Division of Atomic, Molecular and Optical Physics NEWSLETTER

A Division of The American Physical Society

December 1998

Carl E. Wieman
Chair
JILA
University of Colorado
Boulder, CO 80309-0440
PHONE: (303) 492-6963
FAX: (303) 492-8994
E-MAIL: cwieman@jila.colorado.edu

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

Daniel J. Larson
Vice-Chair
Eberly College of Science
The Pennsylvania State University
517 Thomas Building
University Park, PA 16802
PHONE: (814) 865-9591
FAX: (814) 863-0491
E-MAIL: djlarson@psu.edu

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

Inside...

1999 WINNERS OF BROIDA AND RABI PRIZES ANNOUNCED

We congratulate Terry A. Miller and Mark G. Raizen who were named winners of the 1997 H. P. Broida and I. I. Rabi prizes, respectively. Each prize consists of an honorarium and a certificate citing the contributions of the recipient.

The Broida Prize, which was first awarded in 1980, recognizes and enhances outstanding experimental advancements in the fields of atomic and molecular spectroscopy and chemical physics. Terry Miller currently holds the Ohio Eminent Scholar Chair of Experimental Physical Chemistry at the Ohio State University. He is cited "*for his far-ranging contributions to spectroscopy and chemical physics of diatomics and radicals, his development of methods for plasma diagnostics, and for his stewardship of the Ohio State Spectroscopy Conference.*"

The Rabi Prize, endowed in 1989, recognizes and encourages outstanding research in Atomic, Molecular and Optical Physics. It is given to scientists who have held the Ph.D. 10 years or less. Mark Raizen, an associate professor at the University of Texas at Austin, is cited "*for his pioneering advances in the experimental study of atom optics, and especially for the insightful connections he has developed between this discipline and studies of chaotic dynamics, condensed matter physics, and dissipative quantum systems.*"

ELECTION OF OFFICERS

We are grateful to this year's Nominating Committee, chaired by Tom Gallagher, who have worked hard to assemble an outstanding slate of candidates for DAMOP offices this year. A brief biographical sketch for each candidate is included. Please take time to mark and return the enclosed ballot by February 1. Your input in important.

THERE IS A BALLOT INSIDE
PLEASE VOTE!

MESSAGE FROM THE CHAIR

Carl E. Wieman

As I write this, two very different activities are vying for my attention; the preparations for the APS Centennial meeting and the last minute campaigning for the 1998 national elections. About the only two things these have in common are that they both involve frantic levels of activity, and they are quite important to all physicists. (As far as I know, the APS is not trying to boost attendance by airing commercials attacking the quality of the talks and the bad coffee at the American Chemical Society conferences.)

The centennial APS meeting next March will serve as the 1999 DAMOP annual meeting, and it is shaping up to be a once in a lifetime experience. The list of topics and speakers for the plenary and centennial sessions is really quite spectacular. It looks like an unprecedented opportunity to learn about what has happened and what will be happening in all areas of physics. The centennial symposia are filled with general interest talks given by the leading practitioners and lecturers from all subfields of physics. I have an advance schedule of the centennial symposia, and I am already suffering over what parallel sessions I will have to miss, and that is even before looking at the

DAMOP sessions! There are also many other special events, exhibits, etc., that will add to the meeting.

Of course, I am sure that many of you (particularly those who have been to past March meetings) are worried that the DAMOP meeting will be lost in the milling hordes that will be in Atlanta. We have also been very worried about that, and Paul Neill, Tim Gay, and I, have been working with APS to try and ensure that it does not happen. With anything so large and complicated, there are no guarantees, but I am guardedly optimistic. All the DAMOP sessions are to be in a group of adjoining rooms and we should have our own coffee area directly adjacent to them. We also hope to have a separate DAMOP reception. So if all goes as planned, you should have the best of both worlds. You will be able to find and visit with all your old DAMOP friends, and also will be able to sample from the vast smorgasbord of superb exciting talks on all the other areas of physics. We still have to worry about our rooms being packed with all those non-DAMOP physicists abandoning their own sessions to come learn about the much more exciting things being done in AMO physics. Perhaps that's not such a bad thing though.

The other source of frantic activity, national politics, is also something that I hope is on many of your minds. With DAMOP members playing a leading role, in the last few years APS and its members have been getting far more active politically. Such activities are inherently long term in their effects, but they clearly are starting to pay off. Just before adjourning, the senate unanimously passed the Rockefeller-Frist bill calling for a doubling in funding for civilian R&D over the next 12 years. There is still a lot of work to be done before this bill results in real dollars, but it is a dramatic turn around from the attitudes and funding scenarios we were facing even two years ago. However, to have it become real dollars in our laboratories will require an effort by all of us, and the more of us that get involved, the sooner those real dollars will appear.

At the time you will be reading this, your members of congress and senators will hopefully be turning their attention from campaigning back to the work of legislating. That would be a fine time for you to contact them and their staffs. It is valuable to make them aware of the importance of basic research for the country and their district, but it is also good simply to get to know them. Then you will be in a much better position to contact them and provide useful input when important bills come up at a later time.

I have talked to a number of physicists who feel that it is "self-serving" and therefore ineffective to contact their representatives about funding for research. It is important to remember that representatives lives are filled with people asking them for things, and their survival is based upon giving people what will make them happy enough to vote for them. It is very hard to find anything in the federal budget that is not there because some self-serving group wanted it there. That said, it does seem to be more effective to argue that all basic research is connected and so all fields, not just physics, should be better funded. Also there are strong arguments that basic research supports long term economic growth. However, if there are zero people making this argument because you didn't have the time, and there are 10,000 other people clamoring for more money for roads, police, and tax breaks, how do you think your representative is likely to vote? The arguments are there, but it is vital that all of us make an effort to ensure that our legislators hear them. Our field is almost entirely dependent on federal research dollars. If we can't be bothered to make the case for our support to the people that pass out the money, it is hard to see who else is going to feel that they should in our place.

You can get local and D. C. contact information for your representatives at http://www.in-search-of.com/ frames/ government/us-gov_nf.shtml

DAMOP/GEC ALLIANCE

Tom Rescigno

The Gaseous Electronics Conference (GEC), which held its 51st annual meeting in Maui, 19-22 October 1998, is a cross disciplinary conference addressing basic and applied topics in low temperature plasmas that range from basic collision physics to plasma processing of semiconductors. Over the years, the conference has experienced strong participation from the DAMOP community as a result of the close coupling of collision physics with the study of low temperature plasmas. Since its inception, the GEC has operated as a Topical Conference of the APS. Under this arrangement, the GEC has been publishing its abstracts in the Bulletin of the APS and, with the advent of the APS web pages and electronic submission of abstracts, the GEC has been using those APS services as well. However, throughout its 51 year history, the GEC has been financially independent, a situation that in recent years has raised legal concerns on the part of APS.

At our 1998 meeting, the DAMOP executive committee considered a proposal from the GEC chair to strengthen ties between DAMOP and GEC. A subcommittee was formed to study the matter and to work out details for the proposed alliance. Terms for an interim alliance were presented to the executive committee in mid-September. The DAMOP executive committee has voted to adopt the trial arrangement for a DAMOP/GEC alliance; the proposal has been accepted by the Washington APS office and a revised GEC constitution was accepted by unanimous vote at the Maui GEC.

The new alliance is designed to give DAMOP financial oversight over the GEC, a role in its governance and to foster closer ties between the GEC and DAMOP/APS, while continuing to allow the GEC to be run in a way that respects the diverse nature of its membership.

Under the terms of the new agreement, GEC will transfer its current treasury to an account held by the APS and will become a Topical Conference of DAMOP. The DAMOP chair will appoint a voting member to the GEC executive committee and the GEC chair will appoint a representative to be a non-voting member of the DAMOP executive committee. News of the GEC will be routinely reported in this newsletter and links will be established between the DAMOP homepage and the GEC website. The DAMOP program committee will take responsibility for organizing at least one session at the GEC. This alliance will be in effect for a trial period of five years, during which DAMOP and GEC will work on the terms for a permanent integration of the GEC activities within DAMOP.

It is hoped that the alliance of GEC with DAMOP will help to foster deeper intellectual ties between the two organizations and broaden the reach of DAMOP by having a visible alliance to applied fields in which AMO science plays a critical part.

The next GEC will be hosted by Old Dominion University in Norfolk, VA 5-8 October, 1999 and will be the first GEC to operate under the terms of the new alliance. Current plans call for a focus session on Electron Impact Ionization to be arranged by DAMOP.

DAMOP STUDENT TRAVEL SUPPORT

Limited travel support is available to assist students attending the 1999 DAMOP meeting in Atlanta. Students should complete the attached form and return it before February 1, 1999.

DAMOP EXHIBITS AT THE CENTENNIAL MEETING

Tim Gay

The DAMOP annual meeting this year will be held in conjunction with the APS Centennial Meeting in Atlanta. Many APS Divisions will have exhibits showcasing examples of physics research being done by their members. DAMOP will have three exhibits. The Princeton group of Will Happer and Gordon Cates will present their work on biomedical imaging using spin-polarized Xe. The Macdonald Laboratory at Kansas State University is planning a Web-based real time interface with their cryogenic electron-beam ion source (CRYEBIS), so that exhibit visitors can produce highly-charged ions of their own choosing. Lawrence Livermore Lab will coordinate an exhibit involving their electron beam ion trap (EBIT) and the "chemistry" of high-Z ions. The Division of Laser Science (DLS) will also have three exhibits, in an area adjacent to ours. The exhibits of all the divisions will be in the West Exhibit Hall of the Georgia World Congress Center, and will be on display on Monday, Tuesday, and Wednesday (March 22-24) during the day.

LOS ALAMOS SUMMER SCHOOL

Lee Collins

The Los Alamos Summer School will resume its extended format for 1999 after the short Conference Experience for Undergraduates last year. The term will run for ten weeks from June 7 to August 14, 1999. The program consists of an intensive series of lectures, tutorials, and mentored research projects. Upper-division undergraduates remain the principal focus of the School. First-year graduate students and sophomores with exceptional physics backgrounds will also be considered. The deadline for applications is Feb. 15, 1999. The School continues as a joint collaboration between the Los Alamos National Laboratory and the University of New Mexico. Recruiting this year originates from UNM-Albuquerque (Prof. Sally Seidel), and the summer program again resides in Los Alamos. For further information and application forms, please see the school website:

http://www.phys.unm.edu/LASS/

or contact:

Los Alamos Summer School
Department of Physics and Astronomy
University of New Mexico
800 Yale Blvd. N.E.
Albuquerque, NM 87131-1156

seidel@glueball.phys.unm.edu
505-277-1520 (fax)
505-277-2616 (voice)

Correspondent: Lee Collins, lac@lanl.gov

TRAVEL SUPPORT TO ICPEAC FOR YOUNG SCIENTISTS

Jim McGuire

It is expected that travel awards may become available for travel of young scientists to ICPEAC XXI in Sendai, Japan, July 22 - 27, 1999. These awards will be funded by the NSF. The awards will be given to young scientists (students and post doctoral fellows) to help defray the cost of traveling to ICPEAC. Selection will be based on several factors to obtain a balance in research specialty, geographic distribution and stature among the U.S. participants at the conference. The anticipated contribution by the individual to the success of the conference will be assessed, and the special consideration will be given to scientists in the early stages of their productive careers. Application forms are available at: http://www.phy.tulane.edu/~mcguire/icpeac.html. Alternatively, one may contact Prof. Jim McGuire, ICPEAC Secretary, Physics, Tulane University, New Orleans, LA 70118-5698 or mcguire@mailhost.tcs.tulane.edu. Applications must be completed and returned by April 2, 1999.

OTHER AWARDS TO DAMOP MEMBERS

Eldon E. Ferguson has been awarded an honorary doctorate by the University of Innsbruck. He was introduced at the ceremonies by Nobelist J. Paul Crutzen.

Eric Cornell and Carl Wieman are to receive the Lorentz Medal from the Netherlands Academy of Sciences. This is only the second time that this has been awarded to researchers in AMO physics.

NSF MRI COMPETITION

A Major Research Instrumenta-tion competition will be held again in Fiscal Year 1999. The new solicitation can be found on the NSF web page at: http://www.nsf. gov/od/oia/mri/start.htm. No hard copies of the announcement will be printed.

NIST PRECISION MEASUREMENT GRANTS

Applications are being solicited for two new Precision Measurement Grants, sponsored by the National Institute of Standards and Technology, to be awarded beginning 1 October 1999 (Fiscal Year 2000). Each grant is in the amount of $50,000 per year, renewable for up to two additional years, for a total of $150,000. NIST sponsors these grants to encourage research by U. S. university and college faculty members in the field of precision measurement and fundamental constants and to foster contacts between NIST scientists and faculty members actively engaged in such work. Candidates' pre-proposal summaries and biographical information must reach NIST by 1 February 1999 to be considered for the FY 2000 awards. For more information, contact Barry N. Taylor, Chairman, NIST Precision Measurement Grants Committee, National Institute of Standards and Technology, Building 225, Room B161, Gaithersburg, MD 20899-0001, (301) 975-4220, barry.taylor@nist.gov.

RELATED FUTURE MEETINGS

The *Eighteenth International Conference on X-ray and Inner-Shell Processes* will be held in the Drake Hotel, Chicago, IL August 23-27, 1999. The conference is being hosted by Argonne National Laboratory and will serve as a forum for discussing fundamental issues in the field of x-ray and inner-shell processes and their application in various disciplines of science and technology. For further information contact Don Gemmell (Chairman), Physics Division Bldg. 203, Argonne National Laboratory, Argonne, IL 50439. E-mail: X99@anl.gov or visit the conference web site at http://www.phy.anl.gov/X99.

The first in a series of Euroconferences on *Atomic Physics at Accelerators* will address laser spectroscopy and applications of lasers at accelerator facilities. It will be held at Schloss Waldthausen, Budenheim near Mainz from September 20 to 24, 1999. A one-day tutorial at the Campus of the University will precede the conference. The program includes tutorial lectures and progress reports on ground state properties of exotic nuclei, exotic atomic systems, laser spectroscopy at storage rings, parity violation and weak interaction studies, laser ion sources, and polarized beams and targets. Contributed papers will be presented as posters. Some contributions featuring new developments will be selected for oral presentation. for further information see the conference web page at http://www.uni-mainz.de/APAC99 or e-mail APAC99@uni-mainz.de. Correspondence should be addressed to APAC 99, Institut für Physik, Universität Mainz, D-55099 Mainz, Germany.

The *XXI International Conference on Photonic, Electronic and Atomic Collisions* will be held in Sendai, Japan, July 21-27, 1999. For further information contact Michio Matsuzawa, Department of Applied Physics and Chemistry, University of Electro-Communi-cations, Chofu-shi, Tokyo 182, Japan. e-mail: michio@pc.uec.ac.jp or visit the conference homepage at http://power1.pc.uec. ac.jp/Sendai.

The *International Conference on Atomic Collisions in Solids* will be held in Odense, Denmark, August 3-8, 1999. For further information contact the conference secretary at ICACS, Physics Department, Odense University, DK-5230, Odense M, Denmark. e-mail: icacs @fysik.ou.dk, or visit the conference homepage at http://www.fys.ou. dk/ICACS.

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: fbd@rice.edu
FAX: (713) 285-5143

Congratulations to New APS Fellows!

We are proud to announce and to congratulate the following persons who were nominated for Fellowship in the American Physical Society by DAMOP in 1998 and subsequently elected. Certificates will be presented at the 1999 DAMOP meeting in Atlanta in March.

BARAGIOLA, Raúl Antonio
University of Virginia
For broad contributions to our understanding of interactions of energetic particles with solids, especially regarding mechanisms of electron emission and desorption and astronomical applications.

BARTSCHAT, Klaus Richard
Drake University
For his contributions to the theory and numerical treatment of atomic collisions through advancing the density matrix description and developing the R-matrix with pseudo-states approach.

BUCKMAN, Stephen John
Australian National University
For benchmark experiments in low-energy electron-atom and electron-molecular scattering.

FEAGIN, James Marshall
Calif. State University - Fullerton
For advancements towards understanding the dynamical symmetries of the few-body Coulomb problem, particularly of low-energy bound and continuum electron pairs.

HAVEY, Mark Douglas
Old Dominion University
For development and explication of novel one- and two-photon spectroscopies of bound and dissociative electronic states of diatomic molecules; also for development of precision atomic two-photon polarization spectroscopy for determination of atomic matrix elements and novel sum rule.

JAVANAINEN, Juha M.
University of Connecticut
For fundamental contributions to theoretical quantum optics, especially light pressure, laser cooling and trapping, and optical properties of Bose-Einstein condensates.

LIVINGSTON, Arthur Eugene
University of Notre Dame
For his contributions to the understanding of relativistic, QED, and Rydberg state atomic structures through the spectroscopy of highly-charged ions, and for precise determinations of excited-state lifetimes involving allowed and forbidden atomic transitions.

MCCLELLAND, Jabez Jenkins
NIST
For elucidation of spin polarized electron-atom interactions, and for pioneering development and application of atom optical methods in nanostructure fabrication.

SALIN, Antoine Beno
Universite de Bordeaux I
For fundamental contributions to the theory of ion-atom collisions including the development of CDW method for the description of charge transfer, and elucidation of the role of dynamic correlation.

SCHRADER, David M.
Marquette University
In recognition of significant contributions to the discovery of positron-atoms and positron-molecules.

WADEHRA, Jogindra Mohan
Wayne State University
For extensive contributions to theoretical atomic and molecular physics, notably studies of the dissociative electron attachment process, scattering of positrons by atoms, and the transport of electrons in gases.

WINKLER, Peter
University of Nevada, Reno
For development of innovative theoretical methods to describe many-body effects in atomic structure and atomic interactions in plasma environments.

ZEILINGER, Anton
University of Innsbruck
For elucidating and extending the mystery of the quantum phenomena of interference and entanglement by elegant experiments with neutrons, atoms, and photon pairs together with new theoretical insights.

ELECTION OF DIVISIONAL OFFICERS

Candidates for Vice-Chair

The vice-chair takes over as chair of the Fellowship Committee after the 1999 DAMOP Meeting, becomes Chair-Elect after the 2000 Meeting and serves as the Chair of the Program Committee, and then becomes Chair after the 2001 DAMOP Meeting for the year preceding the 2002 Meeting. The Chair presides over Executive Committee meetings, appoints committees and serves as spokesperson for the Division. The total term of office for this position is therefore three years.

COCKE, C. LEWIS

A.B., Haverford College, 1962; Ph.D., California Institute of Technology, 1967; NSF Post Doctoral Fellow and Research Associate, Institut de Recherches Nucleaires, Strasbourg, France, 1967-1969; Assistant Professor, 1969-74; Associate Professor 1974-79; Professor, 1979-97; University Distinguished Professor, 1997-present, Kansas State University. Associate Director for Research Planning, J. R. Macdonald Laboratory, KSU, 1988-present. Visiting Professor, University of Aarhus, 1977-78. Senior Alexander von Humboldt Foundation Fellow, 1991-92. Distinguished Graduate Faculty award, KSU, 1996. Fellow of the American Physical Society, 1980. Member, NRC committees, Atomic Molecular and Optical Physics ,1983; Heavy Ion Storage Rings, 1988. Member, program advisory committees, SuperHILAC, 1980-82; ATLAS 1986-88; HHIRF 1989-91. Member, ICPEAC general committee 1993-96; Highly Charged Ion Conference committee, 1995-98. DEAP executive committee, 1984-85. DAMOP program committee, 1982-84,1993-95; publications committee, 1981-83,1996-present; fellowship committee, 1989-1991. RESEARCH INTERESTS: Collisions of highly charged ions with atoms, molecules, ions, electrons, clusters and surfaces; cold-target momentum imaging of products from ion-atom, ion-molecule, photon-atom and photon-molecule collisions; dynamics of few-body Coulomb continuum states produced by ions (accelerator beams) and photons (synchrotron light sources) on atomic and molecular targets; relationships between photon- and charged-particle-induced reactions.
COCKE, C. Lewis. A.B., Haverford College, 1962; Ph.D., California Institute of Technology, 1967; NSF Post Doctoral Fellow and Research Associate, Institut de Recherches Nucleaires, Strasbourg, France, 1967-1969; Assistant Professor, 1969-74; Associate Professor 1974-79; Professor, 1979-97; University Distinguished Professor, 1997-present, Kansas State University. Associate Director for Research Planning, J. R. Macdonald Laboratory, KSU, 1988-present. Visiting Professor, University of Aarhus, 1977-78. Senior Alexander von Humboldt Foundation Fellow, 1991-92. Distinguished Graduate Faculty award, KSU, 1996. Fellow of the American Physical Society, 1980. Member, NRC committees, Atomic Molecular and Optical Physics ,1983; Heavy Ion Storage Rings, 1988. Member, program advisory committees, SuperHILAC, 1980-82; ATLAS 1986-88; HHIRF 1989-91. Member, ICPEAC general committee 1993-96; Highly Charged Ion Conference committee, 1995-98. DEAP executive committee, 1984-85. DAMOP program committee, 1982-84,1993-95; publications committee, 1981-83,1996-present; fellowship committee, 1989-1991. RESEARCH INTERESTS: Collisions of highly charged ions with atoms, molecules, ions, electrons, clusters and surfaces; cold-target momentum imaging of products from ion-atom, ion-molecule, photon-atom and photon-molecule collisions; dynamics of few-body Coulomb continuum states produced by ions (accelerator beams) and photons (synchrotron light sources) on atomic and molecular targets; relationships between photon- and charged-particle-induced reactions.

DELOS, JOHN B.

B. S. (Chemistry), University of Michigan, 1965; Ph.D. (Physical Chemistry), Massachusetts Institute of Technology, 1970. Research Associate - University of British Columbia - 1970-1971; Assistant, Associate, Full Professor of Physics - College of William and Mary 1971-Present; W&M Phi Beta Kappa Award for the Advancement of Scholarship 1975; W&M Alumni Fellowship 1981; Fellow of the American Physical Society 1989; Outstanding Scientist of Virginia 1990. Visiting Research Scientist, FOM Institute, Amsterdam, 1979-1980; Consultant, Naval Surface Weapons Center, 1981; Visiting Fellow, JILA, 1986-87; Visiting Scientist, Harvard-Smithsonian Center for Astrophysics, 1992; Visiting Fellow, JILA, 1994-1995. Board of Directors, Telluride Summer Workshops in Theoretical Chemistry 1988; Program Committee, DAMOP, 1988-1990; DAMOP Executive Committee, 1992-93; Co-organized and -chaired Workshop on Quantum Chaos and Atomic Physics at ITAMP 1993; Co-organized Symposium on Chaos at DAMOP Divisional Meeting, 1993; Co-organized Workshop on Classical Orbits and Interferences in Designer Atoms, ITAMP 1997; Vice Chair (1996-7) and Chair (1998-9) Gordon Conference on Atomic Physics; Vice-Chair (1996) and Chair (1998) Herbert Broida Prize Committee. RESEARCH INTERESTS: Order and chaos in classical and quantum systems; highly excited atoms in strong electric and magnetic fields; electronic excitations in atomic and molecular collisions; vibrations of small molecules.

Candidates for Secretary-Treasurer

The secretary-treasurer maintains all the records of the division including Executive Committee meeting agenda and minutes, and has responsibility for all funds at the disposal of the division. The secretary-treasurer advises the officers and membership of deadlines, organizes elections, prepares newsletters, and serves as the liaison with the APS. The term is three years.

GAY, TIMOTHY J.

B.S., California Institute of Technology, 1975; Ph.D., University of Chicago, 1980. Research Staff Physicist and Lecturer, 1980-82; Research Associate and Lecturer, 1982-83, Yale University. Research Assistant Professor, 1983-84; Assistant Professor, 1984-89; Associate Professor, 1989-92; Professor, 1992-93, University of Missouri-Rolla. Professor, 1993-present, University of Nebraska. Fellow of the American Physical Society, 1994. Outstanding Teacher Award, University of Missouri-Rolla, 1987,88,90,91. Faculty Excellence Award, University of Missouri-Rolla, 1987,88,89,90,91,92. Certificate of Recognition for Contributions to Students, University of Nebraska Parents Association, 1995. DAMOP Executive Committee, 1996-99. American Physical Society Centennial Speaker, 1998-99. DAMOP Undergraduate Research Prize Selection Committee, 1994. Local Organizing Committee, International Symposium on Ion-Atom Collisions, 1989. Chairman, Organizing Committee, Symposium on Two-Center Effects in Ion-Atom Collisions, 1994. Executive Committee, Gaseous Electronics Conference, 1997-99. RESEARCH INTERESTS: Collisions of polarized electrons with ground-state and metastable atoms, chiral molecules, and surfaces; development of polarized-electron source and polarimeter technology; photoionization of molecules.

SCHULTZ, DAVID R.

B.A., Physics, Washington University (St. Louis) 1983; Lecturer, McDonnell Planetarium, 1979-83; Engineering Associate, Emerson Electric Company, 1983-85; Member, Sigma Pi Sigma; Recipient, Sigma Xi Grant-In-Aid for Graduate Research, 1988; Outstanding Graduate Fellow, Sandia National Laboratory-Livermore, 1988; Ph.D., Physics, University of Missouri-Rolla, 1989; Postdoctoral Fellow, University of Missouri-Rolla, 1989-91; US DoE Fusion Energy Postdoctoral Fellow, Oak Ridge National Laboratory, 1991-92, Staff Member, 1992-present; Director, Controlled Fusion Atomic Data Center, ORNL, 1992-present; Group Leader, Atomic Theory, ORNL, 1995-present; Adjunct Professor, University of Tennessee, 1998-present; Advisory Group Member, Atomic and Molecular Data Unit, International Atomic Energy Agency, 1991-present; Editorial Board Member, Atomic Data and Nuclear Data Tables, 1993-present; Editorial Board Member, International Bulletin on Atomic and Molecular Data for Fusion, 1993-present; Chair, International Astronomical Union Working Group 3 of Commission 14: Collision Processes, 1996-present; Secretary, Theoretical Atomic, Molecular, and Optical Community (TAMOC) of DAMOP, 1995-1998; Treasurer, International Conference on Atomic and Molecular Data and Their Applications, 1997-present. RESEARCH INTERESTS: Collisions of photons, electrons, ions, and atoms with atoms and molecules; the atomic few- and many-body problems; quasi-classical methods; high performance computing and lattice techniques to solve the time-dependent Schrodinger equation; elastic and inelastic collisions and their application in fusion, astrophysics, and other plasmas.

Candidates for Divisional Councilor

The Divisional Councilor represents DAMOP on the APS Council, which is the governing body of the American Physical Society. The APS Council sets policy and has the ultimate responsibility for the actions of the Society. The term is four years.

METCALF, HAROLD

B.S. M.I.T, 1962; Ph.D. Brown University, 1967. Teaching Assistant, 1962-64; Research Assistant, 1964-67, Brown University. Lecturer, July 1967, Latin American School of Physics, Santiago, Chile. Research Associate, 1967-68, Brown University. Research Associate, 1968-70; Assistant Professor, 1970-74; Associate Professor, 1974-77, S.U.N.Y., Stony Brook. Visiting Associate Professor, 1977-78, M.I.T. Associate Professor, 1978-83, S.U.N.Y, Stony Brook. Summer Consultant, 1981-83, Center for Abs. Phys. Quant. N.B.S. Professor of Physics, 1983-present, S.U.N.Y., Stony Brook. Visiting Professor, 1985-86, Ben Gurion University, Beer Sheva, Israel. Visiting Professor, 1986-87, Ecole Normale Superieur, Paris, France. Director of Graduate Studies, 1988-94, Physics Dept., S.U.N.Y., Stony Brook. Visiting Professor, May 1991, Beijing Inst. for Modern Physics, Beijing, China. Visiting Professor, June 1992, R.U. Utrecht, Netherlands. Visiting Professor, 1993-94, Ecole Normale Superieure, Paris, France. Visiting Professor, June 1994, R. U. Utrecht, Netherlands. Alexander

von Humboldt Fellow, 1997-99, Univ. at Konstanz. Member: A.P.S., O.S.A., A.A.P.T., L.I.P.T.A. Life Fellow of American Physical Society. Recipient of Chancellor's Award for Excellence in Teaching, 1974. Faculty Advisor to S.P.S. (outstanding chapter awards, 1978, 1985, 1986). RESEARCH INTERESTS: Precision spectroscopy of simple atoms and molecules - most recently triplet helium and the OH free radical. Quantum beats and atomic coherence - most recent work in OH, He, and Na-detection by fluorescence as well as by photoionization. Zeeman spectroscopy, especially level crossing spectroscopy. Stark spectroscopy of Rydberg atoms. Field ionization of Na in states degenerate with the continuum. Interference narrowing, precision calibration of electric fields. Deceleration and cooling of atoms with laser light. Magnetic trapping of neutral atoms. Quantized states of atomic motion. Also, theory at Stony Brook.

STWALLEY, WILLIAM C.

B.S. California Institute of Technology, 1964; Ph.D. Harvard University, 1969. Assistant Professor, 1968-72; Associate Professor, 1972-75; Professor, 1975-93; George Glockler Professor, 1988-93, University of Iowa. Professor and Physics Department Head, 1993-present, University of Connecticut. Program Director, National Science Foundation (1975-76, leave of absence). Alfred P. Sloan Foundation Fellow, 1972-74. Japan Society for Promotion of Science Fellow, 1982. American Physical Society Fellow, 1982-present. Visiting Lecturer, Chinese Academy of Sciences, 1986. Optical Society of America Fellow, 1988-present. National Science Foundation Sponsored Lecturer, India, 1988. National Science Council of Taiwan Visiting Lecturer, 1989. William F. Meggers Award for Spectroscopy of the Optical Society of America, 1998. Chairman, 1978-80, and Vice Chairman, 1976-78, Gordon Conference on Atomic and Molecular Interactions. Co-Chairman, Gordon Conference on Nonlinear Optics and Lasers, 1977-79. Member, Committee on Photochemistry, Laser Institute of America, 1978-80. Consultant and Chemistry Program Review Team Member, Chemistry and Material Science Department, Lawrence Livermore Laboratory, 1978-87. Member, Program Committee, International Quantum Electronics Conference, 1979-80, 1985-86, 1986-87. Member, Program Committee, Sanibel Symposium on Quantum Fluids and Solids, 1978-80. Member, Committee on Atomic and Molecular Science, National Academy of Sciences/ National Research Council, 1979-82. Member, Editorial Board, University of Iowa Press, 1980-85. Executive Committee Member and Alternate Councilor, Division of Physical Chemistry, American Chemical Society, 1981-83. Member, Program Committee, Division of Electron and Atomic Physics, American Physical Society, 1981-83. Member, Army Research Office Chemistry Advisory Committee, National Academy of Sciences/National Research Council, 1981-84. Member, American Physical Society E. K. Plyler Prize Committee, 1982. Member, Editorial Advisory Board, Journal of Molecular Spectroscopy, 1982-87. Chairman, American Chemical Society Division of Physical Chemistry, Graduate Student Fellowship Program Committee, 1982-83. Member, American Physical Society Division of Chemical Physics, Fellowship Nomination Committee, 1982-83. Member, Air Force Office of Scientific Research Chemistry Evaluation Panel, 1983-86. Secretary/ Treasurer, Division of Chemical Physics, American Physical Society, 1984-90. Member, American Physical Society Division of Electron and Atomic Physics, Fellowship Nomination Committee, 1984-85. Co-Founder and Program Chair, International Laser Science Conference, 1984-85. Co-Chair, International Laser Science Conference, 1985-86. Member, Steering Committee of the Topical Group on Laser Science of the American Physical Society, 1985-86, 1987-92. Editor (USA), Laser Chemistry, 1985-90. Chairman, Air Force Evaluation Panel on High Energy Density Materials, National Academy of Sciences/ National Research Council, 1985-92. Member, President's Task Force on University Strategies for Future Development of the State, University of Iowa, 1986. Chair, International Laser Science Conference, 1986-87. Editorial Advisory Board, Chemical Physics Letters, 1986-95. Director, Center for Laser Science and Engineering, University of Iowa, 1987-89. Administrative Vice-Chair, International Laser Science Conference, 1987-88. Member, W. F. Meggers Award Committee, Optical Society of America, 1987-88. Member, Joint Council on Quantum Electronics, 1988-90, 1993-96. Administrative Vice-Chair, Interdisciplinary Laser Science Conference, 1988-91. Member, Committee on Line Spectra of the Elements-Atomic Spectroscopy, National Academy of Sciences/ National Research Council, 1988-91. Member, International Council on Quantum Electronics, 1988-90, 1993-96. Member, Program Committee, American Physical Society Division of Atomic, Molecular and Optical Physics, 1990-92. Vice Chair/Chair/Ex-Chair, Topical Group on Laser Science, American Physical Society, 1989-92. Member, Fellows and Honorary Members Committee, Optical Society of America, 1990-92. Member, Professional Advisory Board, Iowa City Area Science Center, 1990-93. Member, Committee on Atomic, Molecular and Optical Science, National Academy of Sciences/National Research Council, 1990-91, 1992-96 (Chair 1993-95). Member, Program Committee, Quantum Electronics and Laser Science Conference, 1991-92, 1998-99. Member, Board of Direc-

tors, Iowa City Area Science Center, 1992-93. Member, Fellowship Nomination Committee, Topical Group on Laser Science, American Physical Society, 1991-92. Member, Air Force Steering Committee on High Energy Density Materials, 1992-96. Chair, Committee on the Future of the Interdisciplinary Laser Science Conference, Topical Group on Laser Science, American Physical Society, 1992-93. Member, Organizing Committee, National Research Council Workshop on Data Base Needs for Plasma Processing of Materials, 1993-96. Director, University of Connecticut Laser Facility, 1993-present. Member, Review Panel, Ontario Laser and Lightwave Research Centre, 1993-96. Member, Connecticut Academy of Science and Engineering, 1994-present. Member, Connecticut Academy of Arts and Sciences, 1995-present. Member, U.S. Civilian Research and Development Foundation Physics Review Panel, 1996. Member, National Science Foundation Panel for Review of Research Experience for Undergraduates Proposals, 1996. Member, International Assessors Committee for Review of Canadian Physics Research, and Chair, Subcommittee on General Physics, 1997. Co-Organizer, American Physical Society Congressional Reception and Exhibit, April 1997. Member (Current Chair), Nominating Committee, Connecticut Academy of Science and Engineering, 1996-99. Member, Institute of Materials Science Faculty Advisory Board, University of Connecticut, 1997-present. Member, Review of Reallocation for the Natural Sciences and Engineering Research Council of Canada, 1998. Member, International Program Committee, International Conference on Spectral Line Shapes, 1998-. RESEARCH INTERESTS: Atomic and molecular interactions, particular at long range; atomic and molecular spectroscopy, especially multiple resonance techniques; atomic and molecular cooling and trapping, especially in connection with photoassociation of ultracold atoms; laser development and applications.

Candidates for Executive Committee

The Executive Committee is the governing body of our Division and advises the Chair and other officers of DAMOP. Elected members-at-large will serve three-year terms beginning immediately after the 1999 DAMOP Meeting.

COHEN, JAMES S.

B.A., 1968, M.A., 1970, Ph.D., 1973, Physics, Rice University. Staff Member, Theoretical Chemistry and Molecular Physics Group(T-12), 1972-91; Group Leader, Atomic and Optical Theory Group(T-4), 1991-present; Program Manager, Advanced Energy Projects, 1994-present, Los Alamos National Laboratory. Visiting Associate Professor, 1979-80, Physics, Rice University. Visiting Scientist: Schweizerisches Institut fur Nuklearforschung, 1983; Centre d'Etudes Nucleaires de Saclay, 1984. H. A. Wilson Award, Rice University, 1973. Associate Editor of the journal Muon Catalyzed Fusion, 1986-92. Delegate to the USA-USSR 1987 Exchange I-6. Steering Committee—4th(1988), Program Committee—6th(1990) and 7th(1992), International Advisory Committee—8th(1995) International Conference on Muon Catalyzed Fusion. Electrical Power Research Institute Advisory Committee, 1989. Local Organizing Committee—Low Energy Muon Science, Santa Fe, 1993. Ad Hoc Committee on Science-Based Use of High-Energy Laser Facilities, 1994. Program Committee—9th 1993), 10th (1996), and 11th (1998) APS Topical Conference on Atomic Processes in Plasmas. Lecturer/Research Mentor—Los Alamos Atomic, Molecular, and Optical Physics Summer School, 1992-97. Rochester Theory Center Advisory Board, 1997-98. RIKEN-RAL Physics Advisory Committee, 1996-98. Fellow, American Physical Society, 1995. DAMOP Nominating Committee, 1996-97. Chair, Local Organizing Committee, DAMOP, Santa Fe, 1998. Co-chair, Local Organizing Committee, 22nd International Conference on Photonic, Electronic, and Atomic Collisions, Santa Fe, 2001. RESEARCH INTERESTS: Atom and molecule collisional excitation, charge exchange, and ionization; chemi-ionization; atoms in intense fields; exotic (muonic and antiprotonic) atoms and molecules; interface between atomic and nuclear physics; semiclassical and quasiclassical methods.

ROLSTON, STEVEN L.

B.A., Wesleyan University, Middletown, CT, 1980; Ph.D., State University of New York at Stony Brook, Stony Brook, NY, 1986. Research Associate, University of Washington, Seattle, WA, 1986-87; Research Associate, Harvard University, Cambridge, MA, 1987-88; Staff Physicist, National Institute of Standards and Technology, Gaithersburg, MD, 1988-present. R&D 100 Award, 1991; Sigma Xi Young Scientist Award, 1993; U.S. Dept. of Commerce Silver Medal, 1996; Fellow of the American Physical Society, 1998. Chairman, DAMOP Publications Committee, 1997; Member, QELS 99 Program Committee; Vice-chair, 1999 Atomic Physics Gordon Conference. RESEARCH INTERESTS: Laser cooling and trapping; atom optics; Bose Einstein condensation; ultracold collisions including Penning ionization, photoassociation, and optical control of collisions; precision measurements of metastable atomic lifetimes; microwave and optical frequency standards; coherent VUV generation; antihydrogen production; cold Rydberg gases and plasmas.

SADEGHPOUR, R. HOSSEIN

B.S. Louisiana State University, 1981; Ph.D. LSU-Thesis at JILA, 1985-90. Postdoctoral Fellow, Center for Astrophysics 1990-93; Research Associate, CfA 1993-94; Staff Physicist, Harvard-Smithsonian Center for Astrophysics, 1994-present. Finalist, AMO Physics Thesis Prize, 1993. Member, Selection Committee, AMO Physics Thesis Prize, 1998. Thesis Prize Committee Chair, 1999. Member, APS. Member, Internet Society. RESEARCH INTERESTS: Quantum interference effects in collision and photoabsorption. Formation and decay of resonance complexes in atomic and molecular systems. Neutral particle interaction at large separations. Resonant elastic and inelastic scattering of light from atoms and molecules. Multiple ionization processes. Charge-transfer in low-energy ion-atom collision.

YOUNG, LINDA

S.B., Massachusetts Institute of Technology, 1976; Ph.D., University of California, Berkeley, 1981; postdoctoral fellow, University of Chicago, 1981-83; Assistant Physicist, 1983-88; Physicist, 1988-present, Argonne National Laboratory. JILA Visiting Fellow, 1992-93. Associate Editor, Applied Physics Letters, 1989-present; Member, DAMOP Program Committee, 1988-90; Local Organizing Committee, 1992. Member, IQEC Program Committee, 1994. Member, Precision Measurements and Fundamental Constants Topical Group (PMFCTG) Executive Committee, 1996-99; Chair, Nominating Committee, 1998; Vice-Chair, F. M. Pipkin Prize Committee, 1998. Member, NRC Committee on Atomic, Molecular and Optical Sciences (CAMOS), 1996-99. Member, Division of Laser Science, Executive Committee, 1998-2000. Member, Local Organizing Committees: Symposium on Spectroscopy of Highly Charged Ions, 1987; Symposium on Atomic Physics with Hard X-rays from High Brilliance Synchrotron Light Sources, 1996; International Conference on X-ray and Inner Shell Processes, 1998. Member, Selection Committee for Swedish NFR Fellowship in Atomic Physics, 1997. RESEARCH INTERESTS: precision laser and radiofrequency spectroscopy of atoms and molecules; x-ray AMO physics; spin-polarized and laser-cooled targets.

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