



## July 1995 Newsletter

### Chairman's Message July 1995

Dear Colleagues,

By now you should have received the final announcement for the ILS-XI meeting in Portland. A quick glance at the program will show you that Jag Shah and his program committee have prepared an outstanding program for us! This is our meeting, and it is essential that we have a broad representation of our members, including invited speakers, contributed presenters and students, participating in the events.

In addition to attending the meeting, I hope that you will inform us by phone or e-mail of topics that you would like to see covered in future ILS meetings. In addition to scientific subjects, this could include possible discussions involving science policy, job opportunities, etc. The objective is to make this a "must" meeting for all of us. Send your thoughts and comments as soon as possible, for the program committee will be making decisions concerning the 1996 meeting during the time that we are in Portland!

This newsletter includes the ballot for Chair-Elect and for two members of our Executive Committee. The nominating committee, consisting of Tony Heinz, Ken Kuhlander, and Marsha Lester has assembled an outstanding slate of candidates for office. Please read the CVs and candidates statements carefully, and then be sure to cast your ballot! The results will be announced at the LSTG business meeting in Portland.

Finally, I note that this is my last message as Chair. At the conclusion of ILS-XI, Pat Dehmer will become our Chair. Over the past two years, I have benefited enormously from the advice and wisdom of many of you, and I know that you will give Pat the same. Specifically, I would like to thank publicly several members of the Topical group who put in enormous amounts of work without being fully recognized for their contributions. Our Secretary/Treasurer John Miller is truly the glue and institutional memory which holds this organization together. When things happen smoothly and on schedule, it is because of John. When they fail to happen in this fashion, it is invariably the fault of one of the rest of us! Pity.

Finally, those individuals who have taken on the responsibility of arranging the ILS program have a four year cycle of duties and have worked enormously hard on our behalf. The success of the ILS meeting is truly in their hands. At the Portland meeting, these people include Nasser

Peyghambarian, Conference Chair; Marsha Lester, Conference Vice Chair; Jag Shah, Program Chair; and John Weiner, Program Vice-Chair. To all of you, my deepest thanks!

I look forward to seeing you in Portland in September.

### **Carl Lineberger ILS-XI**

The 11th Interdisciplinary Laser Science Meeting (ILS-XI) the annual meeting of the Laser Science Topical Group, will be held in Portland, Oregon, September 10-15, 1995. The 1995 ILS Meeting will be held in conjunction with the Annual Meeting of the Optical Society of America. The 1995 ILS Conference Committee is comprised of Nasser Peyghambarian, Conference Chair; Marsha Lester, Conference Vice-Chair; Jagdeep Shah, Program Chair; and John Weiner, Program Vice-Chair.

The ILS Meeting consists of symposia in five basic areas: Physics of Laser Sources (Margaret Murnane, Chair), Lasers in Physics (Paul Corkum, Chair), Lasers in Chemistry (Robert Levis, Chair), Laser Applications (Michael Feld, Chair), and Nonlinear Optics and Ultrafast Phenomena (Ted Norris, Chair). In 1995, symposia will highlight the following topics: Environmental Studies, Laser Materials Processing, Coherent Phenomena, Time-Resolved Infrared Spectroscopy, Ultrafast Probes with Extremely High Spatial Resolution, Manipulation of Atoms by Light, High Field Laser Matter Interactions, Microcavity Lasers, Advances in Solid-State Lasers, and Advances in Ultrafast Lasers. Many of the ILS symposia are jointly sponsored by OSA or cosponsored by other divisions of the American Physical Society: the Division of Atomic, Molecular, and Optical Physics; the Division of Chemical Physics; and the Division of Condensed Matter Physics.

"Ultrafast Science and Technology: How fast? Which Way?" is the subject of the ILS-XI plenary talk by Erich P. Ippen of the Massachusetts Institute of Technology. This talk will highlight exciting new developments in the generation of ultrashort pulses and their applications to new science and technology, and discuss probable future directions of the field. The 1995 Schawlow Prize will be awarded to Dr. R. E. Slusher of AT&T Bell Laboratories at the plenary session. The Schawlow lecture by Dr. Slusher is scheduled for 6 p.m. on Tuesday, September 12.

- A new feature of this year's ILS program is **Critical Review talks** each of which will review the recent progress in an exciting current area of research, discuss the new insights and understanding achieved, critically examine the outstanding issues, and provide the speakers vision of the direction of the field. The four critical review talks organized for ILS-XI cover diverse research fields: "Laser studies of ultrafast chemical dynamics in liquids and at interfaces" by Paul Barbara (Univ. of Minnesota), "Optical pathology and diagnosis of disease" by Michael Feld (Massachusetts Institute of Technology). "Light force manipulation of mesoscopic objects" by Mara Prentiss (Harvard) and "Optically-induced quantum-coherences in semiconductors" by Duncan Steel (Univ. of Michigan).

- The program is augmented by a number of symposia covering a wide range of research activities in different subfields of lasers, laser interactions with matter and laser applications. Many of these symposia are organized jointly with OSA. Symposia in *Physics of Laser Sources* highlight such diverse topics as limits of ultrashort pulse generation, semiconductor quantum optics, and X-ray lasers. Symposia in *Nonlinear Optics and Ultrafast Phenomena* highlight ultrafast spectroscopy of condensed matter and semiconductor nanostructures, nonlinear optical spectroscopy of interfaces, photoemission spectroscopy with lasers and nonlinear optics of the vacuum. Symposia in *Lasers in Physics* feature Atoms and Molecules in Intense Fields, Multiphoton Ionization, and coherent control. Symposia in *Lasers in Chemistry* highlight Molecular Rydberg spectroscopy (ZEKE), Rydberg atom-molecule collisions and Rydberg atoms, spectroscopy of molecules and semiconductor nanostructures with extremely high spatial resolution. Symposia in *Laser Applications* emphasize the exciting use of lasers in biology and medicine, both as a diagnostic and manipulative tool. In addition, there will be a series of symposia in the important practical area of the role of lasers as sensors and in chemical nanoanalysis.

The 1995 ILS symposia and invited speakers are listed in the Call for Papers for the OSA Annual Meeting and ILS-XI, which has been sent to all LSTG members. Additional copies of the Call for Papers can be obtained from the OSA Meetings Department:

Lorenda Wieder, Meetings Manager

Optical Society of America

2010 Massachusetts Avenue, NW

Washington, DC 20036-1023

Phone: (202) 223-0920

Fax: (202) 416-6100

e-mail: lwiede@osa.org

## **NOTICE TO LSTG AUTHORS AND EDITORS**

The Executive Committee has authorized a new policy of providing notices in the LSTG newsletter about new books by LSTG members as a two-way benefit of LSTG membership. Both LSTG authors and the LSTG community should benefit from widespread information about new books related to LSTG interest areas. All LSTG members who are new authors (copyright 1994 or 1995 and later) are invited to send a letter or fax showing the copyright page, the title page, table of contents, and preface of their new book to the LSTG Newsletter Editor. The author is also invited to write one or two short sentences about the purpose of the new book, and these will appear with the notice.

This is an experiment that will be evaluated after a suitable period. The Executive Committee will be pleased to receive comments and suggestions about it. Comments can be addressed to Roger Becker, the Newsletter Editor, or to John C. Miller, LSTG Secretary-Treasurer. If this service is valued by the membership, the same idea might be extended to new software releases intended for instructional purposes, and perhaps other similar educational aids.

## **NEW BOOK**

LSTG member Richard N. Zare and colleagues Bertrand H. Spencer, Dwight S. Springer, and Matthew P. Jacobson have just published a new book entitled "Laser Experiments for Beginners" (University Science Books, 55D Gate Five Road Sausalito, CA 94965; \$26.50). The book, which is designed for use with high school or beginning college courses describes thirty-two experiments (or demonstrations) which require only an inexpensive He-Ne laser and simple optics (perhaps an OSA Optics Kit). The experiments cover various topics in light scattering, diffraction, refraction, spectroscopy, and photochemistry. A brief section on safety and chemical disposal is also useful.

## **RICHART SLUSHER WINS SCHAWLOW PRIZE**

Richard E. Slusher of AT&T Bell Laboratories is the winner of the 1995 Arthur L. Schawlow prize for his seminal contributions to a broad range of optical physics; nonlinear optics in semiconductors, leading to the spin flip laser; CO<sub>2</sub> laser diagnostics of fusion plasmas; microcavity lasers; and particularly, the experimental realization of squeezed light. Dr. Slusher is head of the Solid State and Quantum Physics Research Department at AT&T Bell Laboratories in Murray Hill, New Jersey. He joined the technical staff in the research area at this laboratory after completion of his Ph.D. degree in physics from the University of California, Berkeley, California, in 1965. His initial research directions were in fundamental studies of single particle and collective excitations in solids, liquids and gases using laser scattering techniques. These studies led to observations of spin-flip Raman scattering and four-wave mixing in narrow bandgap semiconductors using the CO<sub>2</sub> laser. Raman scattering in the visible region was used to study collective motion in the quantum solids He<sub>3</sub> and He<sub>4</sub>. In the field of quantum optics, he and his collaborators demonstrated photon echoes in gases and performed the first definitive experiments demonstrating self-induced transparency. From 1973 to 1984 a number of pioneering studies of wave propagation and turbulence in plasmas were based on a technique using small angle CO<sub>2</sub> laser scattering and heterodyne detection which he developed. Plasma turbulence was studied in positive column discharges and in toroidal Tokamak plasmas. A key finding of these experiments was a region of strong plasma turbulence near the edge of toroidal plasmas which strongly influences containment, transport and wave propagation. Laser annealing studies of semiconductor surfaces were also made in this period.

In 1977 Dr. Slusher was appointed head of the Interface Electronics Research Department in the Solid State Electronics Laboratory at AT&T Bell Laboratories. In this capacity he managed groups responsible for fundamental studies of high-speed Josephson devices, novel silicon devices and small-scale electron beam lithography. In 1982 he was appointed to his present

position and continues to manage a group involved primarily in fundamental research on new light sources, spectroscopy and quantum optics.

In 1984 Dr. Slusher's research interests returned to quantum optics and fundamental noise limits in quantum measurements. He and his colleagues were the first to demonstrate squeezed light noise reduction below the standard quantum limit. They used four-wave mixing in an atomic sodium beam. He is presently interested in demonstrating squeezed light effects in pulsed light systems and the application of these new quantum light sources in precision interferometric measurement, spectroscopy, optical switching dynamics and optical communication.

Dr. Slusher holds four patents (and one pending) on optical devices and processes. He has authored nearly 100 scientific publications. He is a Fellow of the American Physical Society. He has given many lectures at universities and industrial laboratories and spent one year using an innovative technique developed at the University of California, Berkeley, to teach algebra to students in inner-city schools at the fifth-grade level.

Slusher found his work on squeezed light to be the most fun. "I want to emphasize that in large part the fun was due to interacting with colleagues with a high level of skill covering a broad range of subjects. It is fun to collaborate with people who are really good, especially Bernard Yerke, who is an excellent theoretician. I was stuck and didn't know where to look in frequency space and Berney came back in three days with 200 pages of perfect algebra. I turned on the spectrum analyzer and boom, there it was." Another thing Slusher finds interesting about his work is the variety it brings. "I have changed major subject areas five times." He is now turning his attention to applications of microcavities to displays. This work follows from the squeezed light experiment in the sense that the number of degrees of freedom available for the light are greatly restricted.

## **OSA/ILS '95 ANNUAL MEETING SYMPOSIA**

10-15 September, Portland, Oregon

### **Laser Applications**

Storage and Processing of Time-Domain Optical Data

Lasers and Spectroscopy for Medical Diagnosis

Spectroscopy for Sensors and Chemical Analysis:

1. Ultrasensitive Fluorescence Detection and Spectroscopy
2. Atmospheric Sensing
3. Probes for Chemical Contamination-Lif and other Linear Techniques
4. Probes for Chemical Contamination-Libs and Other Nonlinear Techniques

5. Plasma Diagnostics Fundamental Studies

6. Plasma Diagnostics Applications

### **Lasers in Biology**

Lasers for Light Force Manipulation and Microsurgery

Photon Migration Spectroscopy for Physiological Monitoring and Functional Imaging

### **Lasers in Chemistry**

Molecular Rydberg Spectroscopy - ZEKE

Rydberg Atom-Molecule Collisions

Novel Spatially-Resolved Spectroscopies of Molecules and Nanostructures

Multiple Resonance Spectroscopy

Laser-Surface Interactions

Rydberg Atoms

### **Lasers in Physics**

Quantum Control

Intense Field Coherent Control

Spectroscopy of Nanostructures

Multiphoton Ionization of Large Molecules

Observing Dynamics with Time Dependent Diffraction

Approaches to Precision Measurement

Atoms and Molecules in Intense Fields

### **Nonlinear Optics and Ultrafast Phenomena**

Complex Space-Time Processing with Holography

Advances in the Spectroscopy of Quantum-Confined Structures

Nonlinear Optical Spectroscopy of Buried Solid Interfaces

Nonlinear Optics of the Vacuum: Fundamentals and Applications

Photoemission with Lasers

Femtosecond Dynamics of Condensed Matter

**Physics of Laser Sources**

Semiconductor Quantum Optics

Limits of Ultrashort Pulse Generation

Solid State Materials for Ultraviolet Lasers and Amplifiers

Novel Semiconductor Lasers

X-Ray Lasers

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**Deadlines**

Schawlow Prize Nominations: 1 September 1995.

CLEO '96 Abstracts: 27 November 1995

Distinguished Lecturer Applications (Fall 1996): 19 January 1996.

1996 Undergraduate Summer Research Applications: 10 February 1996

LSTG Student Travel Grants for CLEO/QELS: 8 March 1996.

APS Fellow Nominations: 1 April 1996

ILS-XI Abstracts: 24 April 1996.

Distinguished Lecturer Applications (Spring 1997): 20 June 1996.

ILS-XI Student Travel Grants: 5 July 1996.

**ILS PROGRAM COMMITTEE**

LASER APPLICATIONS

Michael Field, Massachusetts Institute of Technology, Chair

Jay Jeffries, SRI International

Michael Heaven, Emory University

Richard Keller, Los Alamos National Laboratory

Andrzej Miziolek, U.S. Army Research Laboratory

Thomas E. Mossberg, University of Oregon

Michael Ramsey, Oak Ridge National Laboratory

Rebecca Richards-Kortum, University of Texas

Christoph Schmidt, University of Michigan

Bruce Tromberg, University of California-Irvine

#### LASERS IN CHEMISTRY

Robert Levis, Wayne State University, Chair

David Awschalom, University of California-Santa Barbara

H. S. Carman, Oak Ridge National Laboratory

H. L. Dai, University of Pennsylvania

Thomas Gallagher, University of Virginia

John Miller, Oak Ridge National Laboratory

Hanna Reisler, University of Southern California

#### LASERS IN PHYSICS

Paul Corkum, National Research Council Canada, Chair

Andre Bandauk, Universite de Sherbrooke, Canada

Christophar P. J. Barty, University of California-San Diego

Daniel Elliott, Purdue University

Kenneth Kulander, Lawrence Livermore National Laboratory



Andre Madej, National Research Council, Canada

Nicholas Winograd, Pennsylvania State University

Jeff Young, University of British Columbia, Canada

#### NONLINEAR OPTICS AND ULTRAFAST PHENOMENA

Theodore Norris, University of Michigan, Chair

Joseph Eberly, University of Rochester

Y. Fainman, University of California-San Diego

Richard Haight, IBM T. J. Watson Research Center

Stephan Koch, Phillips Universitaet Marburg, Germany

Arjun Yodh, University of Pennsylvania

#### PHYSICS OF LASER SOURCES

Margaret Murnane, Washington State University, Chair

John E. Bowers, University of California-Santa Barbara

Paul Dapkus, University of Southern California

Roger Falcone, University of California-Berkeley

Atac Imamoglu, University of California-Santa Barbara

Henry Kapteyn, Washington State University

Gregory Quarles, Lightning Optical Corporation

#### **EXECUTIVE COMMITTEE OF THE LASER SCIENCE TOPICAL GROUP**

W. Carl Lineberger, University of Colorado, JILA, Chair

Patricia M. Dehmer, Argonne National Laboratory, Chair-Elect

Joseph Eberly, University of Rochester, Vice-Chair

John C. Miller, Oak Ridge National Laboratory, Secretary-Treasurer

Daniel R. Grischkowsky, Oklahoma State University, Past-Chair

William Cooke, USC; Wendel Hill, University of Maryland; Anthony M. Johnson, New Jersey Institute of Technology; Paul Kieber, University of Iowa; Carl Wieman, University of Colorado, JILA; John Weiner, University of Maryland, Members at Large.

## **TRAVELING LECTURER PROGRAM**

The LSTG membership is invited to nominate candidates for serving as the LSTG Traveling Lecturers for 1996/98. Please send names and any supporting material on the topical interest of their work, ambassadorial qualities, or public lectures to LSTG secretary treasurer John Miller. Selection will be made by the LSTG Executive Committee and the LSTG-DTL committee.

## **MINUTES OF THE EXECUTIVE COMMITTEE MEETING OF THE LASER SCIENCE TOPICAL GROUP**

**MAY 23, 1995**

### **BALTIMORE, MARYLAND**

The meeting was called to order by the LSTG Chair, Carl Lineberger, at 12:00 noon in the Frederick Room of the Baltimore Hyatt Hotel. The meeting was held in conjunction with the CLEO/QELS conference. Other Executive Committee members present were Chair-Elect Patricia Dehmer, Vice-Chair Joseph Eberly, Secretary-Treasurer John Miller, Past-Chair Dan Grischkowsky, and Members-at-Large Carl Weiman, Anthony Johnson, William Cooke, John Weiner, and Wendell Hill, III (Paul Kleiber was absent). Thomas McIlrath and William Stwalley, representing the Joint Council on Quantum Electronics were present as nonvoting ex officio members of the Executive Committee, as were Marsha Lester and Jaqdeep Shah, representing the ILS Conference Committee. Katherine Gebbie, representing DAMOP, was present as an invited guest. Jin-Joo Song, Chair of the Graduate Student Travel Grant Program, was present. Judy Franz and Barrie Rippen were present on behalf of the American Physical Society.

### **Membership**

Grischkowsky reported on the current membership statistics following his year-long recruiting effort. The official APS membership numbers show LSTG with 1,385 members or 3.32 percent as of December 1994. The current LSTG membership is approximately 1,421. Lineberger asked Grischkowsky to continue his efforts for an additional year to ensure that the LSTG achieves Division status (requiring 3 percent of APS membership for two consecutive years). Franz pointed out that the APS is in the midst of a recruiting drive and, consequently, more LSTG members may be required to reach the three percent level.

### **Finances**

Miller presented the third-quarter financial statement. Some discussion ensued on the responsibility to use more financial resources on behalf of the memberships, as we are a relatively prosperous group.

### **Schawlow Prize**

Lineberger reported the 1995 winner- Richard Slusher of ATT Bell Labs-and read the citation. The prize will be awarded at the ILS-XI conference. The prize committee, headed by Thomas Gallagher, included James Bergquist, John Hall, Eli Yablonovitch, and Marshall Lapp.

### **Fellowship Committee**

Eberly reported that six new fellow applications were available for consideration. There was discussion concerning deadlines, nomination committees, and use of e-mail solicitation.

### **Newsletter**

Miller thanked contributors and asked for continued cooperation and attention to deadlines.

### **Distinguished Traveling Lecture (DTL) Program**

Miller summarized a written report submitted by Neal Abraham, Chair of the DTL Program (other members are Johnson and Weiner). In 1994, six visits were made, averaging ~ \$1,550 per trip (honorarium plus expenses), and in 1995, three visits to date have averaged \$1,530 per trip. The program is judged overall to be very successful, but some questions about length of stay and size of the host school have arisen. A slate of 27 potential new DTL speakers was presented, and the Executive Committee was asked to provide comments on the expertise, prominence, and speaking ability of the candidates.

### **Undergraduate Summer Research Program**

Miller summarized the report provided by Committee Chair Geraldine Richmond (other members are Neal Abraham and Anthony Johnson). Eight students were chosen from a field of 19 candidates. The number of nominees was up significantly this year because of a special mailing to all LSTG members a month before the application deadline. This mailing, or an e-mail version, should continue in the future.

### **Student Travel Grants**

Jin-Joo Song, Committee Chair (other members are Isaac Abella, Namomi Hallas, and Steve Leone) reported that six awards were made following receipt of eight requests. One was declined because of the limit on one travel grant per research group and one student's paper was not accepted by the conference. More applications are expected for the ILS meeting. It was pointed out that DAMOP had subsidized 65 students for its annual meeting, but that students were not required to present a paper. Their program, funded by an NSF grant, provided a

smaller subsidy per student. It was agreed that the LSTG should work harder to attract students to its meetings.

### **Joint Council for Quantum Electronics**

Tom McIlrath (other LSTG representatives are Bill Stwalley and Roger Falcone) reported on a number of issues relevant to the LSTG. The OSA is considering major changes to the annual meeting which would, of course, impact the co-located LSTG meeting. In order to reduce the large number of parallel sessions, the conference would consider much larger and more attractive poster sessions. The oral sessions would be reserved for plenary and overview type presentations. The ILS would, of course, be free to preserve its usual format, but the competing parallel sessions would now be more enticing. Decisions have not been made, and discussions are continuing. The second change in OSA meetings would be a major thrust toward applications. Lineberger asked that Dehmer and Weiner be invited to relevant meetings in order to represent the LSTG's interests.

### **Interdisciplinary Laser Science Conference**

Jag Shah reported for Nasser Peyghambarian on the ILS-XI conference. Of fifteen funding proposals sent out, only two were positive-NSF for \$5K and Lambda Physik for \$500. Several previous faithful funders declined this year. Other preparations are in good shape. Marsha Lester reported briefly on the ILS-XII Rochester meeting. With declining financial support for the conference, it was decided to focus fund raising on student travel and participation and to use LSTG funds for paying foreign speakers.

### **Realignment of ILS/LSTG Organization**

Dehmer and Lineberger presented a proposal to restructure and merge the ILS and LSTG leadership over several conference cycles. The proposal was prepared in response to previous discussions at both ILS and LSTG committee meetings on the need to further integrate the responsibilities of the two organizations. Much discussion ensued comparing the "OSA model" and the "APS model" of conference organization. No votes were taken, but the consensus seemed to be to find other ways to accomplish the desirable goals and to leave the present "dual structure" intact.

### **Committee Appointments**

Lineberger announced the composition of the nominating committee comprised of Tony Heinz, Marsha Lester, and Ken Kulander. Their charge is to recommend two candidates for Vice-Chair (emphasis on optics) and four for Executive Committee Members-at-large.

### **Other Business**

Judy Franz, APS Executive Officer, and Barrie Ripin, Associate Executive Officer, discussed several APS issues. In particular, use of e-mail notices is now possible, and several examples

were noted. Also, the development and use of the World Wide Web APS Home Page for posting LSTG newsletters and announcements was discussed.

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Send your letters and suggestions (e.g., calendar entries) to Roger Becker, LSTG Newsletter Editor, KL545, Research Institute, University of Dayton, Dayton, Ohio 45469-0150. 513-229-3964; fax 513229-3433; email beckerj@udri.udayton.edu

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## **ACTIVITIES OF THE LSTG DISTINGUISHED TRAVELING LECTURER PROGRAM**

The DTL program of the LSTG has sponsored or approved 25 campus visits and heads into its fourth year with the process now well underway for the selection of the third group of lecturers to serve for the 1996-98 period.

Deadlines for applications have been set for two times each year, in January and June, so that proposals can be reviewed over the following few months. Awards are made about six months in advance of the proposed visits. About half of the applications have been approved. The selection committee has placed a high premium on applications which maximize interaction with students and faculty members through seminars and class visits as well as informal gatherings. The visits are viewed as far more than the sponsorship of a colloquium speaker and applications which propose a full two-day schedule have fared more successfully. Preference is also given to locations which do not have resources for regular visits by distinguished speakers and which are not nearby to larger places where they could visit to hear such speakers.

Sites for visits over the last two years have included Morehead State University, MN (and Concordia College, MN and North Dakota State University, ND); Allegheny College, PA; Bucknell University, PA ; Lewis and Clark College, OR; Wash. St. University, WA; University of Nebraska, Omaha; U. Wyoming; and Swarthmore College PA. Sites approved for visits in the coming year include: Lawrence U., WI; Bates College, ME; Louisiana Tech University; Union College, NY; University of Wisconsin, River Falls; and Hamline University, WI.

Some visits have worked well, others have not. In some cases the sites treated the visit as just a colloquium speaker, and the visitor was left with a small audience or unplanned activities for much of the required 2-day visit. In other cases the planning was excellent, the attendance and participation was inspiring and the two-day visit was fully used. In response to the concerns expressed about some of the earlier visits, applicants and hosts are urged to carefully plan the schedules, to develop plans to involve the DTL's in classes, to outline specific plans for interaction with students, to arrange for good publicity and to follow through on planning. The proposals are carefully screened by the selection committee. The later visits have been better. The response to almost all visits by students and faculty has been enthusiastic support for the program.

LSTG pays the honorarium and the airfare, the host institution pays local travel and living expenses. The host institution is responsible for publicity and should endeavor to involve faculty members and students of allied departments in the program of the visit and to notify

members of the local community and neighboring institutions of the public lecture. Applicants must be members of LSTG. Each visit is to include a general public lecture and an additional talk directed more specifically to science students and faculty members in the host department(s). We are getting about 710 applications per cycle and can award 3-4.

## **SUMMER GRANT**

The winners of the 1995 summer research grants, their advisors, and their schools are respectively: Matt Lakin, Janice M. Hicks, Georgetown University; Geoffrey Park, Carl H. Grossman, Swarthmore College; David Robertson, John R. Brandenberger, Lawrence University; Valerie Zabel, Juan Rodriguea, Centenary College of Louisiana; Jeb Adams, Jeffrey A. Bartz, University of Redlands; Jared Wilson, Ron C. Estler, Fort Lewis College; Paul Mugabi, Timothy N. Good, Gettysburg College; Kyle Y. Kung, Nancy E. Levinger, Colorado State University.

## **CALENDAR**

**Nonlinear Optics and Lasers**, 30 Jul to 4 Aug 1995, Gordon Research Conferences, Tilton School, Tilton, NH.

**Semiconductor Lasers: Advanced Devices and Applications Topical Meeting**, 21-23 Aug 1995, Keystone, CO. Sponsored by: OSA/IEEE-LEOS. 202-223-0920; fax 202-416-6100. Technical meeting, tabletop exhibit.

**Summer Topical Meetings: Flat Panel Display Technology, Technologies for a Global Information Infrastructure, ICs for New Age Lightwave Communication, and RF Optoelectronics**, 7-11 Aug 1995, Keystone, CO. Sponsored by OSA/IEEE-LEOS, Technical meeting, tabletop exhibit.

**Semiconductor Lasers: Advanced Devices and Applications Topical Meeting**, 21-23 Aug 1995, Keystone, CO. Sponsored by OSA/IEEE-LEOS, Technical meeting, tabletop exhibit.

**European Optical Society Annual Meeting**, 23-25 August, 1995, Prague, Czech Republic. Contact: Françoise Chavel, B.P. 147, 91403 ORSAY cedex, France. ++33-1-69853592; fax 33169853565; e-mail francoise.chavel@iota.u-psud.fr. Technical meeting.

**Photosensitivity and Quadratic Nonlinearity in Glass Waveguides: Fundamentals and Applications Topical Meeting**, 9-11 Sep 1995, Portland, OR. Collocated with the OSA Annual Meeting, the interdisciplinary Laser Science Conference (ILS-XI), and the Organic Thin Films Topical Meeting. Technical meeting, tabletop exhibit.

**2nd Iberoamerican Meeting on Optics**, 18-22 Sep 1995, Guanajuato, Mexico. Contact: Dr. Sofia E. Acosta Ortiz, Centro de Investigaciones en Optica, A.C., Loma del Pocito s/n, Fracc. Lomas del Campestre, 37000 Lenon, Gto. Mexico, 47/175823; fax 47/18-46-25; email sacosta@vmtelcleo.itesm.mx. OSA is a cooperating society. Technical meeting.

**OSA 1995 Annual Meeting**, 10-15 Sep 1995, Portland, OR. Collocated with ILS-XI and the OSA Engineering "How-To" Program. Technical meeting, tutorials, engineering tutorials, engineering "How-To" program, short courses, technical exhibit.

**Interdisciplinary Laser Science Meeting (ILSXI)**, 10-15 Sep 1995, Portland, OR. Collocated with the OSA Annual Meeting and the OSA Optical Engineering "How-To" Program. Sponsored by APS-LSTG in cooperation with OSA. Technical meeting.

**Organic Thin Films Topical Meeting**, 11-14 Sep 1995, Portland, OR. Co-located with the OSA Annual Meeting, the interdisciplinary Laser Science Conference (ILS-XI), and the Photosensitivity and Quadratic Nonlinearity in Glass Waveguides: Fundamentals and Applications Topical Meeting. Sponsored by: ACS-POLY/ACS-PMSE/OSA. Technical meeting.

**Adaptive Optics**, 2-6 Oct 1995, Garching, Germany, contact OSA, 2010 Massachusetts Ave., N.W., Washington, DC 20036, USA, (202) 2230920, fax (202) 4166100

**Annual Symposium on Optical Materials for High Power Lasers**, 30 Oct - 1 Nov 1995, National Institute of Standards and Technology, Abstract Deadline: August 11, 1995. Contact Donna Wilson at 407-658-6834; fax 408-658-3966. e-mail: donna@creol.ucf.edu.

**International Conference on Lasers '95**, 48 Dec 1995, Charleston, SC. 703-642-5835; fax 703-642-5838.

**Advanced Solid-State Lasers Topical Meeting**, 31 Jan-3 Feb 1996, San Francisco, CA. Sponsored by OSA/IEEE-LEOS. Technical meeting, tabletop exhibit.

**Conference on Lasers and Electro-Optics (CLEO '96)**, 2-7 Jun 1996, Anaheim, CA. Sponsored by OSA/IEEE-LEOS. Technical meeting, short courses, technical exhibit.

## **Vice-Chair**

Paul L. Houston, Professor of Chemistry, Cornell University. Ph.D. 1973, Massachusetts Institute of Technology, B.A. 1969, Yale University. **Research Interests:** Applications of lasers to chemical problems, particularly photodissociation reactions, bimolecular reactions, and gas-solid interactions. **Professional Activities:** Member, Field of Applied Physics, Cornell University, 1980-present; Member, Materials Science Center, Cornell University, 1985-present; Visiting Scientist, Max-Planck Institute for Quantum Optics, 1982; Visiting Professor, Columbia University, 1986, 1987; Visiting Scientist, Institute for Molecular Science, Okazaki, Japan, 1989; ACS Secretary Treasurer, Cornell Section, 1979-1981; NRC Advisory Committee to the Army Research Office, 1981-1984; Sigma Xi, Cornell Chapter, Vice President 1984-1985, President 1985-1986; Co-Chairman, Gordon Research Conference on Molecular Energy Transfer, 1985; APS Division of Chemical Physics reporter for Physics News in 198x, 1986-1991; ACS Division of Physical Chemistry Alternate Councilor 1988-1991; Sigma Xi Lectureships Committee, 1987-1991; International Laser Science Organizing Committee 1990-

1994, Program Vice-Chair 1991, Program Chair 1992, Conference Vice-Chair 1993, Chairman 1994; Quantum Electronics Laser Science Organizing Committee 1990-1991; External Review Committee, Columbia University, Department of Chemistry, April 1991; ACS Committee on Professional Training, Visiting Associate, 1989-1994; NAS/NRC Planning Committee on Free

Electron Lasers, 1993-1994; Associated Universities, Inc., Brookhaven Visiting Committee, 1994-1999; DOE Review Committee for CEBAF Free Electron Laser Proposal, May 11-12, 1995; Laser Science Optical Group Fellowship Committee, 1995; Quantum Electronics and Laser Science Program Committee, 1995. **Professional Affiliations:** American Physical Society (Fellow), Sigma Xi, American Chemical Society, American Association for the Advancement of Science, New York Academy of Sciences, Optical Society of

America. **Honors and Awards:** Alfred P. Sloan Research Fellow, 1979-1981; Camille and Henry Dreyfus Teacher-Scholar Award, 1980; J. Simon Guggenheim Fellow, 1986-1987; Advisory Board, The Journal of Physical Chemistry, 1988-1990; Editorial Board, The Journal of Chemical Physics, 1989-1991; Senior Editor, The Journal of Physical Chemistry, 1991-present.

**Candidate's statement:** The change to Divisional status offers the LSTG an increased opportunity to represent laser science within both the APS and the larger scientific community. At the same time, it carries a responsibility to work even harder through our programs and membership to keep support for laser science robust. If elected, I would accept the challenge both to be an effective representative for our field and to strengthen the programs that have successfully represented our field and attracted new members to our Division, including the Undergraduate Research Program, the Distinguished Traveling Lecturer Program, the Student Travel Award Program, and, of course, the Interdisciplinary Laser Science Conference. It has now been several years since a member of the ILS conference committee has served subsequently as LSTG Vice-Chair or Chair. As a former ILS conference chair, I would work to reinforce the links between the Executive Committee and the ILS organizing committee. In addition, increased cooperation with other divisions (e.g., DCP, DAMOP) and other organizations (e.g., OSA, NSF, ACS, AAAS) should and would be pursued, both to emphasize the commonality of our interests and to address the major concerns of our community, including issues of employment, research support, education, and public policy.

Carl E. Wieman, Professor, Department of Physics and Fellow of JILA, University of Colorado, Boulder, Colorado. Ph.D., 1977, Stanford University. **Research Interests:** High resolution laser spectroscopy, parity nonconservation in atoms, laser cooling and trapping of neutral atoms and very low energy atomic collisions. **Other scientific activities:** DAMOP Program Committee, 1994-95; Davisson Germer Prize Committee, 1995; JILA Chair - 1994, 1993. CoChair, International Quantum Electronic Conference, 1994; CoChair, 14th International Conference on Atomic Physics, 1994; LSTG Executive Steering Committee, 1993-95; NRC Review Panel for Air Force HEDM Program, 1991-95; Broida Prize Selection Committee, 1992; Selection Panel for Lawrence Prize in Physics, 1991; DAMOP Review Panel, 1991; LSTG Steering Committee, 1989-90; LSTG Nominating Committee, 1990; organized Telluride Workshop on Laser Trapping and Cooling, 1990; BESAC Subcommittee on Physics (DOE), 1989-90. **Professional affiliations and distinctions:** Optical Society of



America and American Physical Society. Guggenheim Fellowship, 1990-91, Fellow of APS, E. O. Lawrence Prize in Physics, 1993 (DOE); Davisson Germer Award, 1994 (APS), Einstein Medal for Laser Sciences, 1995 and member of the National Academy of Sciences, 1995.

**Candidate's statement:** As a member of the LSTG executive committee for the past 2 years and for 1990 and 91 I have watched and participated in the evolution and development of LSTG. The LSTG, now soon to become a division, brings together a group of scientists who share common interests which cut across previously defined disciplinary boundaries. We are fortunate that this area of common interest encompasses so much vibrant and exciting science. I see two primary tasks for the leadership of the LSTG in the coming years. The first is to continue with the ongoing task of defining what and who we are. This includes how our members can fit together and interact in the most mutually beneficial ways, what groups are not currently part of LSTG which we might want to recruit, and how we can most effectively interact with the other institutionalized groups which share interests with some of our members such as DAMOP, DCP, OSA, etc. The second task is to spend money, or more precisely, to spend money wisely. Unlike practically every other institution in existence, we are in the remarkable situation that our expenditures have never kept up with our income. We need to find more ways to use this money to benefit our members and our field. It is important that we take advantage of this unusual opportunity.

### **Executive Committee**

Philippe Guyot-Sionnest, Assistant Professor, Departments of Chemistry and Physics, Jam