

DIVISION OF ATOMIC, MOLECULAR AND OPTICAL PHYSICS NEWSLETTER

A Division of The American Physical Society

June 1997

Kate Kirby

Chair
Harvard-Smithsonian Center for
Astrophysics
60 Garden Street
Cambridge, MA 02138
PHONE: (617) 495-7237
FAX: (617) 495-5970
E-MAIL: kkirby@cfa.harvard.edu

Carl E. Wieman

Chair-Elect
Joint Institute for Laboratory
Astrophysics CB 440
University of Colorado
Boulder, CO 80309-0440
PHONE: (303) 492-6963
FAX: (303) 492-8994
E-MAIL: cwieman@jila.colorado.edu

Stephen R. Lundeen

Vice-Chair
Department of Physics
Colorado State University
Fort Collins, CO 80523
PHONE: (970) 491-6647
FAX: (970) 491-7947
E-MAIL:
lundeen@lamar.colostate.edu

F. Barry Dunning

Secretary-Treasurer
Department of Physics MS-61
6100 So. Main St.
Rice University
Houston, TX 77005-1892
PHONE: (713) 527-8101 X3544
FAX: (713) 285-5143
E-MAIL: fbd@rice.edu

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1997 AMO Doctoral Thesis Award Winners Announced!

The 1997 award for Outstanding Doctoral Thesis Research in Atomic, Molecular or Optical Physics was jointly awarded to **Paul A. Vetter** and **Barry C. Walker**. Each will receive a check for \$500 and a certificate from the American Physical Society. Dr. Vetter is presently at the Lawrence Berkeley National Laboratory. His thesis was entitled "**Precise Measurement of Parity Nonconserving Optical Rotation in Atomic Thallium as a Test of the Electroweak Standard Model**" and this work was undertaken at the University of Washington under the direction of Dr. E. N. Fortson. Dr. Walker is currently at the University of California San Diego. His thesis was entitled "**One- and Two- Electron Ion Ionization of Atoms by a Strong Laser Field**" was carried out at Brookhaven National Laboratory under the supervision of Dr. L. F. DiMauro.

The prize winners were selected following a special invited session at the Washington Meeting. All of the finalists presented excellent talks to

a large, receptive audience. This session is now one of the highlights of the annual DAMOP Meeting.

We are grateful to this year's selection committee, consisting of K. Kulander (Chair), M. Kasevich, R. Compton, C. Tanner and W. van Wijngaarden.

DAMOP Election Results!

We congratulate the 1997 DAMOP election winners:

Vice Chair:

- Thomas Reseigno
- Thad Walker

The nominating committee consisted of Ron Phaneuf (chair), Gordon Berry, James Cohen, Joe Dehmer and D. Pritchard.

Message From the Chair

Kate Kirby

On behalf of the DAMOP community, I want to thank **Prof. Gordon Drake** for his excellent leadership of the Division over the past year. DAMOP has benefited greatly from his wisdom and energy.

Once again this year's DAMOP meeting was held in Washington, DC in conjunction with the April APS meeting. This is the fourth time we have joined with the APS spring meeting, and despite some of the difficulties we encounter with these joint meetings, they do give us a special opportunity to interact with Congress regarding the importance of government support for scientific research. The Division of Atomic, Molecular and Optical Physics has led the way in reaching out to Congress and in starting the APS Congressional Day activities. This year DAMOP, together with the Division of Laser Science, hosted a very successful Congressional Reception on Capitol Hill (see Mike Lubell's article appearing in this newsletter). Besides the cocktails and hors d'oeuvres, the reception featured twelve different exhibits of "hands-on" AMO- based science and technology. The cost of this reception to DAMOP was approximately \$4000, but the amount of donated time and energy on the part of the exhibitors, who were mostly from the AMO community, was worth many times this amount. I would like to thank all the AMO scientists who participated in this event. Communicating effectively with Congress (the lay public, school children, etc.) is not easy! However we're all increasingly aware of the importance of engaging in these outreach activities, and we're immensely relieved when they seem to go well. Events such as the DAMOP/DLS Congressional Reception should encourage us to do this more often!

While DAMOP members always enjoy getting together to share a lot of the new and exciting science going on in the field, the joint meetings with APS have not met with uniform enthusiasm from the DAMOP membership. The joint meeting venue and program significantly limit our ability to organize DAMOP social events, to schedule sessions and rooms appropriately, and even to find each other. The DAMOP Executive Committee was not pleased with how much difficulty was encountered by DAMOP officers in organizing this year's conference. At present, aside from the APS Centenary meeting in 1999, we have no

plans for future joint APS/DAMOP meetings. We owe tremendous thanks to Chairman Gordon Drake and Secretary-Treasurer Barry Dunning for their unflagging efforts on behalf of the DAMOP program which contributed enormously to the success of the April meeting.

Thank You

DAMOP owes special thanks to our outgoing chair Gordon Drake who has served us with dedication and provided very effective leadership during the past year.

Thanks also go to Charlotte Fischer and Keith MacAdam who have just completed three year terms on the DAMOP Executive Committee.

Thanks are also due to the members of the Committees that organized the Congressional Reception hosted by DAMOP and DLS. There were B. Dunning, D. Grischkowsky, W. Hill, K. Kirby, M. Lubell, F. Slakey and W. Stwalley.

DAMOP Membership

The official APS membership statistics show that as of January 1, 1997 DAMOP had 2664 members, 6.39% of total APS membership. This figure is slightly up from the previous year and secures the division two representatives on the APS council (APS bylaws grant division, forums and topical groups one representative for each 3% of total AP membership).

Future DAMOP Meetings

- **Santa Fe 1998**

The 1988 DAMOP meeting will be held Wednesday, May 27 to Saturday May 30 at the Sweeney Conference Center in Santa Fe. A reception is planned at the Palace of the Governors the evening of Tuesday, May 26. A number of local hotels have agreed to provide rooms at ~\$95 per night plus \$10 per extra person. Low cost student housing, ~\$20-25 per night, will be available at local colleges and transportation to three dormitories will be provided. James Cohen is chair for the local organizing committee.

- **Atlanta 1999: APS Centenary Meeting**

DAMOP will meet in conjunction with the special APS Centenary meeting to be held in Atlanta from Saturday March 20 to Friday March 26 in the Atlanta Convection Center and the Westin Hotel. Paul Neill is the DAMOP liaison person for this meeting.

- **2000 and Beyond**

The DAMOP Executive Committee in Washington voted to meet separately from another APS meetings in 2000 and a proposal from Henry Stroke to hold the meeting in New York is under review.

Innovation on Capitol Hill

Michael S. Lubell

When a budget cutting member of Congress waxes ecstatic and pledges

to keep the "money flowing for this kind of work," you know that you've achieved a measure of success. That's what happened on April 16 at a Capitol Hill exhibit and reception co-sponsored by DAMOP and DLS in cooperation with Rep. Vern Ehlers (R-MI). The member was Rep. Gil Gutknecht (R-MN), who jointed more than a dozen of his House colleagues and many staffers in viewing and experimenting with equipment brought to the Rayburn House Office Building by twelve scientific exhibitors.

Just as DAMOP set the APS standard for the Congressional Visits Program six years ago, the Division broke new ground with its hands-on exhibits that demonstrated how federal investments in basic research have paid off for the benefit of society. You can appreciate how much ground breaking took place when you consider the nature of most Capitol Hill receptions.

On any given day when Congress is in session, you are likely to find a handful of such events taking place in Senate and House office buildings. Most feature food and drink and provide the sponsors with an opportunity to talk to senators, representatives and congressional aides about issues dearest to their hearts: federal spending, taxes and regulations. Some receptions make a stab at serious education using posters, videos and pamphlets. But it's the food and the bar that usually attract the most attention.

The DAMOP/DLS event was different. True, there was a buzz around the buffet table, and the bar tenders seemed to be performing with aplomb. But the real action was taking place at the exhibits. Everyone wanted to twiddle knobs or tinker with the hardware.

Any publicist will tell you that there's a lot of truth to the maxim, "A picture is worth a thousand words." But what the DAMOP/DLS event proved is that if you really want to turn people on, give them an opportunity to play with technological gizmos. Kids love it and so do their parents when the kids aren't looking. Why should members of Congress be any different?

The exhibits, which featured AM applications ranging from chemical weapons detection (Steve Harden) and global positioning systems (Ron Walsworth) to laser-enhanced MRI (Gordon Cates) and orthopedic arthroscopy (Michael Lynch), drew an audience of House Science Committee members who had just finished passing a slew of authorization bills that, on balance, treat research extremely well. Chairman Jim Sensenbrenner (R-WI) and Ranking Democrat George Brown (D-CA) entered wearing broad smiles, reflecting their satisfaction with a bipartisan job well done. And what they saw could only have reinforced their conviction in the value of science to the American public.

The medical instrumentation exhibits attracted former internist Rep. Dave Weldon (R-FL), and the educational optics kits, provided by the OSA (Elizabeth Baldwin), caught the eye of Rep. Eddie Bernice Johnson (D-TX). Buckyballs and nanotubes (Rick Smalley), optical tweezers (Kris Helmersen) and cold atoms (Bill Phillips and Paul Lett) were popular with all comers, as were the hands-on STM apparatus (Jim Wynne) and the remote atmospheric sensing equipment (Kelly Chance, Eric Beach and Arlin Krueger). The laser scanner (Metrologic, Inc.) and fiber-optics communications (Lucent Technology) exhibits reminded attendees just how ubiquitous AMO applications have

become.

About the only disappointment of the entire day was the absence of APS Fellow and DAMOP member Vern Ehlers, who was kept away by his duties as chairman of the House committee that is investigating former California Rep. Robert Dornan's challenge to the election of Loretta Sanchez (D-CA).

AMO Physics for the Public!

We all realize the increasing importance of helping the tax-paying public to appreciate AMO physics. We are fortunate that many of the exciting new developments in our field can easily attract the interest of the general public if they are clearly presented and related to broader issues. However, sometimes we overlook this audience in reporting our work. With this in mind, DAMOP will try an experiment in public relations over the next several months. We will try to collect some stories of AMO physics with particular public appeal, and do our best to get them covered by news media. We will keep you up to date on this effort with a column in the DAMOP newsletter. Each issue will carry an example of such a news article, and report on other efforts. You can help by sending in suggestions for AMO articles which will attract wide public interest. Please send your suggestions to: **Steve Lundeen**, Vice-Chair, DAMOP, Dept. of Physics, Colorado State University, Ft. Collins, CO 80523.

Important NSF Deadlines for FY98 Competitions

- Experimental Atomic, Molecular, Optical, and Plasma Physics Program: AMOP Experiment: September 17, 1997.
- Theoretical Atomic, Molecular, Optical, and Plasma Physics Program: AMOP Theory: October 29, 1997 See: <http://www.nsf.gov/mps/phy/targets.cfm>
- Faculty Early Career Development: CAREER: July 22, 1997. See: <http://www.nsf.gov/pubs/1997/nsf9787/nsf9787.html>

Call for Nominations

- **Will Allis Prize for the Study of Ionized Gases**
Purpose: To recognize and encourage outstanding research into the microscopic or macroscopic behavior of ionized gases.
Nature: The Prize consists of \$5,000 and a certificate citing the contributions made by the recipient. An allowance will be provided for travel expenses of the recipient to the meeting of the Society at which the Prize is bestowed.

Send nomination letters, biographical information and supporting letters to: **Kurt H. Becker**, Department of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, NJ 07030, Phone/Fax (203) 216-5671; e-mail: kbecker@stevens-tech.edu. Nominations must be received by **1 July 1977**.

- **Davisson-Germer Prize**

Sponsored by AT&T Lucent Technologies.

Purpose: To recognize and encourage outstanding work in atomic physics or surface physics.

Nature: The prize consists of \$5,000 and a certificate citing the contributions made by the recipient. This annual prize will normally be awarded alternatively for outstanding work in atomic physics one year and for outstanding work in surface physics the following year. The 1998 prize will be awarded for outstanding work in surface physics.

Send the name of candidates, biographical information and supporting letters to **Andrew C. Tamm**, 21463 Continental Cir., Saratoga, CA 95070. Phone (408) 927-1943; e-mail ACTAM@almaden.ibm.com. Nominations must be received by **1 July 1997**.

Related Future Meetings

An international conference on Atomic and Molecular Data and Their Applications will be held September 29 to October 2, 1997 at the National Institute of Standards and Technology, Gaithersburg, Maryland.

For further information contact the conference homepage on the World Wide Web at <http://physics.nist.gov/icamdata> or contact **W. L. Wiese**, NIST, Gaithersburg, MD 20899, FAX: (301) 990-1350, e-mail: icamdata@nist.gov.

The 1997 Gordon Research Conference on Molecular Electronic Spectroscopy and Dynamics will be held at Queens College, Oxford, England from August 31- September 5, 1997, on the High Street. In keeping with the international venue, and the traditions of the meeting, a wide variety of topics relating to electronic spectroscopy and its applications to studies of molecular structure and dynamics in both the gas phase and the condensed phase will be discussed. An active social program also is planned.

Program details, application procedures, and travel and accommodation information can be obtained from the Chair, Department of Chemistry, University of Pittsburg, Pittsburg, PA; Phone (412) 624-8660; Fax (412) 624-8552; e-mail: pratt+@pitt.edu.

The International Conference on Computational Physics: PC '97 will be held in Santa Cruz, CA on 25-28 August 1997. This meeting will be the first full conference sponsored by the American Physical Society's Division of Computational Physics and the Forum on Industrial and Applied Physics, and will be held jointly with the European Physical Society and the International Union of Pure and Applied Physics. The conference is expected to attract over 300 participants and to facilitate interactions between developers and user of computational methods, as well as to strongly emphasize applications of computational physics to industrial and other practical problems.

Please contact the Conference Secretary, Ann Lavalley at: comp97@physics.ucdavis.edu, should you have questions or visit the

conference web site located at: <http://www.aps.org/meet/PC97/>.

Newsletter Input

If you have any information, ideas, announcements, etc. that are of general interest to DAMOP members, please send them to me at any time.

Barry Dunning

e-mail: fd@rice.edu

FAX: (713) 285-5143