

Division of Atomic, Molecular and Optical Physics NEWSLETTER

A Division of The American Physical Society

April 2003

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FROM THE CHAIR: CHRIS GREENE

The scientific meeting is now planned, thanks first of all to this year's Program Committee. In addition, this could not have been accomplished without the efforts of those who donated almost their whole day on Saturday, Febr.15 to sort the approximately 600 contributed abstracts. The health of our Division appears to be stronger than ever, judging from the 10% increase in the number of submitted abstracts, compared with last year's very successful DAMOP Meeting in Williamsburg. Heartfelt thanks for their sorting help goes out to Mark Baertschy, Steve Lundeen, Jun Ye, Neil Claussen, Peter Engels, Wayne Itano, Murray Holland, Siu-Au Lee, and Lew Cocke, in addition to Jean Atwood and Pam Leland who provided logistical support for this process.

The number of things I forget to take care of seems to increase exponentially with time. This is just one reason why I appreciate so deeply Lew Cocke's tireless efforts as Secretary-Treasurer to maintain the buoyancy of the DAMOP ship. Thanks in large measure to Lew's work, my confidence is growing that this year's meeting will continue our Division's long series of successful and invigorating annual gatherings. In fact, the abstract sorting process now has me salivating at the prospect of hearing the scientific advances that will be presented.

A new experiment this year will be a foray of the DAMOP program into the increasingly important area of undergraduate physics education. One invited session is devoted to this area, with invited speakers Carl Wieman, Robert

DAMOP 2003

Our 34th annual meeting will take place on the beautiful CU-Boulder campus, situated in the grand Rockies. The meeting will run from Tuesday evening, May 20 until about noon on Saturday, May 24. A synopsis of sessions, symposia and speakers is given below. Full information is available at <http://damop.org/>. A one-day symposium for students will be held on Tuesday, May 20, in JILA Auditorium at 11:00 a.m. (see The Student Symposium section later in newsletter).

Program Synopsis

There will be 18 total invited sessions including two presentations at the plenary session on Wednesday morning, the Thesis Award talk presentations (5) on Thursday and the Undergraduate Research Presentations (6) on Friday. There will be 27 contributed talk sessions. To date, more than 590 contributed abstracts have been received. There will be two poster sessions w/exhibitors: Wednesday and Thursday, starting at 4 p.m. Thus far, 329 poster abstracts have been submitted.

Symposia and speakers:

Plenary - Kasevich, Hessels
Thesis Prize - Carr, Lewandowski, Roberts, Soerensen, Steck
Applications of AMO physics - Lawler, Bucksbaum, Thaddeus, Dalgarno
Ultrafast pulse generation and control - Ye, Ivanov, Bartels, Kobayashi
Atom guides - Reichel, Prentiss, Hinds, Guery-Odelin
Strongly correlated systems in optical lattices - Demler, Smerzi, Blakie

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CHAIRS LETTER (Continued)

Hilborn, David Pritchard, and Richard Steinberg. Another mixed invited-contributed session on physics education will feature Lou Bloomfield as a speaker. Because of our uncertainty as to DAMOP community's level of interest in hearing talks in this area at future meetings, the future course of this experiment will be assessed on the basis of membership reactions, both through "voting with your feet" in terms of attendance at those sessions, and of course through any reactions, positive or negative, that you pass along to me or other Executive Committee members.

And, speaking of voting with your body parts, the summary presented below of the contributed oral and poster sessions by area may prove informative for you to ponder in your vast spare time. I found it intriguing to see the healthy spectrum of interests across the many thriving subfields addressed by this Division of the American Physical Society.

In recent years I have had a personal interest in seeing a healthier level of scientific literacy, including skepticism about pseudoscience, in the general public. This year's Public Lecture by James Randi, at 7:30 pm on Wednesday, May 21, is intended partly as an entertaining and informative talk for the DAMOP membership. But beyond this, it is also an attempt to improve DAMOP's outreach to the general public, by supporting what I believe is an important message for the interested public to hear, in the greater Boulder-Denver area. I am very interested to hear any feedback you might care to provide on this DAMOP outreach experiment.

I look forward to seeing many of you at the meeting in Boulder this May!

DAMOP 2003 (Continued)

Electron and photon interactions with atoms and molecules - Thomas, McLaughlin, Yenen, Khakoo

Heavy-particle collisions - Schulz, Alnaser, Kirchner, Ben-Itzhak

Improving undergraduate education -

Wieman, Hilborn, Steinberg, Pritchard
Nanoscience - Hertel, Hoefler,

Neumark, Granger
Late-breaking developments Gabrielse, Grimm, Yamamoto, Villeneuve
Novel applications of lasers in AMO science (DLS) - Nesbitt, Rocca, Boyd, Grischkowsky
Undergraduate research session - Hernandez (Kansas State), Lewis (Ill. State), Perry (Washington), Ovchinnikov (Tenn.), Reyes (Nebraska), Swingle (Ga. Tech.)

Quantum information - Bouwmeester, Martinis, Becher, Lukin
Ultracold collisions and photoassociation - Derevianko, Bohn, DeMille
Novel BEC/DFG systems Kokkelmans, Hulet, Blume, and Gupta
Electron correlations and field effects - Wehlitz, Starace, Gorczyca
Molecular excitations and coherent control - Seideman, Poliakoff, Lucchese

Contributed Oral Papers by Subject (total 257):

- 8 -Heavy particle and positron collisions
- 7 -Time and frequency standards
- 8 -Studies of large molecules, clusters, and condensed systems
- 13 -Electron collisions
- 12 -Ultracold collisions, including mixed species
- 11 -Quantum degenerate fermi gases
- 11 -Precision measurements and fundamental constants
- 11 -Nonlinear optics and high harmonic generation
- 10 -Vortices and spin dynamics in quantum gases
- 9 -Quantum optics and cavity QED
- 7 -Chaotic atomic systems
- 9 -Feshbach resonances in the ultracold
- 7 -Trapped or polarized atoms
- 11 -Photoionization
- 13 -Intense-field atomic dynamics
- 11 -Quantum measurement and information
- 10 -Ultracold plasmas and Rydberg atoms
- 7 -Photoionization of molecules
- 11 -Ultracold guided atoms
- 8 -Cooling and trapping of atoms

- 4 -Issues in undergraduate physics education
- 8 -Atomic coherence and quantum optics
- 9 -One dimensional and nonlinear interactions in quantum gases
- 9 -Atomic spectra and properties
- 10 -Cold molecules: cooling and formation
- 12 -Ultracold atoms in optical lattices
- 11 -Wavepacket dynamics and quantum control

Contributed Posters by Subject (total 329):

- 19 -Laser Cooling and Trapping
- 25 -Bose-Einstein Condensation
- 6 -Fermionic systems
- 3 -Atom interferometry
- 5 -Atomic coherence and quantum optics
- 8 -Quantum control and wave packet dynamics
- 26 -Fundamental symmetries and precision measurements
- 12 -VUV and X-ray studies
- 12 -Atom-atom and atom-molecule collisions
- 16 -Photoionization of atoms
- 10 -Photoionization and photodissociation of molecules
- 12 -Electron-impact ionization of atoms
- 8 -Positron scattering
- 30 -Heavy particle impact
- 5 -Optical lattices
- 13 -Ultracold collisions
- 10 -Quantum measurement and information
- 5 -Exotic atoms and molecules
- 12 -Electron-atom scattering
- 9 -Electron-molecule scattering
- 5 -Photoionization of ions
- 10 -Multiphoton ionization
- 11 -Negative ions
- 4 -Ultrafast spectroscopy
- 9 -Experimental techniques
- 9 -Highly excited species and Rydberg atoms
- 17 -Atomic and molecular spectroscopy and structures
- 8 -Lifetimes and oscillator strengths
- 10 -Polarized atoms, long-range interactions, and clusters

Continued on next page.

REGISTER FOR DAMOP 2003 NOW!

Don't Forget ...

- Early Bird Registration fee deadlines are March 21! Thereafter, you will pay a higher registration fee.

- Register spouses for the Awards Banquet on Friday, May 23. Banquet seating is limited to 900!

- Reserve your hotel rooms immediately. Hotel space is limited because of the Bolder Boulder 10K Race scheduled for Memorial Day Weekend, and no dorm rooms are available this year.

- Deadline for application for student travel to DAMOP 2003 is March 28. See <http://www.aps.org/DAMOP/student.html>. Deadline for registration/student travel for the Student Symposium is April 11. See <http://fermion.colorado.edu/~bohn/Symposium/Symposium.htm>

To register go to:<http://www.damop.org>

Questions? Call The Atwood Company, DAMOP 2003 Conference Planning, 303.494.1246 or email damop@atwoodcompany.com

Despite the Colwell letters, Congress, when it finally got around to passing a Fiscal Year 2003 omnibus appropriations bill on February 20 – only five months late – treated NSF quite generously, boosting the Foundation's research budget by more than 11 percent, almost 5 times more than the President had requested.

NASA's Space Science program and NIST's intramural program also benefited from some congressional largesse. So, too, did NIH, which received its final five-year doubling payment.

DOE's Office of Science wasn't so fortunate. Caught between Congress's penchant for splurging on water projects and mounting pressure for weapons and environmental clean-up programs, Science was fortunate to escape without a cut. For FY 2003, the prime federal underwriter of the physical sciences will receive a flat budget.

Last fall, when Congress passed the FY 2003 Defense Appropriations Bills – the only ones that made it more or less on time – it reversed the Administration's proposed cuts to the 6.1 and 6.2 programs, pushing basic and applied research up by more than 5 percent in the aggregate.

What about next year? The Bush budget request for FY 2004 would freeze DOE Science, once again, slash DOD research by about 10 percent and keep a pretty tight lid on almost everything else. With friends like that in high places, who needs enemies?

The top priorities for the White House in the coming year are tax cuts totaling more than \$1 trillion, war costs of \$65 to \$100 billion, Iraq occupation costs of \$100 to \$400 billion, invasion pot sweeteners for the "coalition of the willing" probably amounting to more than \$25 billion and untold billions more for homeland security.

Science? What's that?

Fortunately, there is time for Congress to intervene. But scientists must make their views known. At the APS March Meeting in Austin, lobbying expectations are high. The target figure is more than 2000 letters to the Hill. Will DAMOP be up to the challenge in Boulder in May?

Mike Lubell

STUDENT SYMPOSIUM

A one-day symposium for students will be held on Tuesday, May 20, in the JILA Auditorium starting at 11:00 A.M. This symposium, based on last year's successful event, will expose students to several topical areas in AMO physics, including quantum optics, ultracold collisions, and degenerate Fermi gases. It will be conducted in a tutorial-type style. The speakers will include Deborah Jin, Paul Julienne and Jeff Kimble. While aimed primarily at first- and second-year graduate students, the Symposium is open to all who are interested. Some student travel support is available. For details, see <http://fermion.colorado.edu/~bohn/Symposium/symposium.htm>

ON THE BANKS OF THE POTOMAC

Republicans control both ends of Pennsylvania Avenue. Right! Republicans are friends of science. Right!

So research budgets must be heading up. Not so fast!

The current White House gang may be OK with humungous deficits. But science is not in the spending mix.

Sure, the President signed the NSF "Doubling Bill." But only after the word "doubling" was excised and only after House Science Committee Chairman Sherwood Boehlert (R-NY) and Presidential Science Advisor Jack Marburger applied political muscle. Before that, the Office of Management and Budget had hung NSF Director Rita Colwell out to dry. According to Administration sources, Colwell was ordered to send letters to the Hill last summer saying that NSF resources were quite sufficient, thank you.

PRIZE and AWARDS

Schawlow Prize to Pritchard

The 2002 Arthur L. Schawlow prize has been awarded to David E. Pritchard "for ground breaking studies of coherent atom optics and pioneering work on laser cooling and trapping of atomic gases." Congratulations Dave! Dave Pritchard graduated from Caltech (BS 1962) and Harvard (Ph.D. 1968) and has been employed at MIT since 1966. He has studied van der Waals molecules, two-photon spectroscopy, line broadening, and atom-molecule collisions. His pioneering observation of the Kapitza-Dirac effect and Bragg scattering of atoms opened the field of atom optics, and led to his group's development of nano-fabricated diffraction gratings for atoms. His group also does interferometry experiments with BECs. His group invented the widely used magneto-optical laser trap and the Dark Spot MOT, and operates the world's most accurate mass spectrometer. He was the chair of ICAP in 2002.

Prize for Outstanding Doctoral Thesis Research in Atomic, Molecular or Optical Physics

Congratulations to Lincoln Carr, Heather Lewandowski, Jacob Roberts, Anders Soerensen, and Daniel Steck for being chosen as finalists for the Thesis Award. We look forward to their talks at DAMOP03.

Jesse W. Beams Award to Flannery

Ray Flannery has been awarded the Jesse W. Beams Award for Outstanding Research for 2002 by the Southeastern Section of the American Physical Society. The citation was "For his pioneering, seminal, influential, and enduring contribution to Atomic and Molecular Collision Physics." Congratulations Ray! This award was established in recognition of the scientific achievements of Jesse Beams, an experimental physicist at the University of Virginia for most of his career who was one of five scientists appointed by the National Research Council to study uranium fission before the United States entered World War II—an effort later given the code name of The Manhattan Project.

2002 APS / DAMOP FELLOWS

Itzik Ben-Itzhak, Kansas State University

For his creative experimental studies of molecular dissociation dynamics via fragment coincidence and 3D imaging techniques; and for his studies of the creation and decay of long-lived metastable molecular ions.

Denis Cubaynes, Paris-Sud University, LURE Laboratory

For his achievements in the field of atomic photoionization of laser-excited atoms and for having brought new insights into the creation and the properties of hollow atoms.

Brett David DePaola, Kansas State University

For developing and applying technologically advanced experimental methods for studying basic atomic collision processes.

Daniel Joseph Gauthier, Duke University

For fundamental studies in nonlinear and quantum optics, including the development of the Raman two-photon laser and the investigation of multi-photon optical amplification processes in laser-driven atomic vapors.

Alan Hibbert, Queen's University, United Kingdom

For important contributions to atomic structure physics via the development of widely-used configuration interaction codes, definitive calculations of atomic transitions, and pioneering atomic collisions calculations.

Atac Imamoglu, University of California, Santa Barbara

For major innovation in quantum optics and mesoscopic physics.

Gershon Kurizki, The Weizmann Institute of Science, Israel

For discovering innovative approaches to the control of the quantum properties of electromagnetic fields interacting with atomic, molecular, and condensed media.

Dennis W. Lindle, University of Nevada, Las Vegas

For seminal contributions to the understanding of the breakdown of fundamental approximations in atomic and molecular photoionization and the polarization of x-rays induced by photoionization of atoms and molecules.

Robert Alan Morris, Air Force Research Laboratory, Hanscom AFB

For fundamental studies of ion and electron interactions with molecules at thermal energies and application to atmospheric and hypersonic plasma problems.

Thomas Michael Orlando, Georgia Institute of Technology

For innovative studies of electron interactions with complex targets and for applying fundamental atomic and molecular physics to investigations of non-thermal processes at interfaces and surfaces.

Carlos O. Reinhold, Oak Ridge National Laboratory

For pioneering contributions to the understanding of classical-quantum correspondence in time-dependent interactions of atoms with ions, solids and electromagnetic pulses.

Leposava Vuskovic, Old Dominion University

For important and sustained work on electron collisions with ground state and excited atoms by creating a number of remarkable experimental techniques.

Thomas G. Winter, Pennsylvania State University

For advancing the understanding of the physics of heavy-particle collisions via highly accurate coupled-state calculations based on novel physical insight.

Allan Laufer Retirement and Distinguished Career Service Award

Allan H. Laufer retired in January after nearly 39 years of service to the U.S. Government and to science at the National Institute of Standards and Technology and the U.S. Department of Energy, Office of Basic Energy Sciences. A celebratory luncheon in Allan's honor attracted over 75 participants, many of whom are principal investigators in BES research programs, including AMO Physics. On the occasion of his retirement, Allan received a Distinguished Career Service plaque from Raymond L. Orbach, Director of the Office of Science. The citation reads: "In recognition of your consistent and unwavering interest in and support of scientific excellence for more than 38 years of Federal service. In your own research on the chemistry of hydrocarbon radicals you have made significant contributions to our understanding of combustion and planetary atmospheres. In your support of research in chemical physics, photochemistry, radiation chemistry and atomic, molecular and optical physics, you have led a premier basic research program that resulted in three Nobel prizes during your tenure."

Eric Rohlfing, DOE/BES

GOING ELECTRONIC

By decree of the Executive Committee, DAMOP is going electronic in two major ways this year: elections and newsletter.

Elections

This year the DAMOP election will be done as much as possible electronically. Electronic ballots will be sent to all DAMOP members with instructions on how to vote. The biographical information on the candidates is included in this newsletter and will be enclosed with the ballot as well. For those members who do not have valid email addresses, paper ballots will be sent. We hope the ease of electronic voting will increase the participation in the elections. You should expect to see an electronic ballot within a bit more than a week. If your email bounces or you do not have an email address on file, be patient: the ballot is in the mail. PLEASE VOTE!

Newletter and web page

This marks the first DAMOP newsletter which will appear ONLY ELECTRONICALLY. If you are reading this, you know that all DAMOP newsletters since January 1997 are on our web site. You may notice that we now have a place on our home page for a current research image from the DAMOP community. This image will be rotated as frequently as

possible, depending on the receipt of good stuff by your secretary-treasurer-webmaster. An aesthetics committee of one will make selections on a continuing basis. The dropping of the rather expensive printed newsletter was adopted by the Executive Committee in 2003. The result will inevitably be DAMOP members will rely more and more on the DAMOP web site for communication. This has the advantage of constant availability and quick updating, and the disadvantage of not producing a document for you to leave lying in your departmental coffee room. (You can always print off a copy and leave it there or take it to Starbucks with you.) Please submit newsletter material, images for the web page and any other suggestions to Lew Cocke at cocke@phys.ksu.edu.

MEETING BULLETIN BOARD

35th Conference of the European Group for Atomic Spectroscopy, EGAS 35, Brussels, Belgium, July 15-18, 2003
<http://www.ulg.ac.be/ipne/EGASII/formegas35.html>.

The 2003 Gordon Research Conference on Atomic Physics
Tilton School, Tilton, New Hampshire, USA, June 15-20, 2003
www.grc.org.

Quantum Electronics and Laser Science (QELS)
June 1-6, 2003, Baltimore, Maryland,
<http://www.osa.org/CLEO>

The 16th International Conference on Ion Beam Analysis
June 29- July 4, 2003, Albuquerque, NM
<http://www.sandia.gov/1100/X1111.htm>

ICPEAC XXIII, July 23-29, 2003, Stockholm, Sweden
<http://www.physto.se/icpeac> See this web site for satellite conferences also.

NIST PRECISION MEASUREMENT GRANTS

The National Institute of Standards and Technology (NIST) expects to make two new Precision Measurement Grants that start on 30 September 2003. Each grant is in the amount of \$50,000 per year and may be renewed for two additional years for a total of \$150,000. They are awarded primarily to faculty members at U.S. universities or colleges for research in the field of fundamental measurement or the determination of fundamental physical constants.

Initial round abbreviated five-page proposals are due to reach NIST by 5:00 pm EST on 24 March 2003 to be considered. For more information about the program and application details, please check the web site at <http://physics.nist.gov/pmg> or contact Peter Mohr by email at mohr@nist.gov or phone at (301) 975-3217.

Biographies of Candidates

FOR VICE CHAIR (WILL BECOME CHAIR-ELECT IN 2004 AND CHAIR IN 2005)

CLARK, CHARLES

Chief, Electron and Optical Physics Division, National Institute of Standards and Technology. Life Member and Fellow, American Physical Society. Member, DAMOP Executive Committee, 1990-91, during which time I initiated the proposal for the APS Award for Outstanding Doctoral Thesis Research in Atomic, Molecular, or Optical Physics. Chair, AMO Thesis Award Committee, 1992-93; DAMOP representative, APS March Meeting Program Committee, 2001-present; member, APS Fellowship Committee, 2003-2005; member, APS Davisson-Germer Prize Committee, 2003. Policies: 1) Strengthen mature core areas of DAMOP activity, such as collisions and spectroscopy, by demonstrating their value to topics of emerging opportunity, e.g. nanotechnology, quantum information, soft matter, and biological physics. 2) Hold one DAMOP annual meeting jointly with the APS March Meeting. DAMOP, the third largest division of the APS, is home to recent exciting developments that have inspired interest across many fields of physics. We should project our presence into the largest and most competitive physics meeting in the world. 3) Respect personal and family life by confining all DAMOP annual meeting sessions within the normal Monday-Friday work week, not including national or religious holidays. 4) Continue successful efforts by recent DAMOP Chairs to promote student participation in the DAMOP annual meeting.

PHANEUF, RONALD A.

B.Sc. 1969, M.Sc. 1970, Ph.D. 1973, University of Windsor, Canada. Profes-

sor of Physics, 1992-present; Chair, 1992-2001; Department of Physics, University of Nevada, Reno. Interim Program Manager, Nevada Terawatt Facility, 2002-03. Research Associate, 1975-81; Research Staff Member, 1981-85; Senior Research Staff Member, 1985-92; Program Manager, Atomic Physics and Plasma Diagnostics for Fusion, 1983-92; Director, Controlled Fusion Atomic Data Center, 1985-92, Physics Divisions, Oak Ridge National Laboratory. JILA Visiting Scientist, 1988-89. Postdoctoral Research Associate, JILA, 1973-75. APS Fellow, 1986-present. DAMOP Publications Committee, 1985-86; Executive Committee, 1988-89; Program Committee, 1989-91; Secretary-Treasurer, 1993-96; Nominating Committee, 1996 (chair), 1997; Fellowship Committee, 1999-2000; Davisson-Germer Prize Committee, 2003; Local Committee for 1993 DAMOP Meeting. National Research Council, Committee on Atomic, Molecular and Optical Science (CAMOS), 1990-93; AMO Sciences Assessment Panel, Committee on Physical Sciences, Mathematics and Applications, 1992-93; FAMOS Survey of AMO Scientists, 1992-93. Screening Panel for DOE E.O. Lawrence Award, 1994. Editorial Board, Journal of Physical and Chemical Reference Data, 1986-88. International Conference on the Physics of Highly Charged Ions, Program Committee, 1990-92. APS Topical Conference on Atomic Processes in Plasmas, Program Committee, 1987, 1993, 1995, 1999. ICPEAC General Committee, 1983-87, 1997-2001. Advisory Group on Atomic and Molecular Data for Fusion, International Atomic Energy Agency, 1983-1992. Director, Nevada DOE Experimental Program to Stimulate Competitive Research, 1998-2000. Member, American Association of Physics Teachers, 1993-present; Sigma Pi Sigma, 2001-present. David A. Shirley

Award for Outstanding Scientific Achievement at the Advanced Light Source, 2002. **RESEARCH INTERESTS:** Interactions of multiply charged ions with electrons, photons, atoms and molecules; photon-ion interactions using synchrotron radiation; charge-changing, excitation and autoionization processes; atomic processes in plasmas; fusion energy.

FOR THE EXECUTIVE COMMITTEE

BECKER, KURT H.

Dipl. Phys. (1978) and Dr. rer. nat. (1981), Universität des Saarlandes, Saarbrücken, Germany. DFG Postdoctoral Fellow and Research Associate, University of Windsor, Canada, 1982-84. Assistant Professor, Lehigh University, 1984-88. Associate Professor and Professor, City College of CUNY, 1988-96. Professor, Stevens Institute of Technology, 1997-present; Head, Department of Physics and Engineering Physics, Stevens Institute of Technology, 2000-present. Associate Director, Center for Environmental Systems, Stevens Institute of Technology, 2002-present. Dr. Eduard-Martin Price from the Universität des Saarlandes, 1983. Fellow of the American Physical Society, 1992. Thomas Alva Edison Patent Award from the Research and Development Council of New Jersey, 2001. Co-Chair, Organizing Committee of the 5th International Symposium on Polarization and Correlation in Electronic and Atomic Collisions, 1989. Co-Chair, Organizing Committee of the XXII. International Conference on Phenomena in Ionized Gases (ICPIG), 1995. Member, GEC Executive Committee, 1991-93. Member, ICPEAC General Committee, 1993-97. Vice-Chair and Chair of the APS Will Allis Prize Committee, 1995-97. Member, APS-DAMOP Program Committee, 1996-97.

Member, Scientific Advisory Board, Institute for Low-Temperature Plasma Physics, Greifswald, Germany, 1997-present. Member, ICPiG International Scientific Committee, 1999-present. **RESEARCH INTERESTS:** Electron-driven processes in the gas phase; experimental determination of collision cross sections, optical and electron spectroscopy, mass spectrometry; calculation of ionization cross sections, development of scaling laws and additivity rules; collisions in low-temperature plasmas, optical, mass spectrometric and probe diagnostics of discharge plasmas; generation, maintenance, and characterization of high-pressure and atmospheric pressure discharge plasmas and their technological applications; AMO and plasma physics applied to the solution of environmental problems.

COLLINS, LEE A.

B.A.(physics/mathematics): Rice University, 1970; Ph.D.(physics): Rice University, 1975. Postdoctoral Fellow, JILA, 1975-1977; Postdoctoral Fellow, Los Alamos National Laboratory, 1977-1979; Visiting Scientist, Daresbury Laboratory, U.K., 1979; Staff Member, Los Alamos National Laboratory, 1979-present, Laboratory Fellow, 2000. Fellow: American Physical Society, 1995. Specialist Editor, Computer Physics Communications, 1983-1991; Editorial Board, Physical Review A, 1992-1994; Associate Editor, Physical Review A, 1994-present. Executive Committee, APS Forum for Physics and Society, 1999-2002; Editorial Board, Physics and Society, 2000-2002, Nominating Committee, APS Few Body Systems Topical Group, 1998; Executive Committee, APS Few Body Systems Topical Group, 2001-present; Education Committee, DAMOP, 1999-present; Local and Program Committees, Santa Fe DAMOP meeting, 1998. Director, Los Alamos Summer School, 1992-present; Adjunct Professor, University of New Mexico, 1992-present.

RESEARCH INTERESTS: Theoretical AMO physics: electron atom and molecule scattering, atom-atom collisions, atoms in intense fields, quantum control of molecular systems, ultracold phenomena (Bose-Einstein condensates and plasmas), computational methods. Other areas: warm dense matter and materials in extreme environments.

DIMAURO, LOUIS F.

B.A. Hunter College CUNY, 1975; Ph.D, University of Connecticut, Storrs, CT, 1980; Research Associate, SUNY Stony Brook, Stony Brook, NY, 1980-81; Member of Technical Staff, AT&T Bell Laboratories, Murray Hill, NJ 1981-84; Assistant Professor of Physics, Louisiana State University, Baton Rouge, LA, 1984-1988; Associate Scientist, Brookhaven National Laboratory, Upton, NY 1988-1992, Scientist, Brookhaven National Laboratory, Upton, NY 1992-1998, Senior Scientist, Brookhaven National Laboratory, Upton, NY 1998-present, Adjunct Professor of Physics, SUNY Stony Brook, Stony Brook, NY 1988-2001, Visiting Professor of Physics, SUNY Stony Brook, Stony Brook, NY 2001-present, Guest Physicist, Lawrence Livermore National Laboratory, Livermore, CA, 1994-present, APS Fellow, 1999, OSA Fellow, 2001 **SELECTED PROFESSIONAL ACTIVITIES:** APS DAMOP Fellowship Committee, 2002; APS I. I. Rabi Award Committee, 2001 & 2003, Conference Co-Chair, LS-XVIII, 2002, OSA representative to JCQE & ICQE, 2002, Program Co-Chair, ILS-XVI, 2000, Conference Co-Chair, ICOMP8, 2000, Program Committee, Vice-chair, 2000 and chair, 2002, Multiphoton Processes Gordon Conference, Chair, 2000 and member, 1999, OSA Max Born Prize Committee **RESEARCH INTERESTS:** Atomic and ultrafast optical physics, strong-field interactions; attophysics; nonlinear optics; short wavelength generation; quantum control methods, many-body

interactions and fourth generation light sources.

JONES, ROBERT R.

B.S. Univ. of Southwestern Louisiana 1985; Ph.D. Univ. of Virginia 1990; Post Doctoral Research Associate (P.H. Bucksbaum), Univ. of Michigan, 1991-93; Assistant Professor, Univ. of Virginia, 1993-98; Visiting Fellow, NSF Center for Ultrafast Optical Science, Univ. of Michigan, 1994; Oak Ridge Associated Universities Physical Science Award, 1996; Packard Fellow 1996-01; Associate Chairman for Graduate Studies, Physics, Univ. of Virginia, 1998-01; Associate Professor, Univ. of Virginia, 1998-02; APS Fellow, 2000; Professor, Univ. of Virginia, 2002-present. **SELECTED PROFESSIONAL ACTIVITIES:** DAMOP Publication Committee, 1995-98; DOE-AMO Workshop High Field Panel, 1997; OSA Ultrafast Technical Group Panel, 1998; QUELS '99 Quantum Optics and Atom Optics Subcommittee, 1999; Chair ILS '99 Lasers in Physics Subcommittee, 1999; Co-Organizer ITAMP Workshop on Complex Phenomena Involving Rydberg Atoms and Molecules, 2001; DAMOP Nominating Committee, 2001-02; OSA Max Born Award Committee, 2002; QELS Ultra-fast Dynamics Program Subcommittee, 2002; DAMOP Program Committee, 2002-present; Chair OSA Max Born Award Committee, 2003; Vice-Chair Gordon Research Conference on Multiphoton Processes, 2004. **RESEARCH INTERESTS:** Interaction of atoms and molecules with strong external fields and ultra-short electromagnetic pulses; electronic wavepacket control and observation, electronic correlation in two-electron atoms; highly-excited atomic states.

