

# Lawrence Berkeley National Laboratory

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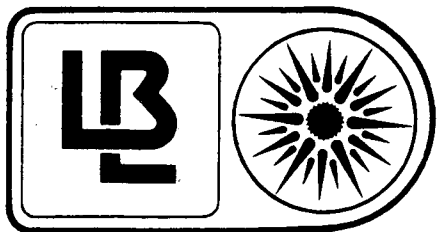
Schwartz, Lila

**Publication Date**

1990-04-01

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Lawrence Berkeley Laboratory

Applied Science Division

# Newsletter

July/August 1990

## We'll Miss You, Alex! ASD's Assistant Director Joins University of Oporto

**O**n the last day of June, the Applied Science Division reluctantly said goodbye to Assistant Division Director Alex Quintanilha, who accepted a position at the University of Oporto, Portugal. A wide range of LBL staff—scientific, administrative, and clerical alike—attended a reception held in Alex's honor to convey farewells, to thank Alex for his many contributions to the Division, and to wish him the best of luck in Portugal.

Educated as a physicist, Alex came to LBL in 1974, when he joined the Membrane Biophysics Group of Les Packer. Alex took then undertook to "retrain" himself in the biological sciences. When he left the Packer group, he began to focus on the cellular mechanisms of damage, adaptation, and repair associated with oxidative stress.

After becoming Assistant Division Head in 1984, Alex worked toward expanded research efforts in the environmental area, leading to his appointment in 1987 as Director of ASD's Center for Atmospheric and Biospheric Effects of Technology (CABET). His leadership of CABET contributed substantially to ASD's growing work on global climate change and on quantifying risks to ecological systems and human health. Alex also helped set the stage for a significant Division role at LBL's Advanced Light Source in the spectroscopy of catalysts and electrodes.



In addition to his positions at LBL, Alex has served as Adjunct Professor in UC Berkeley's Molecular and Cell Biology Department. Last year, his popularity among students was evidenced by several invitations to speak at commencement exercises.

Alex's move to Portugal comes at a time when the European Economic Community (the "Common Market") has been attempting to develop enhanced research capabilities in southern European countries. At the University of Oporto, Alex will head the Biophysics and Biochemistry Department within the University's Biomedical Institute. He will also be charged

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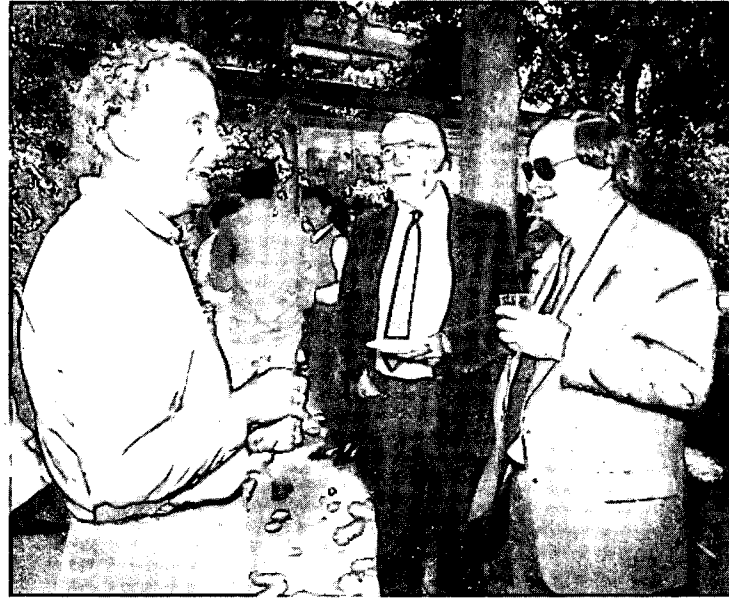
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with providing direction for creation of an Institute for Applied Biology, which will incorporate three relatively large existing research programs and will be housed in a newly constructed facility.

In Alex's new position, he will be continuing some of his research interests in the biology of stress by consolidating several existing biomedical groups sharing similar interests. He also intends to create new groups "with a more environmental bias."

Alex says that when the idea of working at LBL was suggested to him sixteen years ago, he "had no idea how important this would be to my career."

"Looking back, I am very glad I did not hesitate for one moment," he adds. "I will miss Berkeley, my friends and colleagues here." Alex hopes to visit Berkeley periodically.



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*Above: Alex chats with LBL Director Charles Shank*

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*At left: Pat Rackley, Assistant to LBL Director Shank, offers congratulations on Alex's exciting new opportunity in Portugal*

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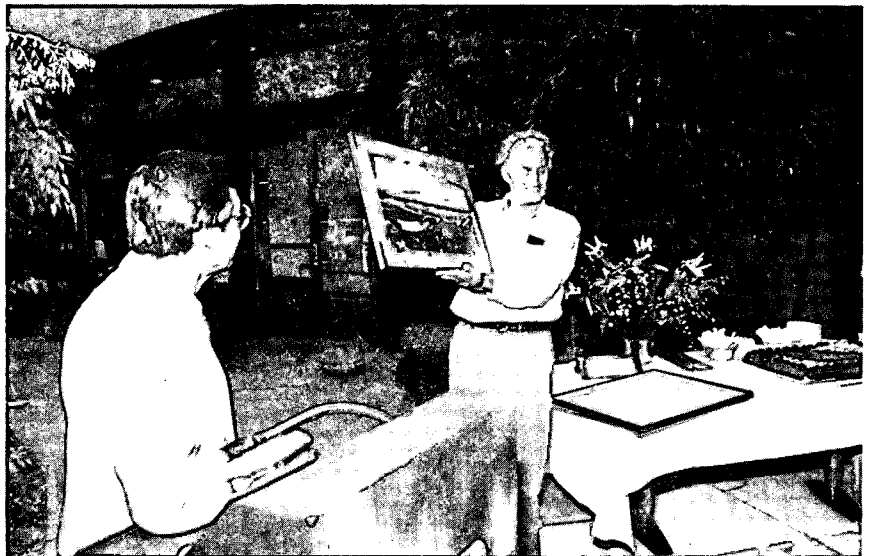
*At left: Alex and Arlon Hunt, who has been collaborating with Alex on matters relating to ASD's proposed participation in LBL's Advanced Light Source (ALS)*

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*At right: Alex shows the assembled well-wishers the Division's farewell gift to him: a gold-framed color print of the Lab and its view of the Bay. ASD Director Elton Cairns, foreground, looks on.*

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# ASD People in Print

- **MP Modera, Herrlin MK.** Investigation of a fan-pressurization technique for measuring interzonal air leakage. In: Sherman MH, ed. *Air change Rate and Airtightness in Buildings*. Philadelphia: American Society for Testing and Materials, 1990, pp. 183-193.
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- **Sherman MH.** Uncertainty in air flow calculations using tracer gas measurements. *Building and Environment* 1989; 24:347.
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- **Westman WE.** Managing for biodiversity: Unresolved science and policy questions. *BioScience* 1990; 40:26.
- **Nazaroff WW, Teichman K.** Indoor radon: Exploring U.S. federal policy for controlling human exposures. *Environmental Science & Technology* 1990; 24:774.
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- **Turk BH, Prill RJ, Grimsrud DT, Moed BA, Sextro RG.** Characterizing the occurrence, sources, and variability of radon in Pacific Northwest homes. *Journal of the Air & Waste Management Association* 1990; 40:498.
- **Fish RH, Michaels JN, Moore RS, Heinemann H.** Gas-phase hydrogenation reactions of polynuclear heteroaromatic nitrogen compounds and selected intermediates with a 50% nickel oxide/aluminate supported on silica-alumina catalyst. *Journal of Catalysis* 1990; 123:74.
- **Kinoshita K.** Particle size effects for oxygen reduction in highly dispersed platinum in acid electrolytes. *Journal of the Electrochemical Society* 1990; 137: 845.
- **Fish RH, Kim H-S, Fong RH.** Facile nucleophilic addition of methyl ketone enolates to ( $\eta^5$ -pentamethylcyclopentadienyl)rhodium  $\eta^6$ -p-xylene dication. *Organometallics* 1990; 9:1327.
- **Nazaroff WW, Teichman.** Indoor radon: Exploring U.S. federal policy. —see p. 7, col. 2

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## ... Also Cited Around Town

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- PG&E's monthly publication *PG&E Progress*—sent to PG&E customers along with their monthly utility bill—included an article about an upcoming study to be conducted jointly between LBL, PG&E, other California utilities and state agencies, and several environmental and consumer organizations. The study will examine advanced lighting, building design, and electric motor technologies to determine the savings that would result from widespread use of such technologies. The study is described in *Report of the Statewide Collaborative Process: An Energy Efficiency Blueprint for California*, available from ASD's Center for Building Science (contact Art Rosenfeld or Ralph

McLaughlin). The report describes innovative shareholder incentive mechanisms for implementing energy efficiency programs, as well as plans to expand utility investment in demand-side management (DSM) programs. Also discussed are areas of agreement/disagreement concerning funding of DMS programs and how these programs can be integrated into utilities' resource planning and regulatory processes.

In applications to the California Public Utility Commission (CPUC), California utilities are proposing to expand their energy efficiency programs, envisioning an annual increase of \$147.0 million by 1991.

# Ron Ritschard Appointed Acting CABET Director

ASD Director Elton Cairns has appointed Ronald L. Ritschard as Acting Director of the Center for Atmospheric and Biospheric Effects of Technology (CABET). In this area, Ron is assuming the responsibilities of Alex Quintanilha, who recently left the Laboratory. (See cover article in this newsletter.)

Ron received his Ph.D. in Zoology from Oregon State University, was a Professor of Biology for several years at California Polytechnic State University (San Luis Obispo), and then worked at Lawrence Livermore National Laboratory on marine biology, environmental impacts at the regional level, and environmental policy. These positions included research and teaching on radiation biology and tracer methods.

Ron came to LBL in 1976 and undertook technical assessments of energy and environmentally related topics, including renewable energy systems, marine biomass conversion, energy and water conservation strategies, and biomass energy resources. In the early 1980's he turned his attention to energy conservation in buildings, with an emphasis on the analysis of energy use in residences and the energy efficiency of public housing.

Recently, Ron has resumed research on environmental topics. He is the co-author of the recent Department of Energy report to Congress on greenhouse gas emission data. Working with Walt Westman, he is investigating the potential effects of climate change on vegetation at the landscape level and species diversity, urban climate effects, and related matters.

Since 1980, Ritschard has been the Deputy Leader of the Division's Energy Analysis Program and, within that Pro-

gram, the Leader of the Building Energy Analysis Group. Earlier, he held leadership and administrative positions at Livermore and San Luis Obispo.

Ron's background in the environmental sciences and considerable administrative experience makes him well qualified to carry on the activities of CABET. These include fostering research in the areas of global climate change, and quantifying risks to ecological systems and human health. Ron will be the Division's primary contact for the ongoing efforts at LBL to develop a research program in support of environmental management at DOE sites.

The *ASD Newsletter* is a vehicle for informing Applied Science Division staff about people and activities within (and otherwise of interest to) the Division. News of awards, publications, visitors—and any other items you'd like announced—should be conveyed to Lila Schwartz any of the following ways:

- send to mailstop 90-3026
- send to UNIX electronic mail address, *LNSchwartz@lbl*
  - phone ext. 4098
  - stop by 90-3027A.

Suggestions for articles or for staff/visitor profiles are also most welcome.

## COMIS Gets International Boost

The International Energy Association (IEA)—specifically, its Energy Conservation in Buildings and Community Systems Programme—has adopted a Annex XXIII, a research agenda devoted to multizone airflow modelling. This annex is based on a proposal compiled at an LBL-organized workshop in Leamington, U.K. Max Sherman and Helmut Feustel of ASD's **Indoor Environment Program** have been major contributors to the proposal.

The objective of the annex is to study physical phenomena causing airflow and pollutant transport in multizone buildings and to develop modules to be integrated into a system for mod-

elling multizone airflow. The system will be user-friendly and will be structured so that it can be integrated into thermal building-simulation models.

Special emphasis will be given to providing the data necessary for using the system. These data include wind-pressure distribution, default values for leakage of building components, and material properties such as absorption and desorption.

An important part of the annex will be comparisons between the model's result and the result of *in situ* tests. Results, which will be addressed to researchers and consultants, will promote energy-efficient building design.

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## Invited Talks & Foreign Travel

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- **ASD Director Elton Cairns** addressed the Canadian Local Section of the Electrochemical Society on "Photothermal Deflection Spectroscopy for *In Situ* Study of Electrode Surfaces."

- **Ted Chang** of the Environmental Research Program's **Flue Gas Chemistry Group** was the invited speaker for the Tokyo Institute of Technology's annual Earth Day lecture. Ted spoke about technologies for controlling NO<sub>x</sub> and CO<sub>2</sub> emissions in flue gases. Japan has been highly interested in implementing such emissions-control technologies in its coal-fired power plants.

On August 21, Ted gave a talk at FMC Corporation's Pocatello (Idaho) manufacturing facility about LBL's *phosnox* process for removing SO<sub>2</sub> and NO<sub>2</sub> from flue gases. The process uses yellow phosphorus, of which FMC is a major producer. In addition to providing the yellow phosphorus, a company such as FMC could ultimately market the byproduct (phosphoric acid) of the phosnox process.

FMC is evaluating (for DOE) the safety of the process—for which LBL holds a patent—and may test it at a power plant in Wyoming.

- **David Littlejohn**, also of the Flue Gas Chemistry Group, presented a pa-

per at the American Chemical Society's National Meeting in Washington, DC. The topic was Computer Modeling of the Chemistry of Aqueous Scrubber Systems."

- At the SIGGRAPH '90 conference in Dallas, **Greg Ward** spoke about the evolution of radiosity algorithms in computer graphics, e.g., as used in the **Windows & Daylighting Group's RADIANCE** computer program. The radiosity method is a view-independent approach that simulates global illumination phenomena (e.g., indirect lighting, shadows, color-bleeding, and surface interreflections). New progressive refinement approaches make the technique practical for rapidly generating high-quality images of complex physical environments.

- At the Annual Conference of the Illuminating Engineering Society of North America, **Frances Rubinstein** of the Lighting Systems Research Group moderated a workshop on lighting control. Frances chaired the Controls subcommittee of the IES Energy Management Committee, which discussed the status of the Lighting Controls Recommended Practice Report now being prepared by IES. These materials will serve as a comprehensive guideline for designing and applying lighting controls.

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## Opportunity for Internal Transfer/Promotion

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ASD is seeking an Assistant Division Director to be selected from among LBL applicants. Classification (Staff Scientist 2 or 3) will depend on selected candidate's qualifications.

The selected candidate's duties will include acting as spokesperson, contact, and information source for ASD on behalf of the Division Director or Deputy Director; service on ASD and LBL committees; managing space, safety, equipment, and related areas; participation in personnel actions involving primarily professional and technical classifications; participation in formulating Division-level policies and decisions; help develop new research areas for ASD, particularly when these use a multiprogram approach (and particularly for environmentally or biologically oriented areas). The selected candidate may participate concomitantly in ASD research.

Requirements include leadership experience in a university, government-supported research laboratory, government agency, or a combination of these; ability to work effectively as liaison with management and staff of such institutions; demonstrated research experience; effective analytical, decision-making, and verbal/written communication skills; ability to communicate scientific information to general audiences. Education and/or experience in an environmental or biologically oriented area is desirable, and scientific or engineering education at the Ph.D. level is preferred.

Requirements are somewhat more extensive for the Staff Scientist 3 level. Prospective applicants are encouraged to contact the Personnel Department for a complete job description.



# Congratulations

• **Antoni Oppenheim**, researcher in ASD's Combustion Research Group and professor emeritus of mechanical engineering at UC Berkeley, has received a patent for a pulsed-jet combustion generator for premixed charged engines. Tony's co-recipient is **Horton Steward**, a UCB engineer.

• **Nancy Brown**, Leader of the Combustion Research Group, has been appointed by Governor Deukmejian to the State of California Scientific Advisory Committee on Acid Deposition. The committee is charged with reviewing and evaluating the research results, reports, or recommendations adopted by the state Air Resources Board regarding acid deposition.

Nancy has also begun serving on the Advisory Committee to the National Science Foundation's Chemical and Thermal Systems Division.

• **Art Rosenfeld**, Director of the ASD's Center for Building Science, has been named an Honorary Member of AICVF, Association des Ingenieurs en Chauffage, Conditionnement d'Air et Ventilation de France (the French Association of Heating, Air Conditioning, and Ventilation Engineers) and has been re-elected to the Council of FAS, the Federation of American Scientists.

He has also begun serving on the ten-person task force on California Energy/Environmental Policy, having been appointed to the task force by California Senator Herschel Rosenthal and Assemblyman Byron Sher, co-chairs of the Joint Committee on Energy Regulation and the Environment.

As requested by the U.S. Congress, a Panel on Global Warming has been assembled by the National Academy of Sciences and the National Research Council; Art has been invited to serve as a member of the Mitigation Subpanel of this Panel, chaired by former Senator Dan Evans.

Art will also be serving on the Technical Advisory Panel for the EPA's Global Change Research Program within the Office of Research and Development. This panel will discuss EPA/ORD research priorities, approaches, interpretation of results, and long-term issues. The program for FY 1991 includes terrestrial and marine biosphere interactions, processes and effects, and anthropogenic emissions and mitigation.

## SNAP Enters New Cycle

ASD Director Elton Cairns has initiated the tenth cycle of the Division's Search for New Ideas and Projects (SNAP) committee. Members of the committee represent each Program within ASD and include **Rick Russo** of Energy Conversion and Storage (Chair); **David Littlejohn** of Environmental Research; **Jayant Sathaye** of Energy Analysis; **Darius Arasteh** of Windows & Lighting; **Fred Winkelmann** of Building Energy Systems; and **Lara Gundel** of Indoor Environment.

The Committee is charged with identifying and recommending prospective research areas for ASD involvement.

## People in Print

(cont. from p. 4)

- icity for controlling human exposures. *Environmental Science & Technology* 1990;24:774.
- **Turk BH, Prill RJ, Grimsrud DT, Moed BA, Sextro**. Characterizing the occurrence, sources, and variability of radon in Pacific Northwest homes. *Journal of the Air and Waste Management Association* 1990;40:498.
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- **Meyers SP, Leach G**. Biomass fuels in the developing countries: An overview. *Economia Delle Fonti di Energia* 1989:37.



*Departing ASD Assistant Director Alex Quintanilha is given a reluctant farewell by Division Director Elton Cairns and an assembled crowd of wellwishers.*

**PUB-432 8/90-325**

This work was supported by the  
 U.S. Department of Energy under  
 Contract No. DE-AC03-  
 76SF00098  
 Applied Science Division,  
 Lawrence Berkeley Laboratory,  
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