



September 2003 Newsletter

In this Issue

Chair's Message

ILS-XIX Meeting

New APS Award Winners

Distinguished Traveling Lecturer (DTL) Program

New APS Fellows

DLS Committee Members

Calendar

Elections

Contact Editor

Chair's Message, September 2003

As the current chair of DLS I would especially like to thank our Past Chair, Tony Heinz (Columbia University), for his efforts on behalf of managing the Division last year, and our Chair-Elect John Hepburn (Univ. of British Columbia), who has served for two years as Chair of our Fellowship Committee which screens nominations for new Fellows of the APS. A key officer is our Secretary-Treasurer, Dan Elliott (Purdue University), who oversees the finances of the Division, manages the Website in cooperation with APS, keeps Division records, conducts the election and many other things. Mark Raizen (University of Texas-Austin) was elected Vice-Chair, and will become Chair-Elect after this Fall's Annual Meeting in Tucson in October. We also welcome the other recently-elected members of the Executive Committee: Joe Eberly (University of Rochester), who is DLS Division Councillor and who sits on the APS Council, and Members-at-Large Paul Corkum (NRC, Ottawa) and Carol Tanner (Univ. of Notre Dame).

We have two very time sensitive items in this Newsletter: 1) the imminent on-line election of new DLS Officers for 2003-2004; and 2) the upcoming Annual Meeting of the APS Division at the Laser Science XIX Conference, which will be co-located with the Annual Meeting of the Optical Society of America October 5-9, 2003, in Tucson, Arizona at the Hilton Tucson El Conquistador hotel. Please note the deadlines below, especially the Postdeadline Paper Submission Deadline. Postdeadline papers are timely and new results are definitely encouraged. Information about the meeting can

be found at the site <http://www.osa.org/meetings/annual/> along with the program. There are some special DLS-sponsored events: at the Awards Ceremony on Tuesday morning we will present this year's APS Schawlow Prize in Laser Science to Prof. David E. Pritchard of MIT. He will speak on "Single Mode Atom Chips and Interferometers for BECs". The DLS Banquet will be held on Tuesday evening (7:00 PM, Hilton Hotel, Turquoise II); the Annual DLS Business Meeting at which we solicit input from members will be Wednesday (6:00 PM, Hilton Hotel, Presidio II).

As many of you know, the objective of the APS Division of Laser Science is the advancement and dissemination of knowledge in the broad interdisciplinary area of science related to the use of lasers in research, the technical applications of lasers, and the development and characterization of new laser systems. You can see that your interests and concerns are represented in the Division's programs and activities by voting in the forthcoming election and by keeping in touch with the Division's officers. We are eager to hear your concerns and suggestions (in person at Tucson or by email) about the Division's programs, how the Division can be more effective and we would also appreciate your help in recruiting appropriate new members for the Division.

In this Newsletter and on the Website you will learn about other ongoing DLS-sponsored programs and activities, including our New Laser Scientists Conferences and Distinguished Traveling Lecturer Program. Please note the 2003-2004 Deadlines listed below. The DLS officers and I look forward to seeing many of you in Tucson!

Winthrop Smith, DLS Chair 2002-2003

New APS Award Winners

Congratulations to our DLS colleagues who were the recipients of 2001 APS awards or prizes for their research in laser science. See <http://www.aps.org/praw/03winners.cfm> for more information on these honors.

Arthur L. Schawlow Prize in Laser Science



David E. Pritchard

Massachusetts Institute Technology Citation:

"For groundbreaking studies of coherent atom optics and pioneering work on laser cooling and trapping of atomic gases."

Background:

David E. Pritchard graduated from Caltech (B.Sc. 1962) and Harvard (Ph.D. 1968), and has been employed at MIT since 1966. He has studied van der Waals molecules (NaNe and KAr), two-photon spectroscopy, line broadening, and atom-

molecule collisions. His pioneering observation of the Kapitza-Dirac effect and Bragg scattering of atoms opened the field of atom optics and led to his group's development of nanofabricated diffraction gratings for atoms with which they made a versatile atom interferometer. His group also does interferometry experiments with BEC's. His group invented the widely used magneto-optical laser trap and the Dark Spot MOT. His group operates the world's most accurate mass spectrometer that now compares the masses of two individual trapped ions of different species. With his son, he wrote the online Mastering Physics tutorial and homework service by Addison Wesley.

Pritchard is a member of the National Academy of Science, and a Fellow of the American Physical Society, the American Association for the Advancement of Science, the American Academy of Arts and Sciences, and the Optical Society of America. He won 1991 Broida Prize of the American Physical Society, and was a Distinguished Traveling Lecturer and a Centennial Speaker of the APS. He has mentored four Nobel prizewinners and two other students who won national thesis awards.

Earl K. Plyler Prize for Molecular Spectroscopy



Kevin K. Lehmann
Princeton University



Giacinto Scoles
Princeton University

Citation:

For their collaborative contributions to our understanding of intramolecular dynamics by high resolution spectroscopy and to atomic and molecular spectroscopy in liquid He nanodroplets, through the experimental and theoretical development of molecular and cluster beam spectroscopy.

Background? Kevin Lehmann

Kevin Lehmann graduated from Cook College, Rutgers University in 1977 with

majors in Chemical Physics and Mathematics. He was awarded a Ph.D. in Chemical Physics from Harvard University in 1983, having studied with William Klemperer. Kevin was a Junior Fellow in the Harvard Society of Fellows from 1983-86. During this time and for several years after, he was a visiting scientist at the George Harrison Spectroscopy Laboratory of MIT. Kevin joined the Chemistry Faculty of Princeton University in late 1985, was promoted to Associate Professor in 1991 and to Full Professor in 1995. That year he was elected as a Fellow of the American Physical Society. Kevin has also received a Presidential Young Investigator Award, The Dreyfus Teacher-Scholar Award, and the Thomas A. Edison Patent Award.

Background?Giacinto Scoles

Giacinto Scoles graduated from the University of Genova (Italy) in 1959 with a Chemistry degree. While Italian universities did not grant Ph.D degrees at that time, he did "post-doctoral" work at the Kamerlingh-Onnes Laboratorium of the University of Leiden in The Netherlands from 1961 to 1964. He was assistant and, later associate, professor of physics at the University of Genova from 1964 to 1971 when he moved, as Professor of Chemistry and Physics, to the University of Waterloo in Canada. Since 1986 he has been Donner Professor of Science at Princeton University, where he is a member of both the Chemistry Department and of the Princeton Materials Institute. Scoles is a pioneer of modern molecular beam techniques that he has applied to the study of atomic and molecular interactions both in the gas phase and at the gas-surface interface. Notable are his crossed molecular beam scattering studies of intermolecular forces and his pioneering work on the infrared laser spectroscopy of molecular and cluster beams, carried out using low temperature bolometric beam detection methods. More recently, in collaboration with Kevin Lehmann, he has carried out eigenstate-resolved spectroscopic studies of energy redistribution in polyatomic molecules and has pioneered the use of superfluid helium nanodroplets as an almost ideal matrix for molecular spectroscopy. Scoles has also applied molecular beams and grazing incidence X-ray scattering to the study of the structure and growth of ultrathin organic films and has recently started to use atomic force microscopy to characterize and manipulate organic monolayers and molecules of biological interest. Scoles is a foreign member of the Royal Academy of Arts and Sciences of The Netherlands, a Fellow of The Royal Society (UK), the OSA and of the APS. He has received the 1995 Lippincott Award and the 2002 P. Debye Award in Physical Chemistry of the ACS.

New APS Fellows from DLS

Rainer Grobe

Illinois State University

For pioneering theoretical contributions to the understanding of one- and two-electron systems in intense, short-pulse laser fields and propagation of coupled laser pulses in multi-level dielectric material.

David D. Nolte
Purdue University

For innovative exploitation of materials science leading to significant discoveries in photorefractive effects and dynamic holography, adaptive interferometry, time-reversal symmetry, and phase conjugate fidelity in magnetic fields.

Hrvoje Petek
University of Pittsburgh

For development and application of interferometric time-resolved photoemission to studies of ultrafast electron and nuclear dynamics at metal surfaces.

Vladimir M. Shalaev
Purdue University

For important research on the optical properties of novel plasmonic nanomaterials and their application in photonics, spectroscopy and laser physics.

Kenneth David Singer
Case Western Reserve University

For outstanding contributions to the understanding, measurement, and development of organic nonlinear optical materials.

John Edward Sipe
University of Toronto

For pioneering theoretical work on linear and nonlinear optical properties of solid surfaces, bulk or quantum well semiconductors, and soliton propagation in periodic media.

Herbert Graves Winful
University of Michigan

For fundamental contributions to the understanding of nonlinear propagation in periodic structures, nonlinear dynamics of laser arrays, and polarization instabilities in birefringent optical fibers.

Xi-Cheng Zhang
Rensselaer Polytechnic Institute

For pioneering contributions to free-space terahertz optics, particularly the successful development of terahertz wave generation, sensing and imaging

Calendar

APS fellowship nominations: Deadline for 2004 is April 2, 2004. All nominations should be sent to:
Executive Officer
The American Physical Society
One Physics Ellipse
College Park, MD 20740
ATTN: Fellowship Program

CLEO/IQEC Conference: The Moscone Center West, San Francisco, California, May 16-21, 2004.
Abstract & Summary Deadline: November 11, 2003 (NOON EST)

ILS-XIX Meeting

Postdeadline submission deadline Sept. 30, 2003, 5pm ET (electronic)

DLS Sponsored Events:

Schawlow Prize: To be awarded this year to **David E. Pritchard** at the Awards Ceremony on Tuesday morning. He will speak on "Single Mode Atom Chips and Interferometers for BECs".

The DLS Banquet will be held on Tuesday evening (7:00 PM, Hilton Hotel, Turquoise II).

The Annual DLS Business Meeting will be Wednesday (6:00 PM, Hilton Hotel, Presidio II).

Special LS Symposium on Undergraduate Research

Monday, October 6, 10:30am-6:00pm
Joshua Tree Ballroom

This annual event is rapidly becoming one of the most successful LS traditions. In each of the past three years, we have had about a dozen undergraduates present the first papers of their budding scientific careers. These sessions have been superb, the participants were thrilled and they began the networking vital to a successful career.

Those of you who were in Orlando know the value of participation, and in at least two cases, paper topics were sufficiently related so that collaborations were begun on the

spot. Although students and their faculty advisors sometimes worry that their papers will not meet professional standards, in fact it is never too early in your career to present innovative ideas at a national meeting of this stature and enter into scientific deliberation with your peers.

Abstracts will not be published in the conference digest but will be distributed with the registration packets at the meeting. There will be some financial support for students' travel, accommodation and registration fees. For more information contact Harold Metcalf at hmetcalf@notes.cc.sunysb.edu.

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, Dept. of Physics and Astronomy, SUNY at Stony Brook
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

DLS Executive Committee Members

Winthrop W. Smith, Chair
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DLS Nomination Committee

Robert W. Boyd, University of Rochester (Chair)
William C. Stwalley, University of Connecticut
Elizabeth McCormack, Bryn Mawr College

DLS Fellowship Committee

John Hepburn, UBC (Chair)
Randy Hulet, Rice University
Steve Leone, Berkeley
Mark Raizen, University of Texas
Daniel Grischowsky, Oklahoma State University
Henry van Driel, University of Toronto

The Schawlow Prize Committee

Robert W. Boyd, University of Rochester, Chair
Sune Svanberg, Lund University
Steve Harris, Stanford University
Arlee Smith, Sandia National Laboratory
Linda Young, Argonne National Laboratory

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

Randy Hulet, Rice University
Robert W. Boyd, University of Rochester
Winthrop W. Smith, University of Connecticut

Election:

It is time again for us to elect members to serve the Division on the DLS Executive Committee. There are three positions that will be filled, the Division Vice-Chair and two Members-at-Large. The Vice-Chair serves one year in that capacity, graduates to Chair-Elect next year, and then serves as the Chair in the following year. The two Members-at-Large that we elect will serve in that position for three years. We would like to acknowledge the hard work of those members of the DLS Executive Committee

who are rotating off, including Past Chair Tony Heinz and Members-at-Large Duncan Steel and Wayne Itano. Many thanks for their dedicated service. If you have not already received a note, you should expect instructions on how to cast your electronic ballot very soon from APS

Biographical Sketch and Statement of the Candidates

Candidates for Vice Chair of the Executive Committee:

Harold Metcalf: Physics Department, Stony Brook University, Stony Brook, NY 11794-3800, hmetcalf@notes.cc.sunysb.edu

Biographical sketch: Harold Joseph Metcalf was born in Boston, Massachusetts, was educated in the public schools of Newton, Massachusetts, entered the Massachusetts Institute of Technology in 1958, and was awarded a Bachelor of Science with a major in Physics June, 1962. He entered the graduate school of Brown University in 1962 and completed the requirements for the Ph.D. degree in physics in June, 1967. After postdocs at Brown and Stony Brook, he became Assistant Professor at Stony Brook in 1970, Associate Professor in 1974, Professor in 1983, and Distinguished Teaching Professor in 1999.

Research Interests: Precision measurements in simple atoms and molecules, Rydberg atom spectroscopy, laser cooling (early days), coherent population trapping, quantum beats and atomic coherence, laser technology, optical manipulation of atoms, magnetic effects on optical forces, and most recently optical forces in non-monochromatic light.

Recent Prizes and awards:

2003 Debye Professor, University at Utrecht, Netherlands
1999 Distinguished Teaching Professor, S. U. N. Y., Stony Brook
1997 Alexander von Humboldt Senior Fellow, Germany
Fellow of Optical Society of America
Fellow of American Physical Society

Recent Relevant Activities: APS Council 1997-2002 (DAMOP delegate), Program co-Chair ILS-XVII 2001, General Chair LS-XIX 2003, APS Committee on Education 2002-pres., APS Prize Committee 2002-pres., NASA REMAP task force 2002, several DAMOP committees.

Statement: The DLS carries on the mission of our predecessor, the Topical Group on Laser Science, which is to play a vital and pivotal role in bridging interests between different communities connected by a common theme. These include, but are not limited to the OSA, DAMOP, and IEEE. The diversity of interests spans life sciences, chemistry, physics (many branches), engineering, and entrepreneurship. The result has been a healthy and thriving organization that serves our membership well, promotes our scientific interests, cultivates and motivates our youngest colleagues,

and is an asset to our parent organization, the APS. Such accomplishments do not come without hard work, innovation, and concern for the future.

In addition to unforeseen hurdles that will surely arise during the tenure of the next slate of officers, we will continue to deal with significant issues that are not new. Among these are our relationship with DAMOP, the continuation of our annual meeting with OSA, maintaining our currently strong fiscal situation, and assuring the future of DLS through our youngest members. As a professional educator, this latter aspect is one of my primary interests, and DLS has been immensely successful through its special outreach activities in this area. Examples are the Distinguished Traveling Lectureships, the New Laser Scientists Conference, and the Symposium on Undergraduate Research. We can do no better than to assure the future strength of these activities that serve our successors so well.

Dan Neumark: Professor of Chemistry, University of California, Berkeley; Director, Chemical Sciences Division, Lawrence Berkeley National Laboratory; Ph. D. 1984, University of California, Berkeley; B.A., M.A. 1977, Harvard University
<http://bromine.cchem.berkeley.edu/>

Research Interests: Dynamics and spectroscopy of molecules and clusters, including transition state spectroscopy, time-resolved photoelectron spectroscopy of negative ions, fast beam photodissociation of radicals, molecular beam chemistry and photochemistry, photoionization of He nanodroplets

Honors, Positions, Memberships: Fellow of American Academy of Arts and Sciences, American Physical Society, and American Association of Arts and Science. American Chemical Society Nobel Laureate Signature Award (with Martin Zanni). Bomem-Michelson Award. Former Chair of the Division of Physical Chemistry, American Chemical Society.

Candidate's Statement: The Division of Laser Science occupies a unique interdisciplinary niche in the American Physical Society, bridging the gap between Chemical Physics and Atomic, Molecular, and Optical Physics. Although there is substantial scientific overlap between two disciplines, there is relatively little contact among the practitioners in the two areas, in part because they usually reside in different academic departments. Should I be elected, I will endeavor to organize conference symposia of interest to both groups to provide a unique scientific format for the exchange of ideas and to attract members to conferences that they might not attend normally.

Candidates for Member at Large:

Michael A. Duncan: Distinguished Research Professor, Department of Chemistry, University of Georgia; NRC Postdoctoral Fellow, National Bureau of Standards,

University of Colorado and Joint Institute for Laboratory Astrophysics (JILA) (1981-83); Ph.D., Physical Chemistry, Rice University (1982); B.S. Chemistry, Furman University (1976).

Research Interests: Laser and mass spectroscopy of metal, semiconductor, and molecular clusters in supersonic molecular beams. Metal ion complexes and metal van der Waals complexes. Excited state photophysics and dynamics. Electronic and vibrational spectroscopy of mass-selected clusters via photoionization and photodissociation. Laser synthesis of ligand-coated nanoparticle materials.

Professional Activities: Senior Editor, Journal of Physical Chemistry, 1998-present; Member at Large of the Executive Committee, Chemical Physics Division, American Physical Society, 2002-present; Advisory Board, Petroleum Research Foundation, 2003-present. Editorial Advisory Boards: Journal of Physical Chemistry, 1995-98; Journal of Cluster Science, 1996-98; International Journal of Mass Spectrometry, 1996-97; Book Series Editor, Advances in Metal & Semiconductor Clusters, Elsevier Science, (1993-present). International Advisory Boards: Ohio State International Symposium on Molecular Spectroscopy, 1998-present (Steering Committee, 1999-present; chairman 2000-2002); International Symposium on Molecular Beams, 1999-present. Vice Chair, Gordon Conference on Molecular and Ionic Clusters, 2002-2004.

Honors and Society Memberships: Visiting Professor, National Science Council, Taiwan, R.O.C., 1998; Yamada Foundation Visiting Professor, Keio University, Hiyoshi, Yokohama, Japan, 1998; Visiting Professor, University of Nijmegen, The Netherlands, 1999; Fellow of the American Physical Society (DLS, 2001). Memberships: American Physical Society; American Chemical Society; American Association for the Advancement of Science.

Candidate's Statement: Laser Science plays an important role in numerous research areas in Chemistry, Physics, Optics, Materials Science and Biology. The DLS membership includes researchers in these various fields united by the tools they have in common. It is a special challenge to bring together people with such diverse interests, while at the same time finding enough common ground for them to share. To ensure that the division remains inclusive without losing focus or rigor, we need the leadership to have both broad ranging experience and sharply defined expertise. I have worked in gas phase spectroscopy, mass spectrometry (including biological areas) and nano-materials science, and have experience with a variety of lasers (Nd:YAG, excimer, CO₂, dye, visible and IR OPO's, free electron lasers) and laser techniques (fluorescence, photoionization, photodissociation). I am active in the American Chemical Society, especially as a journal editor, and in the APS Division of Chemical Physics, as well as the DLS. This experience provides a solid base from which to work toward the continued vitality and growth of the DLS in all its activities.

Alexander Gaeta: School of Applied and Engineering Physics, 224 Clark Hall, Cornell University, Ithaca, NY 14853, e-mail: a.gaeta@cornell.edu

AEP web page: <http://www.aep.cornell.edu/>
Gaeta Group web page: <http://focus.aep.cornell.edu/>

Biographical sketch: Dr. Alexander Gaeta received his B.S degree in 1983 and his Ph.D. in 1991, both in Optics from the University of Rochester. In 1993 he joined the faculty at the School of Applied and Engineering Physics at Cornell University where he is currently an Associate Professor and serves as the Director for Graduate Studies.

Research Interests: His research interests include the nonlinear propagation dynamics of ultrashort laser pulses in waveguides and in bulk media, the development of techniques for processing and characterizing femtosecond laser pulses, and the development and application of photonic crystal fibers.

Recent Relevant Activities: He has served as the Chair of the Division of Quantum Electronic of the Optical Society of America (OSA) from 2000-2002 and is the co-Chair of the 2003 OSA Annual Meeting.

Vision Statement: The use of lasers continues to play a critical role in physics, chemistry and biology, and I believe that DLS is well positioned to continue to expand its membership base and its influence on these other areas of science. It is important to inform students that despite the recent slowdown in the telecommunications industry, laser science still offers numerous and exciting career opportunities. For this reason, I believe that DLS should further strengthen its very fine Distinguished Traveling Lecturers program and develop an even stronger web presence. My experience as the former Chair of the Division of Quantum Electronics for the Optical Society leads me to conclude that it is important that DLS seek renewed cooperation from the OSA and that the two groups jointly collaborate to reinvigorate the LS Conference/OSA Annual meeting.

Paul D. Lett: Atomic Physics Division, Phys A-155, National Institute of Standards and Technology, 100 Bureau Drive, MS 8424, Gaithersburg, MD 20899-8424 USA, email: paul.lett@nist.gov

Biographical sketch: Physicist, National Institute of Standards and Technology, Gaithersburg, MD
_Ph.D. 1986, M.A. 1982, University of Rochester, B.S. 1980, Marquette University.

Research Interests: Laser cooling and trapping of neutral atoms, ultracold collisions and photoassociation spectroscopy with cold atoms, quantum optics, nonlinear optics, and quantum information processing with neutral atoms.

Other scientific activities: Member of the editorial board of Quantum and Semiclassical Optics, the Journal of the European Optical Society - B (1997-9); Co-director of the "SURFing the Physics Laboratory" program at NIST, a summer

undergraduate research fellowship program that is part of the NSF Research Experiences for Undergraduates (REU) network (1997-2003).

Honors, positions, memberships: Fellow, APS; Arthur S. Flemming Award for service to the Federal Government, 1999; NIST Equal Employment Opportunity/Diversity Award, 1999; Department of Commerce Silver Medal, 1996; NIST Sigma Xi Outstanding Young Scientist Award, 1993; Member APS (DLS, DAMOP, TG/PMFC), OSA

Candidate's statement: The DLS encompasses some of the most exciting research and development of the day, across industrial, government and academic settings. While this is a strength that we need to maintain, we can also use this as a resource to communicate science better to the public at large and to encourage young people to become interested in science. We should encourage outreach programs of all sorts, and work hard to contribute to the improvement of public education. Programs like the Distinguished Traveling Lecturer Program are valuable outreach to colleges and universities, and we should search for other means of reaching out to a wide variety of students and to educators of the next generation of scientists and engineers. Public understanding and the promotion of science is an activity to the benefit of all, but particularly to the scientists and engineers involved in its daily workings. As such, it is to our benefit to work at it. I have helped the NIST summer undergraduate program in physics expand to other fields across the entire Gaithersburg campus and I would look to help DLS expand its efforts as well.

A. Marjatta Lyyra: Physics Department, Temple University, Barton Hall, 1900 N.13th Street, Philadelphia, PA 19122-6082, email: Lyyra@temple.edu, <http://unix.temple.edu/~lyyra/> and http://www.temple.edu/molecular_optics/

Biographical sketch: Dr. Lyyra was born in Finland and received her B.Sc. and M. Sc. degrees from the University of Helsinki and her Ph.D degree from Stockholm University in 1979 after a stay at the Herzberg Institute of Astrophysics (Ottawa) in 1978-1979. After a postdoctoral appointment at the University of British Columbia followed by a Visiting Scientist appointment at MIT, she worked as a Research Scientist at the University of Iowa, Iowa Laser Facility during 1986-1990. She has been on the faculty at Temple University since 1991 and has been a Professor of Physics and an Adjunct Professor of Chemistry since 1996. She has also been an Adjunct Professor of Physics in the Department of Physics at the University of Connecticut since 1997. At Temple University she has served on the Ad Hoc Scientific Advisory Committee for the Dean 1993-1995, Provost's Ad Hoc Committee for the Review of Graduate Programs (1995-1996), Temple University Graduate Board (2000-2003), Faculty Leadership Council for the Future Faculty Fellows Program (2000-present) and the Status of Women Committee of the Faculty Senate (1999-present).

Research Interests: Dr. Lyyra's most recent work focuses on using multiple resonance laser excitation techniques and the associated Autler Townes splitting for

molecular angular momentum alignment and electromagnetically induced transparency (EIT) in molecular systems. She has also shown that molecular EIT can be used as a probe for transition dipole moments in molecular systems. Her group is also investigating the possibility of using the Autler Townes effect as a way to control quantum state (singlet vs. triplet) character of molecular states. She has also continued work on intermediate and long range molecular states and the potential energy curves that can be calculated from such data. Using these potentials, parameters such as collision cross sections, scattering length, atomic line broadening parameters, and long range interaction coefficients can be calculated based on spectroscopic data alone. Thus high-resolution spectroscopy offers way of learning about dissociation and collision dynamics, since molecular formation dynamics is encoded in the energy of the molecular eigenstates.

Honors and Professional Society Memberships: Aaltonen Foundation Award (1974), Finnish-Swedish Cultural Foundation Award (1974-1975), Wallenberg Foundation Award (1978), Thord Gray Award, American Scandinavian Foundation 1990, NSF Career Advancement Award 1992, Member APS (DCP, DLS, AMO), Member AAAS, Member ACS, Member, American Association of Women in Science.

Professional Activities: Session Organizer and Presider, Interdisciplinary Laser Science Conference, Minneapolis 1990, Co-Chair, Multiple Resonance Spectroscopy Workshop, University of Connecticut, 1997-2000; Chair, Spectroscopy Celebration, University of Connecticut 2002; Member, DAMOP Publications Committee 1997-present; DLS Newsletter Editor 2003DLS.

Candidate's Statement: DLS brings together and encourages cross-disciplinary interaction between scientists, who work in a wide range of areas such as AMO Physics, Chemical Physics, Physical Chemistry, Engineering, Materials Science, and Photonics. Although a long term member of the Division of Laser Science and familiar with its development from the beginning, it is only recently that I have begun to learn about the inner workings of the DLS during the past year. I want to strengthen the cross-disciplinary nature of DLS activities and their benefits to young scientists. I also want to enhance the visibility of new and emerging areas of interest through active subcommittee work as well as by arranging new parallel sessions for the OSA/ILS conference, which should increase the number of submitted papers and attendance. It is also very important that we keep expanding opportunities for young scientists (both undergraduate and graduate) to participate in DLS activities to broaden their perspectives and connections. In addition to Conference participation and the distinguished travelling lecturer program, I believe that we should encourage and create incentives for the formation of local Laser Science interest groups and seminar series, which could advance these causes as well as increase membership. Thus local support for such groups could further enhance the Division's profile.

Newsletter Editor

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