

What is this? (Ans. p. 3)

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Newsletter of the DIVISION OF ATOMIC, MOLECULAR, & OPTICAL PHYSICS of the *American Physical Society* December 1990

Chair's Letter

It is not difficult to document increasing concerns regarding the state of science funding in this country. Junior researchers are concerned about prospects for obtaining their first research grants and senior researchers are concerned about retaining a viable level of grant support. Our April 1991 annual meeting in Washington, D.C. presents an opportunity to voice these concerns to those who are in a position to effect change: the members of Congress.

The current "crisis" in funding for science research is a by-product of the political budget-making process. However, as D. Allan Bromley has noted, Congress is generally unaware of the problem since the funding agencies have received significant budget increases for several years now. Remarkably, the individual investigator is experiencing these funding problems at a time when both Congress and the Nation have serious concerns regarding U.S. economic competitiveness vis-a-vis Europe and Japan, regarding environmental pollution of our air, land, and water as well as their long-term effects on the global climate, and regarding the poor understanding our youth and the public generally have of science and of science-based public issues. A healthy science infrastructure in this country can contribute much to the resolution of each of these current national concerns. What appears to be lacking is Congressional understanding of the linkage between support for basic research by individual investigators and the health of the science infrastructure. You, the membership of the DAMOP, are in a position to raise the level of Congressional consciousness of this linkage. And the opportunity for your doing so is our April 1991 annual meeting in Washington, D.C.

As announced on page 2 in this newsletter, the APS's Physics Planning Committee (PPC) is currently considering ways to assist APS members attending the April 1991 APS meeting to meet with members of Congress. If you are concerned with the health of science in this country, I urge you to notify Tina Kaarsberg, Staff Liaison for the PPC, of your interest [*using the response coupon printed in this newsletter (p. 6)*] so that the APS can determine the numbers of physicists who might participate. I add in closing that I think it is essential that such efforts be made on behalf of science in general, whether for reasons of economic competitiveness, environmental concerns, or for science education and training. Partisan lobbying for particular projects or disciplines is not in our long-term best interest.

Sincerely,
Anthony F. Starace

New Division Councilor



Dan Larson has been elected as our Councilor to the APS. He will serve as liaison between DAMOP and APS, replacing Alex Dalgarno who retires (as Councilor) in January. Dan's platform was "I'll run, but I don't expect to win." Future candidates take note.

New Membership Figures

DAMOP has 2,282 members as of October 1990, compared to 2,545 as of June 1990 (just before the APS deadline for membership dues). It is expected that our membership will rise above the 2,545 level by next June.

Congressional Day

In association with the April 1991 general meeting of the APS and the annual meeting of DAMOP, which will be held jointly in Washington, DC, plans are now being developed to bring physicists together with members of Congress and their staffs. During the last decade, federal research budgets have shrunk in constant dollars, to such an extent that American preeminence in technological and economic development is under severe attack. While the United States Congress has recognized the looming crisis in science education and its concomitant effect on future national scientific capabilities, it has been slow to react to the rapidly deteriorating conditions in the research programs in the universities and the national laboratories.

There is no doubt that well articulated arguments presented by prominent scientists representing various organizations such as the AAAS, the APS, the ACS, and the National Academy of Sciences are vitally necessary if Congressional awareness is to be raised, but of equal and perhaps even greater value are the combined voices of the scientists who work in the research trenches every day. Last year, during Congressional hearings, Senator Barbara Mikulski (D-Maryland) pointedly responded to the assistant to the President for science and technology, D. Allan Bromley, that if research were really suffering, Congress should be inundated with complaints from the nation's scientists. The message was clear - since the working scientists themselves weren't voicing complaints, all must be well. Sadly, members of Congress are so accustomed to acting under pressure from constituents, that they often tend not to act if they do not receive any expression of concern from their constituents.

In order to provide the physics community with the opportunity to educate members of Congress, as Senator Mikulski has suggested, the APS is beginning to develop plans for a Congressional Day. Participating physicists will be organized into small teams that will visit a series of Congressional offices, in accordance with schedules established in advance. The participants will be well briefed before their visits and will be provided with fact sheets to be left with the Congressional members for future reference. In order that the meetings be scheduled with sufficient notice, advance commitments of participating scientists must be obtained. *Please complete the form on page 6* and return it to Tina Kaarsberg if you think that you would like to participate.

Short Course at Annual Meeting

In addition to the regular scientific sessions, the APS and the AMO Physics Division will be sponsoring a Short Course/Tutorial on "Semiconductor Diode Lasers and Their Applications." This tutorial session will be organized and taught by Dr. Leo Hollberg of NIST - Boulder, and will be held at the Ramada Renaissance Techworld Hotel immediately prior to the Spring Meeting on Sunday afternoon, 21 April 1991, tentatively from 1:00 PM until 5:00 PM. Tuition for this tutorial has been set at \$50.00. This tutorial will be given from the users point of view and will review the characteristics, technology, and application of semiconductor diode lasers, with emphasis on application of these lasers to atomic and molecular physics, and to precision measurements in general. The focus will be on lasers based on GaAs and InP semiconductors having operating wavelengths in the range from 650-1570 nm. Simple operating procedures will be reviewed along with the techniques used to narrow linewidths and stabilize the laser's frequency. If time allows, hands-on experience with simple diode laser systems may be possible. This tutorial will be geared for the nonspecialist desiring an intense introductory exposure to this important new technology.

For further information concerning the 1991 AMO Physics Division Meeting, please contact M.H. Kelley, Bldg. 220, Rm. B206, NIST, Gaithersburg, MD 20899. BITNET address is mkelley@nbsenh.

New Memberships, News, and Announcements



New membership in DAMOP is encouraged. Please contact Jim McGuire, Secretary-Treasurer concerning new membership or items of interest for this newsletter.

Membership Renewal

Please renew your DAMOP membership if you have let it lapse in order to avoid cancellation of this valuable Newsletter. Please contact Ronnie Rubenstein at the APS (212-682-7341) or Jim McGuire at K-State (913-532-6786) regarding your renewal.

Candidates for Office

The Nominating Committee has chosen the following candidates for office in 1991.

Vice Chairperson (becomes Chairperson in 1992)

Joseph Macek
David Wineland

Executive Committee

Katharine Gebbie
Kate Kirby
Steve Lundeen

Vitae of each candidate and a ballot will appear in the next newsletter. Other nominations are possible. They are acceptable if supported by 5% of the 2,282 DAMOP membership and may be sent to Jim McGuire by January 1, 1991.

Congressional Fellowship Program

Fellows will spend one year as a member of the staff of a Congressman or of a Congressional committee, thereby contributing an assessment of the technical aspects of public policy issues to the political process.

Prospective Fellows are expected to have demonstrated competence in some area of physics, have a background in science and technology, and have a strong interest and some experience in applying scientific knowledge toward the solution of social problems. Candidates are expected to be articulate and literate, willing to work on a variety of problems with a variety of people and to have some experience in or be willing to learn the governmental process.

Fellows serve for one year, beginning 1 September 1991. APS Fellows will join the Fellows selected by other scientific and engineering societies in Washington in September for a two-week orientation program organized by the American Association for the Advancement of Science. During the orientation, Fellows meet Senators, Representatives, and Congressional committee staff members, visit a number of government agencies, and receive detailed information about opportunities in Congressional offices. The choice of an assignment is unrestricted and reserved to the Fellows.

The maximum fellowship stipend is \$40,000. An appropriate allowance is made for vouchered relocation expenses and for vouchered travel expenses incurred during the fellowship year.

Completed applications, including all letters of reference, must be received by 15 February 1991.

Please contact Dr. Mary L. Shoaf, Administrator, Congressional Scientist Fellowship Program, The American Physical Society, 335 East 45 Street, New York, NY 10017. Phone (215) 793-1629 or (212) 682-7341 for further information.

Prize Committees

The following Prize Committees were appointed by the APS from among recommended names that were submitted by DAMOP.

1992 Davison-Germer Prize Committee

Gordon H. Dunn (Chair)
Robert J. Celotta (Vice Chair)
Gordon W.F. Drake
E. Norval Fortson
David J. Wineland

1992 Will Allis Prize Committee

J. Norman Bardsley (Chair)
M. Raymond Flannery (Vice Chair)
R. A. Gottscho
Chun C. Lin
Arthur V. Phelps

Answer to "What's this?" (front page)

This is the spectra (Holle and Welge) of the magnetized H atom around the ionization limit which exhibits quasi-Landau resonances characteristic of transitions from quantum regularity to classical chaos. See "Chaos in Atoms?" by K.H. Welge in "The Physics of Electronic and Atomic Collisions," AIP Conference Proceedings 205 (1990).

Travel to Brisbane ICPEAC

An application has been submitted to NSF to provide partial support for travel to the XVIIth ICPEAC in Brisbane and its satellites. All DAMOP members should have received the first announcement of this meeting. It is expected that Principal Investigators on NSF or other federal grants and senior employees of national or industrial laboratories will obtain their support directly from their sponsors or employers. The NSF block grant proposal is mainly for junior researchers, such as students and post-docs, and for co-workers in large groups with insufficient travel funds for all active investigators.

Although the decision concerning the funding will not be known until next spring, preparations are being made to administer the grant in case the proposal is accepted. Application forms should be requested from Professor C.D. Lin, Physics Dept., Kansas State Univ., Manhattan, KS 66506-2601.

Even if this proposal is successful, the available funds will be limited and will cover only a small portion of the total costs of attendance at the meeting and satellites. The existence of this "virtual" source of funds should not deter anyone from seeking the maximum possible support from other sources.

1991 Annual DAMOP Meeting

The 1991 Annual Meeting of the Division of Atomic, Molecular, and Optical Physics will be held in conjunction with the Spring Meeting of the American Physical Society in Washington, DC, 22-24 April, 1991. The Spring Meeting will be headquartered at the Ramada Renaissance Techworld Hotel in Washington. Scientific sessions of the DAMOP Meeting will be held in the Washington Convention Center, directly adjacent to the Techworld Hotel.

The 1991 DAMOP Meeting will include invited symposia on the following topics: Physics of Cooled Atoms; Atomic and Molecular Physics of Global Change; Alignment Effects in Collision Dynamics; Novel Interferometry; Strong Field Detachment; Collisions of Highly Charged Ions; Photodissociation with Short-Pulse Lasers; AMO Theory; Fundamental AMO Physics and Spectroscopy. In addition, there will be a hot topics session and a plenary award session at which the H.P. Broida and I.I. Rabi award winners will speak.

In addition to the regular scientific sessions, the APS and DAMOP will be sponsoring a Short Course/Tutorial on "Semiconductor Diode Lasers and Their Applications" taught by Dr. Leo Hollberg of NIST - Boulder (see full announcement on p. 1). This will be held Sunday afternoon, 21 April 1991, tentatively from 1:00 PM until 5:00 PM. Tuition has been set at \$50.00.

Abstracts of contributed papers for the DAMOP Meeting should conform to the rules regarding submission of abstracts, which are published in the October issue of the Bulletin of the American Physical Society on page 1894, with the following addition:

Just above the PACS number in the upper right hand corner of the abstract, the designation "For DAMOP Meeting" should appear. It is important to indicate the DAMOP affiliation on the abstract in order to ensure its inclusion in DAMOP sponsored sessions.

The deadline for submission of contributed abstracts is **11 January 1991**. The original and two copies should be sent to Executive Secretary, The American Physical Society, 335 East 45th Street, New York, NY 10017.

Registration for the 1991 DAMOP meeting, as well as the Short Course on Semiconductor Diode Lasers will be handled through The American Physical Society. For information concerning registration and accommodations at the meeting, please refer to the announcement of the Spring Meeting in the October issue of the Bulletin of the American Physical Society, page 1863.

To help student members of DAMOP defray the cost of attending this meeting, DAMOP will have a block of multiple-occupancy rooms at the Holiday Inn Crowne Plaza available at a significantly reduced rate. These rooms will be available on a first-come, first-served basis.

Applications for accommodations at the student rate should be made in writing to J.J. McClelland or M.H. Kelley at the address below before **11 January 1991**.

For further information concerning the 1991 AMO Physics Division Meeting, please contact M.H. Kelley, Bldg. 220, Rm. B206, NIST, Gaithersburg, MD 20899. BITNET address is mkelley@nbsenh.

Update on CAMOS Assessment Plans

Planning for the CAMOS Assessment of Atomic, Molecular, and Optical Physics has progressed with the preparation and submission of proposals to various federal agencies. Although the general reaction has been very favorable, the delay in the passage of a 1991 budget bill has created great uncertainties in available funding levels. As a result the timetable for the Assessment has been pushed back by several months.

Originally, CAMOS had hoped to have the National Research Council appoint an Assessment Panel by late fall and to organize a Workshop at the National Academy of Sciences in December followed by a Town Meeting at DAMOP in April. In light of the budget delays, CAMOS has readjusted its target dates and is now focusing on April, 1991 for its Assessment Workshop. In the meantime CAMOS is soliciting names from the community for suggested panelists. If you have any suggestions, please contact Gordon Dunn as soon as possible [phone (303-492-7824), FAX (303-492-5235), Bitnet (GDUNN@JILA), mail (JILA, Campus Box 440, University of Colorado, Boulder, CO 80309-0440)]. The panel will be charged with the task of objectively evaluating the field - its directions, opportunities, and needs. While some initial technical bias on the part of a panelist is almost unavoidable, the panel ultimately must be able to make its recommendations free from any parochial interests.

The success of the Assessment project is critical to the future of AMO physics. Your participation is essential. Please take it seriously!

Congressional Comment

White House science adviser Dr. Allan Bromley relates a conversation with Senator Barbara Mikulski in which she said: "look if the situation out there is as bad as you say it is," and I was talking about young investigators, 'how is it that I never hear from any of these people, whereas on an almost daily basis I hear from representatives of the VA and HUD?'"



APS Prizes

1991 Herbert P. Broida Prize -- David E. Pritchard (MIT)

For outstanding contributions to atomic, molecular and optical physics including his monumental studies of energy transfer in molecular collisions; seminal research on atom wave interferometry and atom optics; numerous studies of the forces of light on atoms and their application to atom cooling and trapping; and his development of single ion mass spectroscopy.

There will be an invited talk at the DAMOP meeting.

1991 I.I. Rabi Prize -- Chris H. Greene (University of Colorado)

For his many contributions to atomic and molecular theory including studies of resonance vibronic processes, multiple electron excitations, photoabsorption in external fields, and threshold effects of long range forces.

There will be an invited talk at the DAMOP meeting.

1991 Julius E. Lilienfeld Prize -- Daniel Kleppner (MIT)

For his contributions to the development of the atomic hydrogen maser and other techniques for precise spectroscopy of neutral atoms, and for the clarity of his expositions of the physics involved.

This prize will be awarded at the DAMOP meeting.

Our congratulations go out to Dave Pritchard, Chris Greene and Dan Kleppner.

No News = Bad News

Of this years newly elected members of the National Academy of Sciences, none was in atomic, molecular or optical physics, leaving this field still under-represented on the National Academy.

Faculty Positions

The University of Oklahoma invites applications and nominations for a tenure-track position in experimental atomic, molecular, and chemical physics beginning in August 1991. An appointment at the Associate Professor level has been approved, but applications at all levels are possible. Contact: Michael Morrison, Department of Physics and Astronomy, University of Oklahoma, Norman, OK 73019. Initial screening of applicants will begin December 31, 1990. OU is an AA/EO employer.

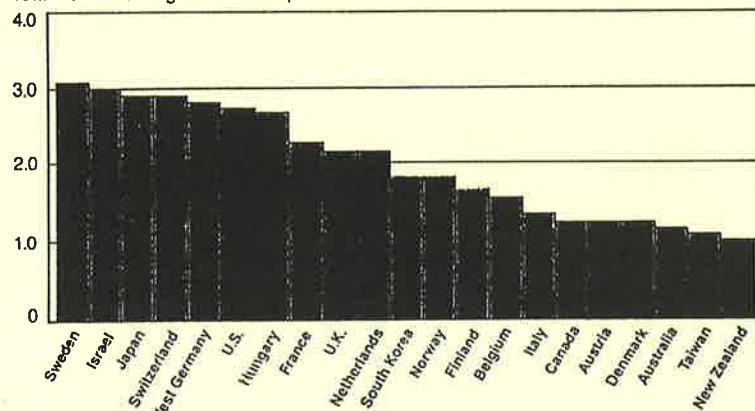
Western Michigan University invites applications and nominations for a position in theoretical atomic collision physics or experimental condensed matter physics beginning in August 1991. An appointment at the Assistant Professor level is pending budgetary approval. Contact: Dr. J.A. Tanis, Chairperson, Department of Physics, Western Michigan University, Kalamazoo, MI 49008-5151 or phone (616)387-4941. Initial screening of applicants will begin January 31, 1991. WMU is an AA/EO employer.

Worldwide R & D

Courtesy of C & E News, August 20, 1990.

Five countries spend more of GNP on R&D than U.S.

Total R&D as % of gross national product



Sources: Organization for Economic Cooperation & Development, National Science Foundation

CONGRESSIONAL DAY

NAME _____ INSTITUTION _____

ADDRESS _____

TEL: () _____ E-MAIL: _____

PLAN TO PARTICIPATE []

SEND (MORE) INFORMATION []

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