



August 2005 Newsletter

In this Issue

Chair's Message

Honors and Awards to DLS Members

2004 APS Fellows

Calendar

ILS-XXI Meeting

Distinguished Traveling Lecturer (DTL) Program

New Laser Scientist Symposium

Symposium on Undergraduate Research

Student Travel Grant Program

DLS Executive Committee Members

Other Committees

Elections

Contact Editor

Chair's Message, August 2005

I would first like to extend my greetings to all the members of the Division of Laser Science. I have found the past eight months as DLS Chair to be both interesting and challenging, with many important issues to tackle in an effort to improve our Division. The task has been enjoyable for the most part, thanks to the volunteer efforts of many people. I would especially like to thank the dedicated efforts of Hal Metcalf as Chair-elect, and Dan Elliott as Secretary Treasurer. Nick Bigelow has been a consistent and strong supporter of DLS and we owe him our gratitude. Tom McIlrath, APS Treasurer and DLS member, has been a solid source of wisdom and encouragement. Thanks also to Marjatta Lyyra for her efforts in publishing the DLS Newsletter, and to Rainer Grobe for his work on the DTL. Finally, thanks to all our Executive Committee members.

The most urgent action item when I assumed office last October was to hold DLS elections which were postponed from last summer. The first step in this process was the appointment of the Nominating Committee. The chair of the committee was Thad Walker, Univ. of Wisconsin at Madison, and the members were Bill Stwalley, Univ. of Connecticut at Storrs, and Nasser Peyghambarian, Univ. of Arizona at Tucson. The committee assembled a excellent slate of

candidates in record time and we owe them a big thanks for their effort. The outcome of the elections determined our incoming Vice-Chair Leo Hollberg, NIST and the two new members of our Executive Committee, Dan Gauthier from Duke University and Luis Orozco from The University of Maryland. We are now starting the election process in a timely fashion with the appointment of a new Nominating Committee and the ballots will be distributed towards the end of the summer.

At the LS meeting last October we held another New Laser Scientist Conference chaired by Kurt Gibble and Bob Jones. As earlier events, this was very successful. Bob Jones will chair the next NLSC in 2006. The undergraduate symposium, organized by Hal Metcalf, was also a great success and will continue next Fall in Tucson. The relationship with OSA and the related meetings, LS and QELS, continue to be a central topic of discussion and work. To improve communication between our societies, I invited the OSA leadership to our EC meeting. The organization of LS 2005 is well underway, with program co-chairs Albert Stolow and Todd Ditmire. To improve the sense of identity of our annual meeting we made a web page for the LS meeting. Within that page there is a link to the OSA site, as they handle submission of abstracts. On a positive note for LS, the deadline this year was moved to April 21 instead of mid-Feb. in previous years and the deadline for LS 2006 will be even later in the Spring. In order to provide more continuity in the running of the LS meetings, we have changed over to a three year cycle of succession: Vice-Program-Chair, Program-Chair, Conference-Chair. In an effort to provide more of an identity to DLS at the annual meeting, we are working (in coordination with OSA) to improve the banquet. We will have a separate special solicitation for the banquet as opposed to previous years where it was part of the registration for LS/FiO. You will get a separate e-mail with all the details.

On another matter, we have been working to increase membership in DLS. As a first step in this direction, I coordinated with the leadership of DAMOP to encourage its membership to join DLS. We reciprocated by asking our members to consider joining DAMOP. In the past few months we have seen an increase in membership which may be due to this initiative, but more effort is needed. Hal Metcalf has been working with APS on a coordinated membership drive and your help would be appreciated.

The Division of Laser Science will hold a banquet at the FiO/LS meeting in Tucson. The event is scheduled for Tuesday, Oct. 18 at 7 PM at the Hilton El Conquistador (Presidio V), starting with a cash bar at 6:30 PM. The cost for DLS members is \$40 per person. This includes an excellent meal, great company, and some scientifically-inclined entertainment (details to follow). To attend this event please mail a check, payable to APS/DLS, to our Secretary Treasurer and please indicate your choice of main course (Chicken, Salmon, or Vegetarian)

Prof. Daniel S. Elliott
1285 Electrical Engineering
Purdue University
West Lafayette, IN 47907-1285

As we head into the fall, I wish everyone a productive time and look forward to hearing about new exciting results in Laser Science.

Honors and Awards to DLS Members

***2005 Schawlow Prize
Marlan O. Scully
Texas A&M University***

Citation:

“For his many far reaching contributions to quantum optics and quantum electronics and, in particular, for the quantum theory of lasers, for the theory of free-electron lasers and laser gyros, and for theoretical and experimental contributions to optical coherence effects.”

Background:

Marlan O. Scully received undergraduate training in Engineering Physics and Nuclear Engineering from the University of Wyoming and Rensselaer Polytechnic Institute and the Ph.D. in Physics from Yale University in 1966. He has held faculty positions at Yale, MIT, University of Arizona, University of New Mexico and the Max-Planck-Institut für Quantenoptik. He presently holds a joint appointment between Texas A&M and Princeton Universities.

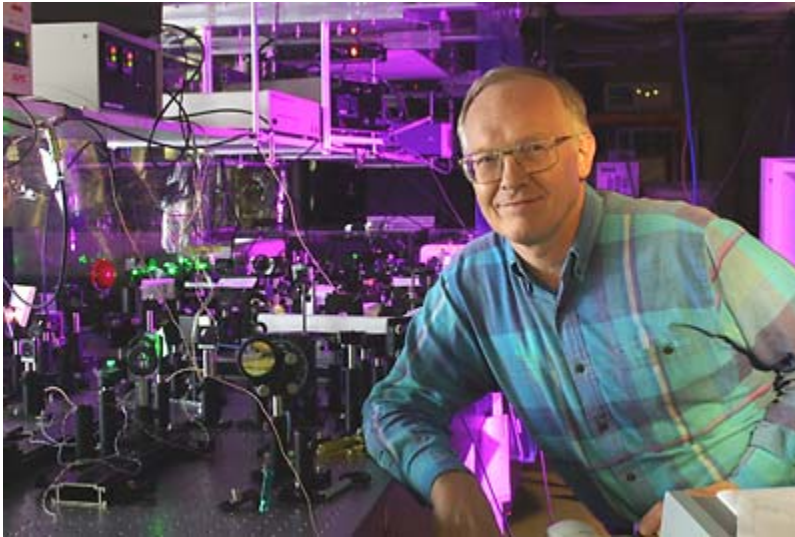
He has been instrumental in many seminal contributions to laser science and quantum optics. These include: The Scully-Lamb quantum theory of the laser, the classical theory of the free electron laser, the theory of the laser gyroscope and especially the theory of correlated spontaneous emission noise quenching in such devices, the first demonstration of lasing without inversion and the first utilization of coherence effects to generate ultraslow light in hot gases. Furthermore Scully’s work on quantum coherence and correlation effects has shed new light on the foundations of quantum mechanics and yielded new insights into quantum thermodynamics.

He has been elected to the National Academy of Sciences, the Academia Europa, and the Max Planck Society and has received numerous awards including the Charles H. Townes Award of the OSA, the Quantum Electronics Award of IEEE, the Elliott Cresson Medal of the Franklin Institute, the Adolph E. Lomb Medal of the OSA, a Guggenheim Fellowship, and the Alexander von Humboldt Distinguished Faculty Prize.



Source: <http://www.aps.org/praw/schawlow/05winner.cfm>

2005 Charles Hard Townes Award*
Paul Corkum
National Research Council, Ottawa, Canada



Citation:

"For key contributions to the understanding of the physics of atoms and molecules in intense laser fields and the application of these ideas to ultra-fast measurement techniques."

Biography

Paul Corkum received his BSc from Acadia University in Nova Scotia and his Ph.D in theoretical physics from Lehigh University in Pennsylvania. He joined NRC as an experimental post doctoral fellow in 1973. Dr. Corkum is best known for proposing how atomic and molecular gases can produce and measure attosecond optical and electron pulses.

Dr. Corkum is a member of the Royal Society of Canada and a recipient of the Canadian Association of Physicists gold medal for lifetime achievement in Physics, and the Royal Societies of Canada's 2003 Tory medal.

Summary or research

One of the world's experts on lasers (particularly short pulse lasers), Dr. Corkum contributes to atomic, molecular and solid state physics. His work is characterized by a deep physical insight leading to simple, elegant models and supported by highly original experiments. He is the "father" of attosecond science and of attosecond molecular imaging. His model of electron re-collision with its parent ion has become the organizing principle for most of "strong field science."

* This award was established in 1980 to honor Charles Hard Townes, whose pioneering contributions to masers and lasers led to the development of the field of quantum electronics. It is given to an individual or a group of individuals for outstanding experimental or theoretical work, discovery or invention in the field of quantum electronics. Bell Laboratories originally endowed the award. Hewlett-Packard, The Perkin Fund, and students and colleagues of Charles Townes contributed generously in a Townes Award Endowment Campaign.

2004 APS Fellows from DLS

We congratulate and celebrate our new APS Fellows:

Nicholas Bigelow

P. University of Rochester

Citation: for his insightful research on cold atomic vapors and the control of atomic motion using light pressure, and particularly for his pioneering studies of the creation and manipulation of ultracold multi-species mixtures.

John L. Carlsten

Montana State University

Citation: For fundamental studies of stimulated Raman scattering.

Kenju Otsuka

Tokai University

Citation: For his penetrating contributions to stoichiometric solid-state lasers, dynamic effects and applications of microchip lasers, and to understanding nonlinear dynamics in optical complex systems including antiphase dynamics, clustering and chaotic itinerancy.

Manijeh Razeghi

Northwestern University

Citation: For her pioneering work on optoelectronic quantum devices including quantum well infrared detectors, quantum cascade lasers, high power lasers, GaN-GaAlN visible and UV emitters and detectors.

Min Xiao

University of Arkansas

Citation: Contributions to sub-shot-noise measurements and novel linear and nonlinear effects related to electromagnetically induced transparency.

Jun Ye

JILA

Citation: For breakthrough developments in the stabilization and synchronization of femtosecond lasers and their application to nonlinear spectroscopy and precision frequency measurement science.

Yuen, Horace P.

Northwestern University

Citation: For seminal contributions to the theory of quantum communications and quantum measurements

Calendar

APS fellowship nominations: Deadline for nominations April 1, 2006. More nominations are strongly encouraged. All nominations should be sent to:

Executive Officer
The American Physical Society
One Physics Ellipse
College Park, MD 20740
ATTN: Fellowship Program

CLEO/QELS Conference: Long Beach Convention Center, Long Beach, CA, May 21-26, 2006.

Information on paper submissions will be available in September 2005.

Frontiers in Optics 2005 /Laser Science XXI Meeting

October 16-20, 2005

Hilton Tucson El Conquistador Golf and Tennis Resort, Tucson, Arizona

Note that the **Undergraduate Research Symposium** will again take place in Tucson.

For other details see:

<http://www.aps.org/units/dls/ls05/index.cfm>

<http://www.osa.org/meetings/annual/>

Register by September 21 and save up to \$100!

Frontiers in Optics 2006 /Laser Science XXII Meeting will be held at Rochester.

for upcoming details please visit:

<http://www.osa.org/meetings/topicals/>

Distinguished Traveling Lecturer (DTL) Program

This program is very successful with the number of college applications for speakers in balance with the number of speakers available. We have nine volunteers as Distinguished Travelling Lecturers leading to enough flexibility with respect to accommodating the colleges' first choices for speakers.

The list of current DTLs include:

Jim Kafka, Spectra Physics

Carlos Stroud, The Institute of Optics, University of Rochester

Lee W. Casperson, Dept. of Electrical Engineering, Portland State University

Eric Cornell, JILA, University of Colorado

Robert Byer, Department of Applied Physics, Stanford University

Marsha Lester, Department of Chemistry, University of Pennsylvania

Ron Walsworth, Harvard Smithsonian Center for Astrophysics, Harvard University

Luis A. Orozco, Physics Department, University of Maryland

Christopher Monroe, Department of Physics, University of Michigan

The DTL Committee members are:

Rainer Grobe (Chair)

Margaret Murnane

Ian Walmsley

Matt Anderson

Elizabeth McCormack

Mark Beck

New Laser Scientist Symposium

The third New Laser Scientist Symposium was held in Rochester, New York, October 15, 2004 in conjunction with the OSA Annual meeting and the Laser Science Conference. The event Chair was Kurt Gibble and the Vice-Chair was Bob Jones. The NLSC was attended by recently appointed faculty in all areas of Laser Science including Physics, Chemistry, Biophysics, and Engineering. Each participant presented a 20 minute invited talk on their work, with ample time for discussion. The NLSC provides a network for new faculty, who are often isolated as they start their careers in academia. The response from the participants was overwhelmingly positive.

DLS will continue this event in the future every other year. Nominations for fall 2006 should be forwarded to:

Prof. Bob Jones,
Physics Department,
University of Virginia
email : rri3c@virginia.edu
tel. 434-982-2189.

Symposium on Undergraduate Research

The Symposium on Undergraduate Research will again take place at the Frontiers in Optics 2005 /Laser Science XXI Meeting. It was held at our annual meeting in Rochester in October 2004 and was very successful. The talks given by these emerging young scientists were fantastic. The students were all poised, prepared, informed, articulate, and otherwise superb. The morning and afternoon sessions were presided by Carl Grossman of Swarthmore and Kiko Galvez of Colgate. They featured 14 talks from students at 11 institutions, small and large, from all over the country. Some did their research projects in various European laboratories under a program run by Martin Richardson of CREOL.

Perhaps even more significant was the overflow. We had 22 presentations in all, but only 14 could be oral because of the time slots we were allowed. Consequently, there was a poster session during the lunch period (DLS provided lunch for the students) presided by John Noé of Stony Brook that featured 8 posters from an additional 7 institutions. Because of the convention setup, the posters had to be mounted out in the hallway that connected the meeting rooms. They were therefore exposed to a wide range of the conference participants (remember, this was a large meeting because DLS meets jointly with the OSA annual meeting). The students were swamped with curious participants and there was highly animated discussion all around the foyer/hallway area. So even though most of those poster presenters initially expressed a preference for talks, in the end they were thrilled with the level of interest in their work and the exposure they gained. Many wrote back saying they were glad that their presentations turned out to be posters after all.

Harold Metcalf
Distinguished Teaching Professor - SUNY
Stony Brook, NY 11794-3800
Vice Chair, DLS Executive Committee

Student Travel Grant Program

DLS has reinstated the Student Travel Grant program. Through this program, DLS will provide partial funding (up to \$500) for a limited number of graduate students to attend and participate

in one of the Division's two conferences, QELS or Laser Science. To be eligible, an applicant must be a full-time graduate student, a member of the Division of Laser Science, and the first author and presenter of an oral or poster paper at the QELS or LS meetings. To make these funds as widely available as possible, only one student per research group is entitled to such support. Applicants should submit a letter stating their estimated need for travel funds, including a commitment of institutional support, if any, attached to a copy of the submitted abstract on which they are the first author, and a letter of nomination from a member of the DLS. This nomination letter must certify that the applicant is a full time graduate student and that the student's visa (for international students) is valid through the meeting dates. Please list daytime phone number, FAX number and e-mail address. Applicants are required to FAX or email their acceptance letter or attach it to the application upon receiving the official notice. Checks will be issued at the meetings. Hotel accommodations will be covered at up to half the conference rate for a double room. **Please submit your requests by September 12, 2005** to:

Dan Elliott, DLS Secretary/Treasurer,
Electrical Engineering Bldg.
465 Northwestern Ave.
Purdue University
West Lafayette, IN 47907-2035.

DLS Executive Committee Members:

CHAIR

Mark Raizen
(becomes Past Chair after LS-XXI)
Department of Physics
Dept of Phys, Univ of Texas, Austin TX
78712
Ph: (512) 471-4753
Fax: (512) 471-9637
email: raizen@physics.utexas.edu

CHAIR-ELECT

Harold J. Metcalf
(becomes Chair after LS-XXI)
Department of Physics
SUNY-Stony Brook
Stony Brook, NY 11794-3800
Ph: (631) 632-8185
FAX: (631) 632-8176
email: harold.metcalf@sunysb.edu

VICE CHAIR

Leo W. Hollberg
(becomes Chair-Elect after LS-XXI)

Members-at-Large of the DLS Executive Committee

Paul Corkum (to 10/05)
Steacie Inst of Molec. Sci.
Natl Res. Council
100 Sussex Dr
Ottawa ON K1A 0R6 Canada
Ph: (613) 993-7390
email: paul.corkum@nrc.ca

Carol Tanner (to 10/05)
Department of Physics
University of Notre Dame
South Bend, IN 46556-5670
Ph: (219) 631-8369
Fax: (219) 631-5952
email: carol.e.tanner.1@nd.edu

A.Marjatta Lyyra (to 10/06)
Physics Department
Temple University
Barton Hall

National Institute of Standards and
Technology
325 Broadway
Boulder, Colorado 80305
Ph: (303) 497-5770
FAX: (303) 497-7845
email hollberg@boulder.nist.gov

PAST CHAIR

John W. Hepburn
(rotates off EC after LS-XXI)
Dept. of Chemistry
Univ of British Columbia
2036 Main Mall, Rm E257
Vancouver, BC V6T 1Z1 Canada
Ph: (604) 822-2471
Fac: (604) 822-8910
email: hepburn@chem.ubc.ca

SECRETARY-TREASURER

Daniel S. Elliott
1285 Electrical Engineering
Purdue University
West Lafayette, IN 47907-1285
Ph: (765) 494-3442
Fax: (765) 494-6951
email: elliottd@purdue.edu

NEWSLETTER EDITOR

A.Marjatta Lyyra
Physics Department
Temple University
Barton Hall
Philadelphia, PA 19122
Ph: (215) 204-3776
Fax: (215) 204-5652
email: lyyra@temple.edu

DIVISIONAL APS COUNCILOR

Joseph Eberly
Dept. of Physics and Astronomy,
Univ. of Rochester,
Rochester, NY 14627
Ph: (716) 275-3288
Fax: (716) 275-8527
email: eberly@pas.rochester.edu

Philadelphia, PA 19122
Ph: (215) 204-3776
Fax: (215) 204-5652
email: lyyra@temple.edu

Alexander L. Gaeta (to 10/06)
School of Applied and Engr. Phys.
Cornell University
Ithaca, NY 14853
Ph: (607) 255-9983
Fax: (607) 255-7658
email: alex.gaeta@cornell.edu

Daniel J. Gauthier (to 10/07)
Dept. of Physics
Duke University
P.O. Box 90305
Durham, NC 27708
Ph: (919) 660-2511
FAX: (919) 660-2525
email: gauthier@phy.duke.edu

Luis A. Orozco (to 10/07)
Dept. of Physics
Univ. of Maryland
College Park, MD 20742-4111
Ph: (301) 405-9740
email: lorozco@physics.umd.edu

Other committees:

DLS Nomination Committee:

Chair, Paul Houston, Department of Chemistry, Cornell University

DLS Fellowship Committee

Chair, Leo W. Hollberg, DLS Executive Committee Vice Chair.

The Schawlow Prize Committee

Chair, William C. Lineberger, JILA, University of Colorado

**APS/DLS Representatives on the Joint Council for Quantum Electronics
(JCQE)**

Wendell T. Hill, University of Maryland

Winthrop W. Smith, University of Connecticut

Henry Kapteyn, JILA, University of Colorado

Election:

There will be an on-line update and mass email to all DLS members about the election as soon as the nominations are completed.

Newsletter Editor

[Prof. A. M. Lyyra](#), Temple University