

# **EX-Ls Retiree Newsletter**

Lawrence Berkeley National Laboratory – January 2020

## February Luncheon with Dr. Joel Parrott



### **Oakland Zoo's Role in Global Conservation**

### Thursday, February 20, 2020

Luncheon Price: \$35 Check, \$36 Credit Card\* Time: 11:30 am Host Bar– Buffet Lunch Served at noon Speaker at 1:00, Concludes 2:00 PM Where: Berkeley Yacht Club, 1 Seawall, Berkeley, CA 94710 Main Dining Room with beautiful view of the Bay

\*Register by February 15, 2020 using the Eventbrite Link whether you are paying by credit card or check:. <u>https://www.eventbrite.com/e/february-20-2020-lbnl-ex-ls-luncheon-at-the-berkeley-yacht-club-tickets-88054941701</u> If you are paying by check, send check to Kathy Bjornstad, Activities Coordinator, 4242 Arden Place Oakland CA 94602. For your convenience, the traditional paper announcement and Registration is at the end of the newsletter. Questions, contact Kathy via 510-220-1273 or <u>kathy.bjornatad73@gmail.com</u> (Price is all inclusive of *luncheon, tax, tip, fees, parking. No-Host Bar Service available.*)

**ABSTRACT:** Dr. Parrott will focus his presentation on the conservation work and partnerships of the Oakland Zoo. He will describe the active efforts on wildlife conservation which is central to the mission of the Zoo. This effort has both recognized locally, nationally and internationally.

**BIOGRAPHY:** Joel Parrott, DVM, President & CEO and Staff Veterinarian of the Oakland Zoo. He received BS and DVM degrees from Colorado State University, Fort Collins, Colorado. After graduation, he interned at the Denver Zoo and then entered private practice in Castro Valley. His specialty was exotic animals and he was a consulting veterinarian for the Oakland Zoo until 1984, when he became the Staff Veterinarian and Assistant Director. A year later, he became the Executive Director at the Zoo. In 2011, he became the President & CEO of Oakland Zoo. An avid conservationist and naturalist, he views the role of zoos as instrumental to environmental education.

## IN THIS ISSUE:

February Luncheon
Announcement 1
EX-Ls at the A's Opening Day
Announcement 2
President's Report
EX-Ls Donations 4
October Luncheon Recap
and Attendees 5
EX-Ls Officers, Contact Info
and Calendar 7
Rememberances 8
Luncheon Announcement and
Registration Information 10

## A's Home Opening Day Game

Cheer on the A's, sponsored by EX-Ls

The Oakland A's vs Twins Home Opening Day Game March 26, 2020 1:07 pm Game Start Oakland-Alameda Coliseum 7000 Coliseum Way Oakland, CA 94621

\$38, Section 210 – ADA accessible section, wheelchair section at the top.



**Transportation** is on your own - drive or take BART. Discount parking tickets are available for additional purchase.

**Event Information:** Enjoy the company of the EX-Ls, UCB retirees, family and friends. The seats are located in Section 209. This section can accommodate wheelchairs and has fewer steps. It is conveniently located near the Westside Club now named Shibee Tavern.

**Tailgate Party:** Optional Tailgate party from 11:00 to 12:30 in the North parking lot – section A. We will be gathering to eat and visit.

**RSVP to Kathy Bjornstad** or contact her if you have questions. She will connect you to tickets once purchased. Questions? Contact Kathy at (**510**) **220-1273 or via email at** <u>kathy.bjornstad73@gmail.com</u>

## President's Report – Bob Cahn



Robert (Bob) Cahn

We look forward to a year of activities designed to provide intellectual stimulation, social enjoyment, and continuing awareness of and participation in the development of Lawrence Berkeley National Laboratory.

At the final luncheon of the year we heard Dr. Carl Haber of the Physics Division talk about his development of systems to recover audio recordings of the past. A more detailed description is given elsewhere in the Newsletter.

We also elected officers for 2020: President, Bob Cahn; First Vice-President, Ben Feinberg; Second Vice-President, Howard Hatayama; Secretary, Esther

Schroeder; Treasurer, Howard Matis; Activities Co-cordinator, Kathy Bjornstad; Phyllis Gale has taken over responsibility for the Newsletter. We have yet to identify a Membership Chair. Nancy Brown, the outgoing President is succeeding Janis Dairiki as representative to CUCRA (Council of University of California Retirement Associations). Bob Cahn will continue as alternate representative to CUCRA.

EX-Ls is one of the UC Retirement Associations and we are closely tied to three other units, UC Berkeley Emeriti Association, UC Berkeley Retirees' Association, and PARRA (President's and Regents' Retiree Association). Together we are served by UCBRC, the UC Berkeley Retirement Center, which is headed by Cary Sweeney as Director and Kris Thornton as Program Manager.

Nancy Brown and Bob Cahn serve on the Advisory Board for UCBRC. The website for UCBRC is <u>http://retirement.berkeley.edu</u>. This is an excellent place to learn about the opportunities for lectures sponsored by UCBRC. The website for the EX-Ls is <u>http://retirement.berkeley.edu/ex-ls</u>. Both of these have a wealth of information. The staff at UCBRC can provide help on many issues including pre-retirement planning, learning in retirement, retiree communications, retiree association support and collaboration, referrals and resources, special events and programs, as well as well as other privileges and discounts. UCBRC is supported by the institutions it serves. The LBNL contract with UCBRC is up for renewal at the end of June.

Two events are of immediate interest. On February 20 we will have the first luncheon of the year. The speaker will be Dr. Joel Parrot, President and CEO of the Oakland Zoo. We are thrilled that our luncheon events will now be held at the Berkeley Yacht Club. Registration is available at <u>https://ex-ls-february2020.eventbrite.com</u>. We have reserved a section of seats for opening day for the Oakland A's on March 26 in a game against the Minnesota Twins. You can sign up at <u>https://as-openingday-ex-ls.eventbrite.com</u>. We are looking forward to seeing many of you at these gatherings.

One particular role that the EX-Ls can play in the Laboratory is to see that the heritage of the Lab's scientific achievements is preserved and transmitted to the current staff. The replacement of the Bevatron/Bevalac by the Integrative Genomics Building (IGB) removed the visible reminder of that facility's enormous achievements. However, the IGB entrance area does have a representation of them on one of its walls. The replacement of the cafeteria by the new visitor center/cafeteria in coming years

#### President's Report – Bob Cahn - Continued

provides another opportunity to present some of the Lab's history to both visitors and employees. Rich Sextro, Lee Schroeder, and Howard Matis have been especially active in this work.

On January 16, Nancy Brown and Bob Cahn attended a meeting of the Advisory Board of UCBRC, together with representatives of the other Berkeley retirement associations. Continuing concerns of this group include the poor performance of RASC (Retirement Administration Services Center) and changing options for health coverage. It appears that the problems with RASC have receded, but some limited problems remain with the UCRAYS, which replaced AtYourService. Information on UCRAYS is available at <a href="https://ucnet.universityofcalifornia.edu/retirees/ucrays-how-to-guide.html">https://ucnet.universityofcalifornia.edu/retirees/ucrays-how-to-guide.html</a>. The new Medicare Advantage PPO with United Health Care is low cost and appears to offer attractive coverage. Members of the Berkeley Health Insurance Working Group, including Nancy Brown and Bob Cahn, will continue to monitor this issue.

At the Advisory Board meeting we also learned of the initial success of the "Home Match" program, through which Berkeley grad students find housing in the homes of participating retirees. This reduces costs for the students and provides income, about \$1000 per month, for the retirees. More information is available at <a href="https://retirement.berkeley.edu/services/retirement-housing-options/berkeley-home-match">https://retirement.berkeley.edu/services/retirement-housing-options/berkeley-home-match</a> .

## THANK YOU TO OUR DONORS FOR YOUR GENEROSITY!

Thank you to our donors who contributed to the year end 2019 annual appeal for donations. Total received \$1,866.00! The finances of the EX-Ls are dominated by our luncheon events, where our goals are to keep the costs down but still break even. Our new arrangement with the Berkeley Yacht Club will help us achieve this. Still, that we are financially sound is due in no small measure to the voluntary contributions from members, since dues were abolished some years ago.

Igor Blake Kay Bristol Nancy Brown Eugene Budnitz Bob Cahn Peter Cleary Edward Domning Norman Edelstein Ben Feinberg Ken Frankel Robert Frias Phyllis Gale

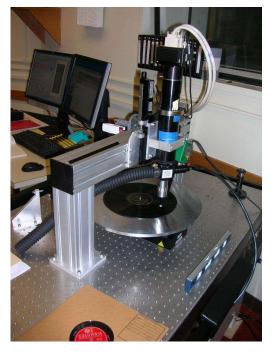
Stacey Gauny & David Wilson Don & Becky Grether Connie Grondona Todd Hansen Everett Harvey Harvard Holmes Marjorie Hutchinson Steve Kessler Amy Kronenberg Nancy Lee David LittleJohn Linda Maio Sally Nasman Catherine Parrott Kim Perry Patti Powers-Risius Maria and Hans Georg Ritter Walter Schimmerling Brenda Shank John Speros Damir Sudar Edward Theil Stephen Wiel William & Holly Wu

EX-LS Honorary Life Members: Shirley Ashley, Patrick Cullinane, Bud Larsh

## EX-Ls Luncheon Review - November 21, 2019

On November 21, Dr. Carl Haber, a Senior Scientist in the LBNL Physics Department, spoke to a large crowd at the luncheon at the Berkeley Marina Double Tree. Dr. Haber has received widespread recognition, including a MacArthur ("Genius") Fellowship, for his development of methods for recovering early audio recordings, both in disk and cylindrical formats.

In his presentation, Dr. Haber emphasized three particular outcomes of his work. The first is that there are important applications of the sort of quantitative techniques familiar to us in physical science to studies in the humanities. The second is the recovery of history and culture that would otherwise be lost. Finally, his work revealed early steps in analog and digital storage concepts in the nineteenth century.



Left: measuring grooves on a disc

Inspired by a piece he heard on NPR, Carl realized that the imaging he and his co-worker were doing on silicon could be used to image the surface of a record. The back-and-forth excursions of the tracks contained the audio information and these



Right: measuring grooved on a cylinder.

could be measured and recorded electronically. The resulting data could then be transformed into a standard audio format. Recordings on cylinders were much more challenging because the signal is encoded in the depth of the groove rather than in lateral movement and the excursions were a fraction of a micron instead of a hundred microns.

One application of the system, named IRENE (http://irene.lbl.gov), has been to digitize the recordings held by the Phoebe Hearst Museum of Anthropology on the Berkeley campus. In a three-year project, 3000 cylinders were scanned. These include the voice of Ishi, the last of the Yahi people native to California.

#### EX-Ls Luncheon Review - November 21, 2019 - Continued

The IRENE system has also been used to recover aluminum disc recordings from Harvard's Milman Parry Collection of Oral Literature made in the 1920s and 30s. These underlie the view that the epic poems like the Iliad and Odyssey were transmitted orally.

Among the most remarkable of Haber's finds are recordings of Alexander Graham Bell, himself, made while Bell was developing the phonograph in competition with Thomas Edison. We could hear Bell saying "This record has been made by Alexander Graham Bell, in the presence of Dr. Chichester A. Bell, on the 15<sup>th</sup> of April, eighteen hundred and eighty five...Hear my voice, Alexander Graham Bell." We also heard a recording of "Mary had a little lamb," interrupted by what was likely the earliest recording of a word not allowed in radio broadcasts.

Amazingly, Haber has recovered a recording made in 1860, which was undoubtedly made without any expectation that it could be heard in any fashion. E. Leon Scott de Martinville recorded the vibrations of sound from his voice and simultaneously the vibrations of a tuning fork, which provided a calibration of time. We were thus able to hear the French tune "Au Clair de la Lune," made nearly 150 years ago.

IRENE is now deployed internationally. It has been recognized by LBNL as one of the Lab's 35 breakthroughs along with others like the discovery of dark energy and revealing the reason for the extinction of the dinosaurs. The audience was entranced by Haber's presentation, which highlighted the Lab's ability to contribute the understanding of culture and history around the world.

Jose Alonso David Baca Winifred Baker Michael Banda **Eugene Binnall** Myrna Marie Binnall Kathleen Bjornstad Igor Blake Nancy Brown Jerry Bucher **Robert Budnitz** Robert Cahn Jianping Chen Patrick Cullinane Diane D'Aoust Bill Dumbleton Norman Edelstein Benedict Feinberg Mary Feinberg James Feit

#### November 21, 2019 Luncheon Attendees

Sally Fisk Ken Frankel Phil Gale Phyllis Gale Richard Gough Donald Grether **Becky Grether** Connie Grondona Edward Grondona Kathy Hardy **Diana Hopper Mildred Hughes** Joe Jaklevic Vicky Jared Kathy Jarrett Judy Kody **Ginny Lackner** Heinz Lackner Almon Larsh Jeanne Miller

Paul Nasman Sally Nasman Patti Powers-Risius Mary Pratt Hans Georg Ritter Maria Ritter Henry Rutkowski Linda Rutkowski Esther Schroeder\* Joan Sextro **Richard Sextro** Brenda Shank Martin Silva\* **Catherine Thompson** Chris Timossi **Kim Williams** William Turner Allan Zalkin

\*unable to attend

## **2020 EX-Ls OFFICERS, INFORMATION AND CALENDARS**

#### **EX-Ls BOARD OF DIRECTORS**

President: Bob Cahn 1st Vice-President: Ben Feinberg 2nd Vice-President: Howard Hatayama Secretary: Esther Schroeder Treasurer: Howard Matis Membership: Open Activities: Kathy Bjornstad LBNL Liaison: Margaret Dick CUCRA Representative: Nancy Brown/Bob Cahn UCBRC Advisory Board: Nancy Brown/Bob Cahn Editor EX-Ls Newsletter: Phyllis Housel Gale UCBRC Director and Liaison Cary Sweeney

#### **EX-Ls Address at UCB Retirement Center**

Mailing Address: LBNL EX-Ls; 101 University Hall, Berkeley CA 94720-1550

Website: <u>https://retirement.berkeley.edu/ex-ls</u> Webmaster: Kris Thornton, UCBRC

#### 2020 EX-Ls Board Meeting Calendar

Thursday, January 16, 2020, 3:00 p.m. Thursday, April 9, 2020, 3:00 p.m. Thursday, July 9, 2020, 3:00 p.m. Thursday, October 8, 2020, 3:00 p.m.

#### 2020 Luncheon and Event Dates

February 20, 2020 Luncheon at the Berkeley Yacht Club, 11:30 - 2:00, Dr. Joel Parrott

March 26, 2020 Opening Day Game at the Oakland A's Baseball Stadium, 1:07 pm

May 21, 2020 Luncheon at the Berkeley Yacht Club,11:30 - 2:00

August 20, 2020 Luncheon at the Berkeley Yacht Club,11:30 - 2:00

November 19, 2020 Luncheon at the Berkeley Yacht Club, 11:30 - 2:00

#### **PAST PRESIDENTS**

Nancy Brown - 2019 Henry Rutkowski -2018 Lee Schroeder - 2017 Cheryl Fragiadakis -- 2016 Connie Grondona – 2015 Trudy Forte – 2014 Joe Jaklevic – 2012-13 Rollie Otto – 2011 Richard Sextro – 2010 Don Grether – 2009 Jose Alonso – 2008 Janis Dairiki – 2007 John Kadyk – 2006 Gene Binnall – 2005 Sig Rogers – 2004 Bob Fulton – 2003

Bob Birge – 2002 Per Dahl – 2001 Tom Beales - 2000 Ken Mirk - `1999 Paul Hernandez – 1998 Clay Sealy - 1996-98 Igor Blake - 1994-96 Conway Peterson –1992-94 Howard Browne – 1990-92 Ethel Skyrdlinski – 1989 Al Amon - 1988 Ken Lou – 1987 Virginia Cherniak - 1986 Bill Bigelow – 1985 Ted Bowers – 1981-84

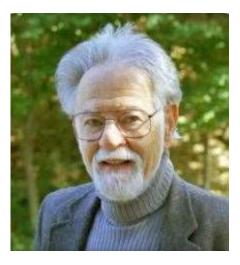
## Remembrances

## Jack Hollander (1927-2019)

Jack Hollander died peacefully at his home in Berkeley on November 10, 2019 at age 92. He was a well-known Nuclear Scientist who had authored or edited over 100 publications and 20 books.

In 1968 Jack joined Andrew (Andy) Sessler, an Accelerator Physicist, in introducing applied science to the Laboratory to address environmental and, a little later, energy issues. When Sessler became the Laboratory Director on November 1, 1973 his first order of business was to establish the Energy & Environment Division (E&E) and appoint Hollander as the Division Head (now called Division Director). Jack led what has been described as a "tsunami" of growth in funded projects in E&E's research areas.

Jack left the Laboratory in late 1975 to head CONAES (Committee on Nuclear and Alternative Energy Systems) – a major energy study of the National Academy of Sciences. After CONAES, he was variously a Vice President for Research at Ohio State University,



founding editor of the international book series Annual Review of Energy, a Professor in the Energy & Resources Group (ERG) on campus, the first Director of the University of California Energy Institute, and a co-founder of ACEEE (American Council for an Energy Efficient Economy).

Jack was the recipient of two Guggenheim fellowships, a Fellow of the American Physical Society, and a member of the Royal Swedish Academy of Sciences. His engaging memoir "My Lunch with Shostakovich" is available online.

What Jack and Andy started way back in 1968 became the first major energy-environment research program at any of the large Atomic Energy Commission laboratories, and was thereby a precursor of a major change in focus for essentially all of those AEC labs and for the parent agency itself, which morphed into the Department of Energy in 1977. What Jack and Andy started was also the forerunner of two of LBNL's current six Research Areas: Energy Technologies, and Earth and Environmental Sciences. Many of us in EX-Ls owe our careers at the Lab to what Jack and Andy started those many years ago.

Submitted by Don Grether

## Frank Olken (1952 – 2019)

Frank Olken, a data scientist who spent 36 years at Berkeley Lab tackling the challenge of big data before it became Big Data, died Oct. 18 at age 67. He also worked two stints as a National Science Foundation

#### **Remembrances - continued**

(NSF) program director in Arlington, Va. He spent much of his lab career as a member of the Scientific Data Management Group.

Olken joined the Laborary in 1974, During his 36-year career at Berkeley Lab, data scientist Frank Olken pioneered a number of data management approaches that were later incorporated into commercial applications

"He was a walking encyclopedia," said Arie Shoshani, leader of the lab's Scientific Data Management Group and Olken's supervisor for much of his time at the lab. "He was extremely knowledgeable about everything. Whenever someone had a question we couldn't answer, we just said 'Go ask Frank'."



Olken's research interests were in the areas of database management, semantic web, bioinformatics, computational biology and metadata registry standards development. In particular, he was interested in research on sampling from databases and earned his Ph.D. in computer science from UC Berkeley with his thesis on "Random Sampling from Databases."

A former Colleague, John McCarth, described Olken as a polymath, interested in everything from amateur radio to biology to history and the humanities. According to McCarthy, Olken "was an avid reader of books and journals and kept stacks of material in both his lab office and his apartment near the UC Berkeley campus. At one point, his home library was so large that his landlord worried it could damage the building."

With McCarthy, Olken was a "member of several international standards committees, including one that developed the World Wide Web Consortium's XML SchemaDefinition language. In 1990, Olken was one of 12 people named to the of Joint Informatics Task Force formed by DOE and the National Institutes of Health to support the nascent Human Genome Project by developing genome information and analysis tools and make them available to scientists and physicians.

In 2006, Olken took leave from the lab to work as a detailee in the NSF's Computer and Information Science and Engineering directorate in Arlington, Va., working as a program director for the Information Integration & Informatics program in the Intelligent Information Systems Division. After four years, he returned to Berkeley and retired from the lab in 2010. In 2013, he returned to the same NSF program and spent an additional three years as a program director. NSF held a farewell reception in November 2019.

Remembrance compiled from LBNL Element Article 11/15/2019 -- Phyllis Gale

Note: If you know of the recent death of a member of the EX-Ls retirement family, please send a note with an obituary of about 250 – 500 words in length to Phyllis Gale, Newsletter Editor at p2gale@gmail.com for possible inclusion in the Ex-Ls Newsletter

You have received this e-mail because the LBNL Retirees Association (EX-Ls) is inviting you to join us at our upcoming quarterly luncheon. You will continue to receive further information from EX-Ls regarding other lunches and events. Hope to see you there! If you would like to change your e-mail address please send an e-mail to: http://retirement.berkeley.edu/ex-ls with the words "Address Change" in the Subject line. Include your name and the old and new e-mail addresses in the body of the email.

#### EX-Ls Retirement Association – News Online – Luncheon Announcement

Join Us ..... EX-Ls February 20, 2020 Luncheon Registration Form

Date: Thursday, February 20, 2020

Speaker: Dr. Joel Parrott, President, CEO, Oakland Zoo

Location: Berkeley Yacht Club

Luncheon Price: \$35 check, \$36 paying via Eventbrite by credit card. All inclusive of luncheon, tax, tip, fees and parking. ADA accessible.

REGISTER USING THE EVENTBRITE LINK BELOW <a href="https://ex-ls-february2020.eventbrite.com">https://ex-ls-february2020.eventbrite.com</a>

IF YOU ARE PAYING BY CHECK PLEASE REGISTER WITH EVENTBRITE ONLINE. Then you only need to mail Kathy a check made out to EX-Ls. There are no fees if paying by check. It is still acceptable to Fill out the registration form below and mail a check to Kathy

*Where:* Berkeley Yacht Club, EASY ACCESS, BERKELEY MARINA 1 Seawall, Berkeley Drive, Berkeley, CA. 94710 <

Time:**11:30 AM – Buffet Lunch Served at noon – Speaker at 1:00, Concludes 2:00 PM**Location:Main Dining Room, Beautiful view of the BayNo-Host Bar Service:Located in the Berkeley Yacht ClubBar – opens at 11:30

# EX-Ls is proud to have LUNCHEON SPEAKER: Dr. Joel Parrott, DVM, President, CEO and Staff Veterinarian of the Oakland Zoo

#### TITLE: Oakland Zoo's Role in Global Conservation

**ABSTRACT:** Dr. Parrott will focus his presentation on the conservation work and partnerships of the Oakland Zoo. He will describe the active efforts on wildlife conservation which is central to the mission of the Zoo. This effort has both recognized locally, nationally and internationally.

**BIOGRAPHY: Joel Parrott, DVM,** President & CEO and Staff Veterinarian of the Oakland Zoo. Received BS and DVM degrees from Colorado State University,

Fort Collins, Colorado. Born in the Adirondack region of New York State, Dr. Parrott spent his high school years in Miami, Florida before moving to Colorado for his college education. Upon graduation from veterinary school, he completed an internship at the Denver Zoo and then went into private practice in Castro Valley. His specialty was exotic animals and he was a consulting veterinarian for the Oakland Zoo until 1984, when he became the Staff Veterinarian and Assistant Director. A year later, he became the Executive Director at the Zoo. In 2011, he became the President & CEO of Oakland Zoo. Dr. Parrott has overseen many, new developments at the Zoo in the past twenty plus years. An avid conservationist and naturalist, he views the role of zoos as instrumental to environmental education. Married to Laura Becker, a practicing veterinarian. They live in Montclair and have two children, Tyler and Lindsey.







#### Date: Thursday, February 20, 2020

#### Where: Berkeley Yacht Club

1 Seawall Drive, Berkeley Marina, Berkeley, CA. 94710 🛛 🗲 🚟					
Time: 11:30 AM no host bar open - Lunch Served at 12:00 – Concludes at 2:00 PM					
Location: Main Dining Room	, Berkeley Yacht Club				
NOTE: 2020 Venue Location					
No-Host Bar Service: Berkel	ey Yacht Club Bar – opens at 11:30				
Lunch Service – Buffet	Vegetarian Entrée available, please check below your preference Cost: \$35 per person (prepaid) paying by check				
Cut Here					
	REGISTRATION FORM				
See you at the February 20th	luncheon at the Berkeley Yacht at the Berkeley Marina.				
Do ouro to make recomunications	by Coturday, Fabruary (F. 2020				

Be sure to make reservations by Saturday, February 15, 2020 Please mail form and check made out to EX-Ls to:

Kathy Bjornstad, Activities Coordinator, 4343 Arden Place, Oakland, CA. 94602

kathy.bjornstad73@gmail.com

Call, text or email if you have questions: (510) 220-1273 I Plan to Attend (Name):

I am or have been an EX-Ls Board Member?: Current Retired \_\_\_\_\_ First time attending? \_\_\_\_\_ LBNL Retiree? \_\_\_\_ UC Retiree?

Name of Guest(s)	1st Time Attending Luncheon?	LBNL Retiree?	UC Retiree?
1.			
2.			

Buffet Service - Advance choice is not required	\$35 per person – Check payable to: EX-LS \$35 x =			
	Total Enclosed: \$			
Vegetarian Entree Requested:				
Willing to carpool: As Rider? As Drive	r?			
Contact Info (your email or phone number so Kathy can contact you to arrange for carpool)				
Need to Sit Closer to the Screen? Buffet	Assistance? Other Needs?			
We welcome new members to the LBNL Retirem	ent Association the EX-Ls.			
To be added to the LBNL EX-Ls Roster, please p	provide the following contact or updated information.			
Address				
Email	Phone Cell			