

DIVISION OF ATOMIC, MOLECULAR AND OPTICAL PHYSICS NEWSLETTER

A Division of The American Physical Society

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INSIDE...

FROM THE CHAIR

- The 2005 Nobel Prize in Physics is Shared by AMO Scientists!
- Saying Hello to Our Jolly Good Fellows ...
- Fellowship Potpourri

MOVEMENTS AND SHAKINGS

DAMOP AND AMO2010 INTERIM REPORT

JOBS AND CONFERENCE ANNOUNCEMENTS

DAMOP AT THE 2006 APS MARCH MEETING IN BALTIMORE

DAMOP 2006

CALL FOR PAPERS, SPECIAL UNDERGRADUATE SESSION AT DAMOP

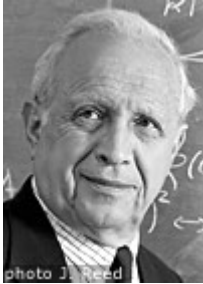
DAMOP AT ICOPS

KITP ATTOSECOND WORKSHOP ANNOUNCEMENT

FROM THE CHAIR

Charles W. Clark

The 2005 Nobel Prize in Physics is Shared by AMO Scientists!



Roy. J. Glauber



John L. Hall



Theodor W. Haensch

Join them at the Opening Wild Party we are throwing at the DAMOP Annual Meeting, Tuesday, May 16, 6:00 p.m. in Knoxville, Tennessee! An hour of Nobel lectures, open to the public, followed at 7:00 p.m. by a swell reception, honoring this years' Nobel Laureates in Physics, and the SIX (sic.) other AMO scientists awarded this accolade since 1997!

Saying Hello to Our Jolly Good Fellows . . .

In this issue we are pleased to congratulate the 16 newly-elected Fellows of the American Physical Society who were nominated by DAMOP, and 10 other members of DAMOP who were nominated by other APS units:

2005 APS Fellows nominated by the Division of Atomic, Molecular, and Optical Physics

Andersen, Nils Overgaard

Niels Bohr Institute, Denmark

For his contribution to the study of atomic collision processes through electron and photon polarization analysis and the systematic development of quantum-mechanically complete descriptions.

Aspect, Alain Jean

Laboratoire Charles Fabry, France

For his trailblazing experimental tests of Bell's inequalities, and seminal contributions to laser cooling and atom optics.

Crowe, Albert

University of Newcastle-upon-Tyne, UK

For his carefully designed, state of the art measurements of electron scattering from atoms and molecules, which have provided very stringent tests for theoretical collision models.

DeMille, David P.

Yale University

For his pioneering experimental searches for violations of discrete symmetries in atoms and molecules and for his development of trapped polar molecules as potential systems for quantum computing.

Deutsch, Ivan H.

University of New Mexico

For fundamental contributions to the theory of optical lattices and quantum logic using neutral atoms.

Gibble, Kurt E.

Pennsylvania State University

For innovative contributions to laser-cooled atomic clocks and ultra-cold atom-atom scattering.

Kasevich, Mark A.

Stanford University

For pioneering studies of laser cooling, atom interferometry, and Bose-Einstein condensation.

Knill, Emmanuel H.

NIST

For fundamental contributions to our understanding of the control and manipulation of quantum systems, including quantum error correction, determination of tolerable error rates, and linear optics quantum computing.

Kocharovskaya, Olga

Texas A&M University

For her pioneering works on lasing without inversion, electromagnetically induced transparency, and laser control of gamma-ray nuclear transitions.

McCormack, Elizabeth F.

Bryn Mawr College

For contributions to the development of novel four-wave mixing techniques for the study of molecular Rydberg states, and for efforts to advance the state of undergraduate physics education.

Monroe, Christopher Roy

University of Michigan

For contributions to the use of laser-cooled trapped atomic ions in quantum control applications and for quantum information science.

Pachucki, Krzysztof

Warsaw University, Poland

For his numerous contributions to the theory of quantum electrodynamics, in particular evaluation of higher order corrections to the one and two-loop Lamb shift.

Tiesinga, Eite

NIST

For pioneering work on the measurement and control of cold atomic collisions by scattering resonances.

Walraven, Joannes Theodorus Maria

Van der Waals-Zeeman Instituut, The Netherlands

For pioneering experimental and theoretical contributions to the physics of quantum gases.

Walters, Harry Robert James

The Queen's University of Belfast, Northern Ireland

For many significant contributions to atomic collision theory.

Zubairy, Muhammad Suhail

Texas A&M University

For his pioneering and wide ranging contributions in quantum optics with special emphasis on quantum computing and quantum noise quenching in lasers and optical amplifiers.

DAMOP members nominated as 2005 APS Fellows by other APS units

Anderson, Scott Law

University of Utah

For contributions to understanding chemical dynamics of ion-molecule reactions, size-selected model catalysts, and gas-phase clusters. Nominated by: Division of Chemical Physics

Budker, Dmitry

University of California, Berkeley

For his contributions to the spectroscopy of complex atoms, atomic-physics tests of fundamental symmetries, and for his leadership in the field of nonlinear magneto- and electro-optics of resonant systems. Nominated by: Topical Group on Precision Measurement and Fundamental Constants

Cundiff, Steven Thomas
NIST/JILA

For pioneering work in carrier-envelope phase stabilization of modelocked lasers and its applications to optical frequency metrology and ultrafast technology. Nominated by: Division of Laser Science

Ditmire, Todd
University of Texas at Austin

For pioneering experiments in High Energy Density physics using ultrashort intense lasers, including production of fusion neutrons from laser-irradiated clusters and states of warm dense matter relevant to astrophysics. Nominated by: Division of Laser Science

Gaeta, Alexander Luis
Cornell University

For pioneering experimental and theoretical investigations of nonlinear optical interactions in photonic crystal fibers and with ultrashort pulses in bulk media. Nominated by: Division of Laser Science

Hangst, Jeffrey S.
University of Aarhus, Denmark

For his leadership role in the creation and detection of cold anti-hydrogen atom, and for his seminal studies of laser cooling of ion plasmas in storage rings and radio-frequency ion traps. Nominated by: Division of Plasma Physics

Lyyra, Marjatta A.
Temple University

For the development of multi-resonance laser spectroscopic technique for facilitating large inter-nuclear distance molecular excitation with state selectivity and for probing coherence effects in molecular systems. Nominated by: Division of Laser Science

Maleki, Lute
Jet Propulsion Laboratory

For seminal contributions to the science and technology of frequency standards and their applications to tests of fundamental physics. Nominated by: Topical Group on Precision Measurement and Fundamental Constants

Rocca, Jorge Juan
Colorado State University

For breakthrough developments in compact soft x-ray lasers and in the applications of these lasers to plasma diagnostics, interferometry and material studies. Nominated by: Division of Laser Science

Shertzer, Janine

College of the Holy Cross

For her ground-breaking introduction of novel finite-element techniques in calculations of bound state and scattering properties of atomic and molecular systems. Nominated by:
Topical Group on Few-Body Systems and Multiparticle Dynamics

Fellowship Potpourri

A Good Thing to be a Fellow

Election to APS Fellowship is a Good Thing. Where I work, newly elected Fellows get their faces printed on a colorful poster, with “Congratulations” printed on it in 72-point Brush Script type, and these are posted all over the place, sometimes even in the cafeteria. APS Fellows are entitled to one free cup of coffee per day for life in the NIST cafeteria! - subject only to a nominal handling charge of one dollar. This benefit is open to all visitors as well – just tell the cashier that you are an APS Fellow, tender the nominal handling charge, and your coffee is free! This privilege applies in fact to all beverage selections at the NIST cafeteria, though the handling fee is on a sliding scale – just ask your customer service representative.

When I was elected to APS Fellowship, I got a nice “attaboy” from my boss, and my pay increased in subsequent years. Considering the numbers, Fellowship is the highest form of recognition by APS that will be enjoyed by most of its members. DAMOP elects about 15 APS Fellows per year, whereas there are only a few DAMOP-specific prizes and awards. Election to Fellowship is a competitive process: like all major APS units, DAMOP may elect only 1 in 200 of its members in a given year, and the selections of its Fellowship Committee are subsequently reviewed by the APS Fellowship Committee, who pass the list on to the APS Council for final approval.

Physics is a competitive global business, and high-level recognition of achievements by their peers is not just personally rewarding to elected Fellows, but the process itself helps strengthen our profession.

How Can You Help?

How can you contribute to this? There is one easy way – become a nominator! See <http://www.aps.org/fellowship/fellinfo.cfm> for instructions; the DAMOP deadline for Fellowship nominations is **April 14, 2006**. This path is open to every member of the APS, and you may find that you are quite good at it. All of us know colleagues who have made significant contributions to physics, but who have not yet been recognized by APS Fellowship. In most cases, this is because no one has taken the effort to nominate them. So, you do it! Indeed, in recent years, there have been several instances of members of the APS who received Nobel Prizes in Physics, but who had not been previously elected to APS Fellowship – probably because it hadn’t occurred to any of their colleagues, who are always really busy, to take the time to prepare a nomination.

Take a few minutes off for quiet reflection about your favorite colleagues, and if any of them aren’t APS Fellows, do something about it. Now for the anticipated PAID

ADVERTISEMENT part of this essay: the sole absolute precondition for election to APS Fellowship is that one be a member in good standing of the APS. You would be surprised at how many of your colleagues are not members of APS, even though it is the principal society dedicated to advancement of our profession on a broad basis in this country, and arguably throughout the world. You can check up on your colleagues via the APS membership directory - <http://www.aps.org/memb/enter-directory.cfm> . Inviting recalcitrant colleagues to join APS is done most successfully by a subtle and gracious approach. One that has often worked for me is to wrap a membership application form, <http://www.aps.org/memb/joinaps.cfm> , around a bottle of mouthwash, affix a Post-It note reading “TRY THIS”, and deposit it anonymously in the appropriate departmental mailbox.

It is also easy to join APS via the Web interface at <http://www.aps.org/memb/joinaps.cfm> Those who are members of APS but not of DAMOP, can easily join DAMOP online via <http://www.aps.org/memb/unitapp.cfm> , for a charge of \$7/year. Life members of APS are entitled to membership in one unit without charge.

How to Nominate a Fellow

After you have taken the easy steps suggested above, there is some more creative work involved – the construction of a compelling case for nomination. Be aware that each year the DAMOP competition is strictly a competitive process, decided solely on the basis of nominations in the hands of the DAMOP Fellowship Committee that year. The pass rate is usually less than 50% due to the APS numerical quota (this year it was 43%). Every nomination that I have seen was for a candidate who was arguably qualified for election. What distinguishes successful nominations is the convincing, easily-understood case that they present to each member of the DAMOP Fellowship Committee, who has to read about forty such things. Look at the nomination instructions, <http://www.aps.org/fellowship/fellinfo.cfm> , and think about what you would expect if you were in the evaluators’ position.

In preparing a nomination, keep in mind that your candidate is competing with others of like stature, who are being nominated by people like you. The nominations will be evaluated by people like you. You should do all the spadework to make the evaluators’ jobs easier – they will thank you for that. Highlight the nominee’s best accomplishments, forget the lesser, and state the numbers of citations of their select publications. Don’t even think of gaming the system by sending in more material than the instructions specify – that is a strategy which has “LOSER” stamped prominently on every page, since it offends most evaluators, who have a conscientious duty to read everything they receive, which is always almost too much.

Given the effort and risk of this undertaking, there is one primary obvious element of good procedure: DON’T EVER inform candidates that you are nominating them, and swear all involved in the process to strict secrecy until the APS decision is announced. Here’s why. Even candidates who seem obvious winners to you have less than a 50% chance of election on average. Due to the vagaries of the competitive environment and the particular makeup of each year’s Fellowship Committee, candidates who fail one year can easily be elected the next (nominations are valid for two years). What possible good can come from candidates knowing that they were nominated, but not elected? They will be tempted to adopt one of the following views, which are usually wrong and always unproductive: the nominators did a

lousy job; the Fellowship Committee was incompetent or prejudiced; or both of those things, plus some other miscellaneous grievances thrown in for good measure, all of which are going to sit on unsuccessful nominators' shoulders for a while. Don't be tempted to make your job easier by getting nominees to prepare their case for your signature. Get the information you need surreptitiously.

How to be Elected an APS Fellow

Time for another PAID ADVERTISEMENT. The one, proven, most effective way of becoming an APS Fellow can be purchased for cash, at the mere price of one lunch per year. That is to join and stay in DAMOP. Members of DAMOP are 56% more likely to be APS Fellows than APS members as a whole – see the stats in the DAMOP Membership Profile below. Whether this reflects a causal or consequential relationship, I cannot say – but why worry about that? It's just a fact. The first line of responsibility for electing APS Fellows is through the DAMOP Fellowship Committee. If you do not care enough about DAMOP to have participated in its activities, why is the DAMOP Fellowship Committee going to care, on the margin, about you?

Better yet, volunteer for service in DAMOP governance. Volunteers are always welcome.

Yes, the best path to peer recognition is always outstanding scientific accomplishment. But we are all already striving for that pretty much to the best of our abilities anyway, aren't we? Pay, promotion, and advancement depend on that, and will always govern our main life decisions as physicists. Election to APS Fellowship should always be a career motivation on the margin.

But on that margin, there is a compelling statistical advantage to being affiliated with and offering service to your profession's principal organizational voice: DAMOP.

The quota system

By the way, scientific societies with a "Fellow" grade of membership tend to limit the number of Fellows in one of two ways: an annual election quota, limited to a fraction of the total membership in a given year; or a net quota on the fraction of members who can be Fellows in any given year. Here is how several peer societies regulate their affairs:

Annual quota method	Maximum % of members elected Fellows per year
AAAS	0.5
APS	0.5
AVS	0.5
IEEE	0.1
Net quota method	Maximum % of Fellows in total membership
OSA	10

The Institute of Physics, our British counterpart, has a competitive Fellow grade, but its bylaws do not explicitly limit its distribution among the membership.

The DAMOP membership profile

As of November 2005, DAMOP was the third largest Division of the APS, with 2711 paid-up members. This may be a record high, at least since 1992, which is as far back as I have official membership numbers. However, our membership count has been relatively steady in time – the figure shows official membership counts since 1992, along with the APS membership numbers – both are normalized to their 1992 values = 1. These official numbers are recorded in January of each year, and actual membership counts fluctuate within years.

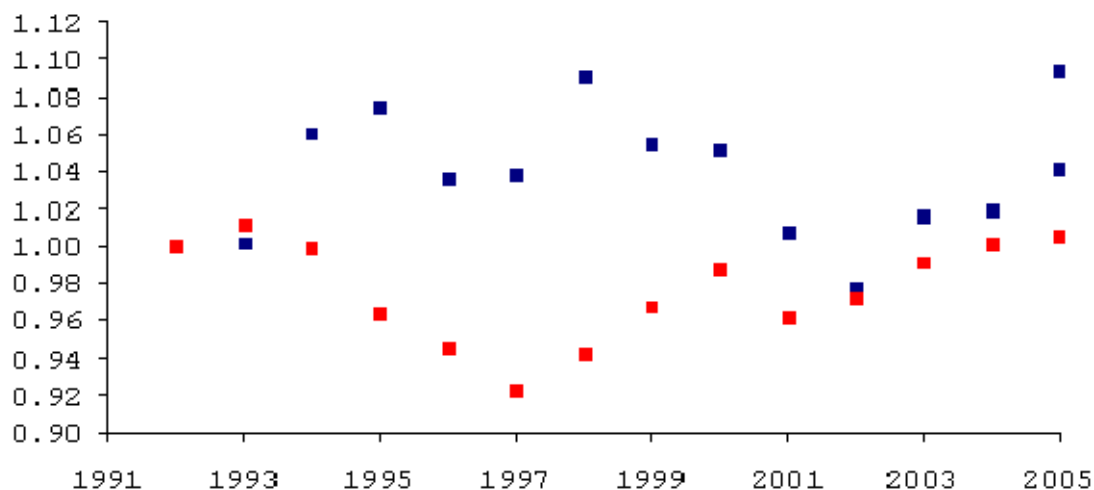


Figure: Membership counts for DAMOP (blue) and APS (red) since 1992, in units of their respective values in 1992. These are the “official” counts, which are those taken sometime in January of each year. Within a given year, DAMOP membership numbers fluctuate by several percent – for example, two values are shown for 2005: the (lower) official count taken in January, and the (higher) actual count as of November 4, 2005.

Some snapshots of our present membership:

DAMOP members domiciled outside the USA:	19%
of whom reside in Canada	3.7%
Germany	2.3%
Japan	2.0%
France	1.3%
United Kingdom	1.1%
Australia	0.9%

Student members of DAMOP	28%
Senior (retired) members of DAMOP	9%
DAMOP members who are Life Members of APS	8%
DAMOP members as fraction of APS membership	6%
APS Fellows as fraction of DAMOP membership	20%
APS Fellows as fraction of APS membership	13%

Membership records do not reveal sex, so there is no official number for the DAMOP male/female distribution. I have made an estimate by reading all 2711 of your first names and guessing who the women might be. That's a dumb method, but as we theorists say, a dumb method is better than no method at all. The depressing result is, only about 7% of DAMOP members are women. Sure, that's got to be a bit of a misundereestimate, since there are fewer Boys Named Sue in the world than there are people named Qi Li, of whom I've known three: one woman and two men. Still, even if this estimate is too low by a factor of two, we've got to do better. Please email charles.clark@nist.gov any ideas you have to recruit and retain more women in DAMOP.

Percentage of members of DAMOP who are members of other APS units

The top ten:

The bottom ten:

Unit	Percentage of DAMOP members affiliated with it		Unit
DLS	24	3	DBP
FIAP	20	3	GQI
DCP	17	2	GGR
FPS	16	2	GSNP
FED	16	1	DFD
DCMP	13	1	DPOLY
FHP	11	1	GMAG
FIP	10	1	GSCCM
FGSA	9	1	GPAP
GPMFC	8	0	GHP

**Percentage of other APS units' membership who are members of
DAMOP**

The top ten:		The bottom ten:	
Unit	Percentage of its members affiliated with DAMOP	Unit	
GPMFC	53	7	DMP
DLS	49	6	DCMP
GFB	32	6	GSCCM
GQI	31	5	GSNP
DCP	26	5	DNP
GIMS	15	4	DPF
FGSA	13	4	GMAG
S4CS	11	3	GHP
STX	11	2	DPOLY
SNES	10	2	DFD

MOVEMENTS AND SHAKINGS

A huge win for AMO science! – JAN HALL shares the Nobel Prize in Physics with Roy Glauber and Ted Haensch – there have been nine AMO Nobel Laureates in Physics during the past nine years, most of them card-carrying members of DAMOP – and there are more in the pipeline ...

2006 APS prizes and awards received by DAMOP members: Davisson-Germer Prize to LEW COCKE; Prize for a Faculty Member for Research in an Undergraduate Institution to RAINER GROBE and QICHANG CHARLES SU – that is the second year in a row that this APS Prize was awarded to DAMOP members (MORTY KHAKOO last year) – keep them coming!; Award for Excellence in Plasma Physics Research to HOWARD MILCHBERG, who was also appointed a Distinguished Scholar-Teacher by the University of Maryland; Arthur Schawlow Prize to PAUL CORKUM, who gets the “complete set” bonus by taking home the 2005 Charles Hard Townes Award of the Optical Society of America ...

Speaking of Charles Townes, there was a swell 90 th birthday bash for him in Berkeley in October - <http://www.foundationalquestions.net/townes/> - featuring a Young Scholars Competition, in which DAMOP members walked off with three of the nine awards: First Prize in Technological Innovation to JUN YE, 20 large; First Prize in Quantum Physics to BRIAN DEMARCO, same deal; and Third Prize in Technological Innovation to PAUL KWIAT, \$5,000 ...

Back on the topic of the OSA, PHIL BUCKSBAUM and IAN WALMSLEY were elected to its Board of Directors, and JANOS BERGOU, JONATHAN DOWLING, DANIEL GAUTHIER, JOHN HOFFNAGLE, WOLFGANG KETTERLE, and LUTE MALEKI were elected to OSA Fellowship ...

MARKUS GREINER received the Otto-Klung-Weberbank Prize, and joined the faculty of Harvard University as an assistant professor of physics ...

ROBIN SANTRA, former postdoctoral fellow at ITAMP, has accepted a research staff position at Argonne National Laboratory ...

DOMINIK SCHNEBLE began an assistant professorship in AMO physics at Stony Brook earlier this year ...

ALEX GODONOV has accepted a tenure track professorship at Old Dominion University ...

CHAD FERTIG became an assistant professor of physics at the University of Georgia ...

SUBIR SACHDEV moved from Yale to Harvard ...

AMY MULLIN moved from Boston University to the University of Maryland ...

MICHAEL BROMLEY took up an assistant professorship at San Diego State University ...

NORBERT LUTKENHAUS is joining the faculty of the University of Waterloo and the Institute for Quantum Computing ...

DAN GAUTHIER became Chair of the Department of Physics at Duke University on July 1, 2005 and was elected to serve as an at-large member of the Division of Laser Science in Spring 2005 ...

MARA PRENTISS was appointed Mallinckrodt Professor of Physics at Harvard ...

ALEX KUZMICH and ERICH MUELLER were awarded Research Fellowships by the Alfred P. Sloan Foundation ...

LINCOLN CARR received a Career award from the National Science Foundation ...

The Department of Defense Base Realignment and Closure Commission has withdrawn its proposal for relocating the DoD research funding agencies ...

ERIC HESSELS was elected to Fellowship of the Royal Society of Canada ...

ELIZABETH ROGERS DAKIN joined the staff of NIST as a National Research Council Postdoctoral Research Associate – her husband, DANIEL DAKIN, and kid brother DANIEL ROGERS work there too ...

DANIEL AUERBACH, JOEL BOWMAN, LOUIS DIMAURO, ROGER FALCONE,

DANIEL LARSON, TERRY MILLER, AMY MULLIN, WILLIAM STWALLEY, and ALFONS WEBER were elected to Fellowship of the American Association for the Advancement of Science ...

WILLIAM PHILLIPS received the Distinguished Presidential Rank Award ...

A symposium in honor of the retirement of AARON TEMKIN and RICHARD J. DRACHMAN was held November 18 th at NASA/Goddard Space Flight Center – the participants were from the U.S. as well as from various other countries and the invited talks were on electron, positron, and muonic physics ...

JOSEPH THYWISSEN has established the Ultracold Atom News page - <https://ucan.physics.utoronto.ca/> - as a community news resource following the model of MARK EDWARDS' BEC Home Page – Joseph's research group has also produced both a degenerate Fermi gas and a BEC at the University of Toronto ... AEPHRAIM STEINBERG has made a BEC at Toronto too ...another new BEC, at Illinois, produced in August by the group of BRIAN DEMARCO ...

Tune in to the always entertaining CM/AMO Physics Jobs Rumor Mill, <http://www.freewebs.com/cmamo/> ...

WILLIAM STWALLEY received the biennial Connecticut Medal of Science Award ...

CHARLES CLARK chairs the Fellows and Honorary Members Committee of the Optical Society of America for 2006 ...

JAMES MCGUIRE started a three-year term on the APS Committee on Meetings ...

STEVE CUNDIFF was elected Member at Large by the APS Division of Laser Science ...

DAMOP AND AMO2010 INTERIM REPORT

Phil Bucksbaum and Bob Eisenstein AMO2010 co-chairs

On November 15, 2005 an interim report from the AMO2010 study was released. The report, Controlling the Quantum World of Atoms, Molecules, and Photons: An Interim Report, identifies six key scientific grand challenges in AMO science and their connection to national priorities. The interim report is a preview of the committee's final report, which is scheduled for release in the summer of 2006. The final report will make recommendations on how the U.S. might realize the full potential and promise of AMO science. The interim report is available free from the National Academies Press at <http://books.nap.edu/catalog/11482.html>.

DAMOP members will recall the AMO2010 town meeting in Lincoln, Nebraska in May. The community comments received there and since, by means of email, have provided valuable perspectives on the committee's work. The committee welcomes further comment between now and **January 15, 2006**. The committee will be having its final meeting at the end of January at which time it will finalize the key elements of its final report. Comments can be emailed to amo-2010@nas.edu. Please note that all comments will be published on the AMO2010 public web site http://www7.nationalacademies.org/bpa/AMO2010_Home.html.

JOB AND CONFERENCE ANNOUNCEMENTS

Jobs

National Research Council Postdoctoral Research Associateships at the National Institute of Standards and Technology, Gaithersburg, MD and Boulder, CO – application deadline is February 1, 2006 – see <http://physics.nist.gov/nrc>

<http://tiptop.iop.org/> is a standing resource for our field – its listings change daily

Young Investigator Program of the Office of Naval Research – closing date is January 12, 2006 – see http://www.onr.navy.mil/02/baa/docs/baa_06002.pdf

Conferences

Annual Meeting of the American Association for the Advancement of Science, St. Louis, MO – February 16-20, 2006 – see http://www.aaas.org/meetings/Annual_Meeting/

March Meeting of the American Physical Society, Baltimore, MD – March 13-17, 2006 – see <http://www.aps.org/meet/MAR06/> - SEE MORE INFORMATION BELOW!

DAMOP Annual Meeting, Knoxville, TN – May 16-20, 2006 – see <http://www.damop2006.utk.edu/> - SEE MORE INFORMATION BELOW!

DAMOP at the 33 rd IEEE International Conference on Plasma Science (ICOPS), Traverse City, MI – June 4-8, 2006 <http://www.icops2006.org> – SEE MORE INFORMATION BELOW!

Kavli Institute for Theoretical Physics (KITP) “Attosecond Science Workshop” at the University of California, Santa Barbara, during the period July 31-September 15, 2006 <http://www.kitp.ucsb.edu/activities/auto2/?id-333> – SEE MORE INFORMATION BELOW!

DAMOP AT THE 2006 APS MARCH MEETING IN BALTIMORE

Allan Griffin

DAMOP representative on the APS March Meeting Program Committee

The APS March meeting is the largest annual physics meeting in the world and DAMOP is playing an increasing role. For the March APS Meeting in Baltimore, March 13-17, 2006 (<http://www.aps.org/meet/MAR06/>), DAMOP has organized three invited sessions and three focus sessions. One particularly timely invited session deals with optical frequency metrology, and will follow a Physics Nobel Prize session honoring Roy Glauber, Ted Haensch, and JanHall and Roy Glauber. The DAMOP program committee felt this was a great opportunity to publicize recent work on optical clocks and precision measurement to a large number of physicists at the APS March meeting who are not aware of the exciting developments in this AMO field.

The invited speakers for both the APS March Meeting and the DAMOP Annual Meeting are

now chosen from nominations made by the DAMOP membership, using the dedicated DCMP web-based site. The deadline for speaker nominations was September 12, 2005. We had an excellent response this year of about 50 full session proposals, making the choice of invited speakers for both meetings by the DAMOP program committee very competitive.

The DAMOP invited sessions and speakers at the 2006 APS March Meeting are:

Optical frequency standards and experimental quantum optics: J. Ye, J. Bergquist, P. Gill, T. Udem, and S. Haroche (Tuesday, March 14)

Fermi superfluid gases: Non-equal spin polarization, FFLO state, and p-wave pairing: S. Dam, S-K. Yip, R. Hulet, R. Diener, and C. Sa de Melo (Wednesday, March 15)

Dynamics and non-equilibrium phenomena in optical lattices: G. Batrouni, A. Polkovnikov, D. Weiss, M. Rigol, and A. Minguzzi (Thursday, March 16)

A March Meeting “focus session” contains one or two invited presentations, plus contributed talks. The focus topics are advertised in advance and contributors may specifically request that their talks be incorporated in a particular focus session, by using the appropriate sorting category for their contributed paper. DAMOP focus sessions and their invited speakers are:

Strongly interacting Fermi gases and the BCS-BEC crossover: C. Regal and J. Hecker Denschlag

Novel phases in low-dimensional quantum gases: T. Porto and A. Ho

Vortices and vortex lattices in Fermi and Bose superfluid gases: W. Ketterle

Over 140 contributed papers have been submitted to the 2006 APS March Meeting with DAMOP sorting codes, and we look forward to seeing a record number of DAMOP members in Baltimore in March.

The DAMOP Program Committee again extends its appreciation and thanks to the Division of Condensed Matter Physics and the DCMP Chair, David Tanner, for their very cooperative attitude and assistance. Murray Holland will become the new DAMOP representative on the APS March Meeting Program Committee, as of March 2006.

DAMOP 2006

Joseph Macek

The 37th meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP) of the American Physical Society will be held in Knoxville, Tennessee from Tuesday, May 16 to Saturday, May 20, 2006. Registration and a reception, as well as two workshops and various committee meetings will be held on Tuesday, May 16. Scientific sessions will begin at 8:00 a.m. on Wednesday May 17, and will continue until noon on Saturday, May 20, 2006. All scientific sessions (including poster sessions) and committee meetings will be held in the Knoxville Convention Center adjacent to the Holiday Inn Select Downtown and across the street from the Knoxville Hilton. Detailed information related to the conference may be found at the web site: www.damop2006.utk.edu.

Registration

The Deadline for Pre-Registration at the Early Registration Fee is 5:00 P.M. Friday, March 31, 2006. Registration forms will be available on the DAMOP 2006 website (www.damop2006.utk.edu) under the Registration link. The registration fee includes the Conference banquet. Registration and Conference check-in will take place at the Knoxville Convention Center. The registration area will be staffed from 12:00 - 8:30 p.m. on Tuesday, May 16. Thereafter, registration will be available during the day, Wednesday, May 17 – Saturday, May 20.

Tutorial Workshops

The meeting will feature a workshop on current topics in AMO physics. Three 1-hr sessions with speakers Nick Bigelow, Gerald Gabrielse, and Bill McCurdy will be held in the morning. In the afternoon, there will be a visit to Oak Ridge National Laboratory (ORNL) featuring tours of the High Performance Computing Center and the Spallation Neutron Source (SNS). Students wishing to go on the tours need to supply information needed to obtain clearance to visit ORNL. Registration details can be found on the conference website (www.damop2006.utk.edu) by clicking on the Registration link.

Educator's Day

This is a new event for the DAMOP meetings, but has been a feature of meetings for other divisions. It is a workshop for high school physics and science teachers held for one day concurrently with the DAMOP meeting. This event is currently scheduled for Tuesday, May 16, 2006. The organizer of Educator's Day for DAMOP 2006 is Steven Rolston at The University of Maryland. For further information, contact him at rolston@umd.edu.

Special Events

There will be a special public lecture session on Tuesday evening featuring this year's Nobel Prize winners with a reception to follow.

Other special events include a public lecture by Tim Gay on the Physics of Football on Wednesday, May 17. This lecture is based on Professor Gay's halftime presentations during the University of Nebraska Football games and his book Football Physics. Visit the following website for more information: <http://physics.unl.edu/outreach/football.html>. For a review of the book, go to <http://radicalacademy.com/bookreviewgay.htm>.

The Friday evening banquet speaker will be Dr. Patricia Dehmer, the Associate Director of Science for the Basic Energy Sciences Division of the US Department of Energy.

Accommodations

Official DAMOP 2006 room blocks have been reserved at three conference hotels in downtown Knoxville. The Holiday Inn Select, directly adjacent to the Knoxville Convention Center where all meeting activities will be held, is \$85 plus tax per night single/double occupancy. Connected to the Knoxville Convention Center via covered walkway and about 1.5 blocks away, the Knoxville Hilton is \$89 plus tax per night single/double occupancy. The Crowne Plaza Knoxville is also available at \$89 plus tax per night double occupancy and \$99

plus tax per night single occupancy. The Crowne Plaza Knoxville is within easy walking distance of 4-5 city blocks from the Knoxville Convention Center. To receive these rates, reservations must be made by Monday, April 17, 2006. Make sure to mention DAMOP when making your reservation. Please plan to make your reservations early, as special conference rates are not guaranteed after the deadline.

Students attending DAMOP 2006 have the option of staying at the University of Tennessee Apartment Residence Hall, a completely furnished residence hall that is located via a 20-minute walk from the conference site or a short bus or trolley ride. Each apartment has two bedrooms, a sitting room, small kitchen, two study areas, and a bathroom. One student will be assigned to each bedroom with two students per apartment. Cost per student is \$26.50/day tax inclusive, and all linens and towels are included. Residence Hall rooms are available only for students due to limited availability.

For complete details on all lodging options, please visit the conference website (www.damop2006.utk.edu).

Accompanying Persons Information

There will be an area set aside at the Knoxville Convention Center on Wednesday and Thursday where accompanying persons can meet and obtain information about activities in the Knoxville area. A walking tour of the city is planned for Wednesday and someone will be available to coordinate other activities. There is no registration fee, however, please indicate the names of people who will come with you as accompanying persons. Morning coffee and pastries are complimentary, but banquet and reception tickets must be purchased in advance. Since the accompanying persons program is informal and subject to change depending upon demand, please check the conference website (www.damop2006.utk.edu) for the latest information.

Travel to Knoxville, Tennessee

World Travel Services is the official travel agency of the DAMOP 2006 event. Airline discounts have been arranged with American, US Air, and Northwest. Each of the listed airlines will offer a 5-10% discount to all DAMOP participants flying into Knoxville. The deadline for discount reservations is Tuesday, May 2, 2006. In order to obtain the best available fares and schedule information, please contact Cissy Chesney at World Travel Services and use the code "DAMOP." **Direct Phone:** 865-777-1681, **Toll-Free Phone:** 800-251-9047 ext 1, **E-mail:** cchesney@worldtrav.com. Complete information can be found on the conference website (www.damop2006.utk.edu) by clicking on the "Transportation" link.

World Travel Services is also available for your ground transportation needs, including rental cars and airport shuttle service. For further details on ground transportation rates and on taxi information, please refer to the conference website (www.damop2006.utk.edu) and click on the "Transportation" link.

Student Travel Support

Students may apply for travel support to this year's meeting in Knoxville. For details of the

application process, go to <http://www.aps.org/units/damop/student.cfm>.

Invitations for Visa Purposes

Attendees who wish to have a letter of invitation for the purpose of applying for a U. S. Visa should contact J. H. Macek (email: jmacek@utk.edu). Please include with your message the following: (1) Your complete name and mailing address; (2) Whether you are giving an invited or contributed presentation; (3) The title(s) of your presentation(s).

Undergraduate Research Symposium

Undergraduate research mentors who wish to nominate students to give invited presentations in the Undergraduate Research Symposium should send their nomination packets to: Don Griffin, Department of Physics, Rollins College, Winter Park, FL 32789-4499 (griffin@vanadium.rollins.edu) by Thursday, January 19, 2006. Note that this deadline precedes the normal abstract submission deadline by eight days! See the announcement by the DAMOP education committee below for further details.

Abstract Submission

Complete **contributed** abstract submission instructions can be found at

<http://www.aps.org/meet/abstracts>. Authors of **invited** papers will receive instructions on abstract submission. The deadline for receipt of contributed and invited abstracts is Friday, January 27, 2006 at 5:00 p.m. EST. Post-deadline papers will be accepted until Friday, March 31, 2006, at 5:00 p.m. EST; however, those submitted after 5:00 p.m. EST on March 22 will not be printed in the bulletin. We strongly urge you to proof your abstract before submission. NOTE: We are no longer accepting abstracts via e-mail.

To submit a contributed abstract using the online web submission process, an author needs to know two things:

- (1) The number and ordering of authors and collaborators; and
- (2) Abstract content.

The web page will guide you through the rest. Try a test submission before submitting your abstract. Log onto <http://abstracts.aps.org> and select the meeting TEST. Follow the directions online to create your own practice abstract. When you are ready to submit your abstract online, select the meeting DAMOP06 by clicking on the appropriate button. A form will be created for you. Simply input the information.

Please note: Invited speakers should refer to their letters of invitation for instructions on locating the invited abstract template.

If you have questions regarding abstract submission, please send them to:

abs-help@aps.org

Please use the sorting categories below when submitting contributed papers. If you do not find the exact category that is appropriate for your abstract, use one that best describes your work. Note that theoretical and experimental works are not distinguished by these categories.

Sorting Categories for Contributed Papers:

1. Atomic and Molecular Structure and Properties
 - 1.1 Spectroscopy, lifetimes, oscillator strengths
 - 1.2 Atomic and molecular structure, including in static fields
 - 1.3 Fundamental symmetries and precision measurements
2. Photon Interactions with Atoms, Ions, and Molecules
 - 2.1 Atomic photoionization and photodetachment processes
 - 2.2 Molecular photoionization, photodetachment, and photodissociation processes
 - 2.3 Strong field (intense laser) processes
 - 2.4 Short pulse (e.g., attosecond, femtosecond) processes
3. Atomic, Molecular, and Charged Particle Collisions
 - 3.1 Atom-atom and atom-molecule collisions
 - 3.2 Reactive scattering and recombination processes
 - 3.3 Electron and positron scattering
 - 3.4 Ion-atom and ion-ion scattering
 - 3.5 Collisions involving clusters
 - 3.6 Collisions involving surfaces
4. Quantum Optics, Matter Optics, and Coherent Control
 - 4.1 Wavepacket dynamics and coherent control
 - 4.2 Atom optics and atom interferometry
 - 4.3 Quantum and/or nonlinear optics
 - 4.4 Cavity QED
5. Quantum Information
 - 5.1 Entanglement, decoherence, and error correction
 - 5.2 Quantum teleportation and/or quantum cryptography
 - 5.3 Quantum computation
6. Cold, Atoms, Molecules, and Plasmas
 - 6.1 Bose-Einstein condensates
 - 6.2 Degenerate Fermi gases
 - 6.3 Atoms in optical lattices
 - 6.4 Ultracold collisions and photoassociation processes
 - 6.5 Laser cooling and trapping
 - 6.6 Low temperature plasmas
7. Special Topics
 - 7.1 Rydberg atoms and molecules
 - 7.2 Exotic atoms and molecules
 - 7.3 Nonlinear dynamics

- 7.4 New experimental techniques
- 7.5 New theoretical methods
- 7.6 Applications of AMO scien

CALL FOR PAPERS, SPECIAL UNDERGRADUATE SESSION AT DAMOP

Donald C. Griffin

At the Division of Atomic, Molecular and Optical Physics (DAMOP) meeting (May 16 – 20, 2006) in Knoxville Tennessee, there will be a special session featuring research performed by undergraduate students. The Educational Committee of DAMOP would like to encourage undergraduate students working in your research programs to apply for participation in this special session. From the applications received, the Committee will select up to five students to present the results of their work. Travel assistance will be available to those students selected. We welcome submissions in a wide range of topics, including AMO physics and the related areas of other fields such as chemical, plasma, condensed-matter, computational, biological, and nuclear physics. Participation is limited to currently enrolled undergraduate students, and applications from women and minority undergraduate students are strongly encouraged.

The papers will be 20 minutes long, including time for discussion. Students who wish to apply should send an email to Donald C. Griffin (griffin@vanadium.rollins.edu). The body of that email should include the following: (1) title, (2) authors and affiliations, and (3) a one-page summary **written by the student** describing the project and his/her contribution to it. In addition, as described in the next paragraph, the student should attach to this email the abstract for the paper in APS format. Finally, the student's sponsor (mentor) should submit a separate letter of recommendation to the email address shown above. **All application materials must be received no later than Thursday, January 19, 2006.**

For those students selected to participate in this special session, the Committee will submit the abstracts directly to DAMOP. Thus the abstracts must conform to APS style and length formats for a contributed paper. To check compliance to this format go to <http://abstracts.aps.org>, select "Start Abstract Submission," designate "Test Web Abstract," provide the information requested, and cut-and-paste the text of the abstract into the indicated box. This will display the abstract as it will appear in the program and will also show any formatting problems. **Please DO NOT submit the abstract directly to DAMOP.**

Any questions regarding applications to the DAMOP special undergraduate session should be addressed to: Donald C. Griffin, chair DAMOP Educational Committee, griffin@vanadium.rollins.edu

DAMOP AT ICOPS

Kurt Becker

The 33rd IEEE International Conference on Plasma Science (ICOPS) will be held in Traverse City, Michigan from June 4 through June 8, 2006. (www.icops2006.org). The conference provides an excellent forum for the DAMOP community to highlight the enabling

aspects of AMO physics as applied to new and innovative developments in the field of plasma science and engineering. Conference topics include basic plasma physics, high-energy-density-plasmas, inertial confinement fusion, magnetic fusion, plasma diagnostics, pulsed power plasmas, microwave generation, lighting, and micro and nano applications of plasmas. Several arranged session may be of particular interest to the DAMOP community such as Basic Processes in Fully and Partially Ionized Plasmas (Organizer: Fred Skiff, University of Iowa), Partially Ionized Plasmas (Igor Alexeff, University of Tennessee), Computational Plasma Physics (John Petillo, SAIC), Charged Particle Beams and Sources (Sophie Chantrenne, KTECH), Plasma, Ion and Electron Sources (Daniela Leitner, Lawrence Berkley National Lab), Intense Electron and Ion Beams (Eric Merle, CEA-CESTA), Ultrashort Pulse Physics (Organizer: TBA), Low-pressure Nonequilibrium Plasma Processing (Shahid Rauf, Freescale Semiconductor, Inc. (Motorola), Plasmas for Lighting (Richard Garner, Osram Sylvania), Microplasmas and Flat-panel Displays (Kurt Becker, Stevens Institute of Technology), Plasma Diagnostics (Vincent Donnelly, Univ. of Houston), Optical Diagnostics (Gregory Hebner, Sandia National Lab). Please contact the conference web site for further information and for details regarding abstract submission or the session organizer, if you would like to submit a contributed paper to one of the arranged sessions.

KITP ATTOSECOND WORKSHOP ANNOUNCEMENT

[André D. Bandrauk](#), [Nathaniel J. Fisch](#), and [Anthony F. Starace](#)

We wish to announce an "Attosecond Science Workshop" to be held at the Kavli Institute for Theoretical Physics (KITP) at the University of California, Santa Barbara, during the period 31 July – 15 September 2006, and to note that applications are now being accepted. A general description of the workshop's goals is has been posted on the workshop web page: <http://www.kitp.ucsb.edu/activities/auto2/?id=333>

Also, information about KITP may be obtained here: <http://www.kitp.ucsb.edu/>

The application deadline is 6 February 2006. It is necessary for every participant to apply online using the link on the workshop web page (see above), including those whom we have already contacted individually.

KITP programs differ from many conferences and workshops in that they create a situation where scientists learn from each other and actually do substantive research, often collaborating with other participants. To foster these interactions, KITP encourages all theory participants to stay for at least three weeks, and gives priority to applicants who plan to do this. We understand, however, that experimentalists generally cannot manage long visits, and we can be more flexible for them.

During the first week of our workshop (31 July – 4 August) we plan to hold a three-day conference on "Attosecond Science: Status and Prospects." It will take place Wednesday, 2 August – Friday, 4 August 2006. One need not be a workshop participant to attend the conference. Further details about the conference will be posted in the near future.

The remaining six weeks of our workshop are tentatively planned to emphasize the following themes:

- Issues in Attosecond Pulse Generation
- Super Intense Laser-Plasma Interactions
- Characterization and Control of Attosecond Pulses
- Coherent X-Ray Sources; Cluster Physics
- Theoretical Methods for Ultrafast Processes
- Novel Scientific Directions and Applications

Tentatively, the first three themes will occupy the three weeks from 7-25 August, while the last three themes will occupy the three weeks from 28 August – 15 September. However, this is only a guide. Final scheduling will take into account which participants are in residence at any given time and what their interests are.

We emphasize that the second through seventh week will not have a conference format; rather the mode of operation at KITP is to have only a few seminars and brainstorming sessions (each with extended periods for discussion) as well as much free time for interactions between participants.

KITP provides office and computing facilities on its site at the University of California at Santa Barbara and also provides help in finding living accommodations. Some level of financial support will be available, depending on the needs of participants and the availability of funds; we will be working out these details over the next few months. Due to space and financial constraints, however, we may not be able to accommodate everyone who responds. Please understand that actual commitments of office space and financial support can be made only by written formal invitations from the KITP Director, Professor David Gross.

Early applications are encouraged, since the available spots during particular weeks may fill up early. Please be sure to include your proposed length of stay, your range of available dates, and your financial requirements.

Please do bring this program to the attention of any interested colleagues.