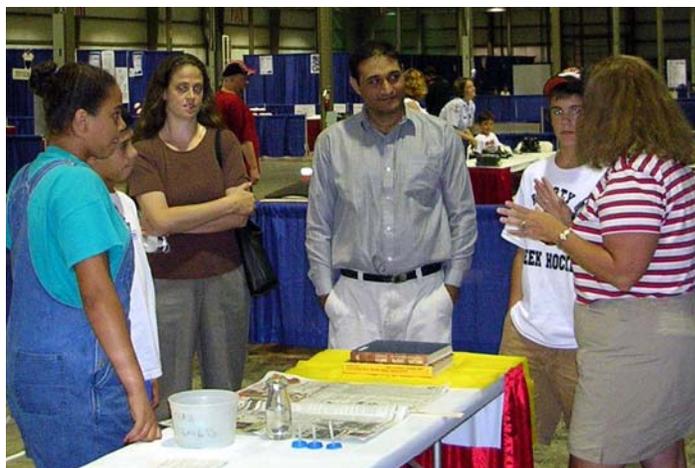
Prof. John Fortman observes audience member Courtney DeWitt perform an experiment demonstrating the effects of air pressure.



Dayton-Section ACS volunteer Jon Slagle watches Sean Denny demonstrate the effect of air pressure on an inverted glass of water.



ACS volunteer Lisa Denny and her son Sean demonstrate the significance of the Coanda Effect, which is explained by the viscous flow of air.



Lisa Denny (right) explains the "Chemistry of Flight" to a group of spectators and gets "the eye" from Mr. Tall, Dark, and Handsome.

## ***CALL FOR OFFICER NOMINATIONS FOR 2005***

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Yes, it's an election year but that's the case every year for the Dayton Section! This year, the offices of Chair Elect, Treasurer, Councilor, and Alternate Councilor are up for grabs. Terms of office and responsibilities are detailed below. Contact the current officers for more information.

Anyone interested in serving in any of these offices should contact Ruth Pachter at (937) 255-6671-x3177 or [ruth.pachter@wpafb.af.mil](mailto:ruth.pachter@wpafb.af.mil).

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**Chair-Elect:** Plans and arranges the Section's meeting program with assistance from the Chair. Will serve as Chair in 2006 and Immediate Past Chair in 2007. The Chair's responsibilities include presiding over all Section and Board Member meetings, and producing the Section's annual report. The Immediate Past Chair serves as advisor to the Chair and Chair-Elect.

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**Treasurer:** Plans the Section's yearly budget, maintains the Section's general fund and other accounts, works with the Investment Chairperson, and provides the Chair with checks for the various Section awards. Persons named Keith Grinstead, ABD, need not apply.

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**Councilor:** Serves a term of three years and represents the Section at all Council Meetings at National Meetings of the ACS. Seeks active membership in a Council Committee and reports to the Section. Must be willing to save the Section money by staying at hotels with shared bathroom facilities.

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**Alternate Councilor:** Substitutes for the Councilor when need be and also serves a three-year term. With flair, keen wit, and sense of the sardonic, the Alternate Councilor also represents the Section as delegate to the Affiliate Societies Council of Dayton at bimonthly meetings.

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## Bill Carroll Wants Your Ideas!

2005 ACS President Bill Carroll is compiling information related to two of his presidential agenda items for sharing with members and others next year.

**Service opportunities.** If you have run a program that is a community service through which you were able to reach out with the positive message about chemistry while doing something to benefit the community (painting, clean-up, etc.), Bill would like to hear from you. Please send the details to him at [carroll@acs.org](mailto:carroll@acs.org).

**Second career high school teachers.** Bill believes strongly in the benefits of having trained chemists and chemical engineers entering the teaching profession. If you are one of these teachers and would like to share your experiences, he would be pleased to hear from you. Just drop a note to [carroll@acs.org](mailto:carroll@acs.org).

## How Can You Be Part of the Solution to Build Chemistry's Future?

Do you want to provide resources and training to chemistry teachers, support outreach efforts to bring depth and diversity to chemistry in the coming century, help young scholars enter the field of chemistry and more? Make a gift today to the American Chemical Society. You can be part of the solution and help build chemistry's future. Visit

[http://www.chemistry.org/portal/resources/ACS/ACSContent/gifts/pledge\\_brochure.pdf](http://www.chemistry.org/portal/resources/ACS/ACSContent/gifts/pledge_brochure.pdf) and <http://www.chemistry.org/gifts> to learn more.

## Assess Your Work Style with A.C.T.

If you are considering a career move or just feeling stuck in your current role, take advantage of Advanced Career Tools (A.C.T.), an assortment of career-building tools launched by the ACS Department of Career Services.

Among the tools available at [chemistry.org/careers](http://chemistry.org/careers) is the Behavioral Style Assessment, which takes ten minutes to complete, and provides users with a one-paragraph assessment of their work style at no charge. Understanding your strengths provides you with greater confidence in interviews and enhances your ability to communicate in the workplace. A 26-page report, analyzing the results of the Behavioral Style Assessment in depth, is available for a fee.

Other A.C.T. features include nearly 300 articles of frequently asked questions (FAQs) on job search and career development, access to professional career coaches, products such as CDs and books, and customized features such as e-mail alerts on topics of specific interest to the user.

In order to obtain feedback from Section Members and to encourage dialogue between Members and Section Officers and Committee Chairs, *Letters to the Editor* will be published in each edition of the *Bulletin*. Send email to: [steven.trohalaki@wpafb.af.mil](mailto:steven.trohalaki@wpafb.af.mil) or conventional mail to the attention of the Bulletin Editor, Dayton Section ACS, 140 East Monument Ave., Dayton, OH 45402-1267

## SITUATIONS WANTED / JOB OPENINGS

Upon request, the Section will include in the *Bulletin* job openings and confidential situations-wanted postings. Members searching for employment should coordinate through the Section Career Program Chair.