

EX-Ls Retiree Newsletter

Lawrence Berkeley National Laboratory – Spring 2022

Join Us for the EX-Ls ZOOM Speaker

Date: Thursday, May 19, 2022

Speaker: Faith Dukes, Ph.D.

practice connecting: 12:30 to 1:00 pm

Speaker: 1:00 to 2:00 pm

Free Free Free Free

Register Here

If you need help, please contact Kathy Bjornstad, EX-Ls Activities Coordinator kathy.bjornstad73@gmail.com

EX-Ls is proud to have SPEAKER: Faith Dukes, Ph.D., Director of K-12 STEM Education Programs, Berkeley Lab

TITLE: Cultivating the Next Generation in STEM at Berkeley Lab

ABSTRACT: Faith Dukes, Ph.D. From the National Science Bowl to summer internships, K-12 STEM outreach at DOE national laboratories can span a wide breadth of activities. With its proximity to local communities, Berkeley Lab's programs have evolved to address barriers to participation in STEM in ways that



are relevant and unique to the Bay Area, which were in direct response to the COVID pandemic. A one-week girls camp, and six-week data science and coding program are now entering their third year and will be held in person for the first

time during the summer of 2022. A six-week internship program and bilingual STEM camp were added in 2021 and 2022, respectively. The team has learned best practices for online engagement, volunteer training and research-focused content development. As programs transition to in-person activities, the team looks forward to building capacity, and using lessons learned to build a hybrid program supported by the Berkeley Lab community.

BIOGRAPHY: Faith Dukes, Ph.D. currently serves as the Director of <u>K-12 STEM</u> <u>Education Programs</u> within the Government and Community Relations Office at Berkeley Lab. Her work is at the intersection of STEM research, education, equity and inclusion. Prior to her work at Berkeley Lab she held positions at the MIT Museum and National Science Foundation focusing on STEM curriculum development and STEM education policy. She holds a bachelors of science from Spelman College and completed her PhD in physical chemistry studying photocatalytic semiconductors at Tufts University.

We welcome new members to the LBNL Retirement Association EX-Ls. If you would like to change your email address, please send an email to: <u>http://retirement.berkeley.edu/ex-ls</u> with the words "Address Change" in the Subject line. Include your name and the old and new email addresses in the body of the email. 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>.

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President's Report – Howard Hatayama



During a visit with our children and grand-children in Colorado in February I had a potentially life changing incident. While working around my daughter's house, I slipped on a patch of ice and broke my elbow on the concrete curb. After the pain subsided, I realized how close I came to sustaining a serious head injury. The incident drastically changed my immediate plans, but it wasn't until I was being prepped for surgery that I asked the question: Do I need to file a Power of Attorney for Health Care in Colorado? Fortunately, what I have on file at Kaiser in Northern California

would be the controlling document if that became necessary. This incident reinforced for me the importance of keeping such important documents up-to-date and accessible to loved ones.

In this vein, I'd like to draw your attention to two excellent recent articles that are readily accessible to you through your status as University of California retirees. On the UC Berkeley Retirement Center's webpage, Director Cary Sweeney published on April 1, 2022: <u>Tips for Accessing Retirement Benefits During the Pandemic Shift</u>. The University of California Benefits Newsletter for Retirees, under the section New Dimensions (February, 2022) features an article entitled: "<u>Preparation Makes it Easier for Your Survivor to Claim Benefits</u>." The latter article discusses the elements of your UC Retirement Plan benefits and what needs to be in place to access them, while Cary's article provides positive ways to access the UC Retirement Administration Service Center as well as Social Security Administration and other non-UC retiree services. The common theme in both articles is preparation and organization of key documents and authorizations. Please take some time between your trip to Tahiti and your trek along the Camino de Santiago to do a self-check of these important items.

We started our program this year with a comprehensive presentation by Carol Burns, Berkeley Lab's Deputy Director for Research and Chief Research Officer on February 17, 2022, reviewing the state of the Laboratory and how it continued to thrive during the pandemic. We look forward to a ZOOM presentation by Faith Dukes, the Lab's Director for K-12 STEM programs on May 19, 2022. We are in the planning stages for an in-person event on August 18, 2022 celebrating the 40th Anniversary of EX-Ls. We will be back on ZOOM in November with a presentation by Cindy Regnier, Executive Director of FLEXLAB, DOE's newest building technologies testing facility, which is hosted by Berkeley Lab and considered to be the most adaptable and advanced building efficiency testing facility in the world.

For those who are interested but unable to attend these talks, recordings are posted along with all our past ZOOM talks on the EX-Ls website, (http://retirement.berkeley.edu/ex-ls) which is hosted by the UC Berkeley Retirement Center. The Center's website provides an incredible array of resources in support of EX-Ls and three other UC affiliated retirement associations: the UC Berkeley Emeriti Association, the UC Retirees' Association at Berkeley (UCRAB), and the President's and Regents' Retiree Association (PARRA). It also provides critical resources for UC employees who are soon to retire or contemplating retirement. Cary Sweeney and Associate Director Camille Koue are available to help navigate these resources and provide advice to retirees and prospective retirees.

We are in critical need of volunteers to fill the following roles on our Board: First and Second Vice-Presidents and Activities Coordinator. Kathy Bjornstad, our former Activities Coordinator, has already moved out of the area. Kim Williams, our current First Vice-President, is moving and we have no one serving in the Second Vice-President slot. We are not able to return to any in-person gatherings without an Activities Coordinator, nor are we able to ensure the continuing viability of our organization without a succession of leaders. While we are always looking for volunteers to help keep EX-Ls afloat, there is a critical need right now. Please volunteer or suggest a fellow retiree with the right skills for these important positions.

Lab Ramping Up to Normal Operations

Thanks to declining Covid hospitalization and case rates in the Bay Area, coupled with full vaccinations for all on-site personnel, the Lab has received DOE approval to begin ramping up to normal operations. In a message to employees, Director Mike Witherell said what he's been waiting two years to say, "Welcome back to the Lab!" Responsibility for the management of on-site staffing has been delegated to division and area offices. Currently, only visitors who need to come to the Lab for a business purpose are allowed on-site. The latest information on visiting the Lab and on Covid control practices is available at the Return to Work Sites 'At a Glance' website, which can be accessed <u>here</u>.

Lab's Future is Bright: A Look Back at Winter ZOOM Talk by Deputy Director Carol Burns

Carol Burns, who holds the dual Lab titles of Deputy Lab Director for Research, and Chief Research Officer, gave a ZOOM talk to EX-Ls this past February that was the epitome of positivity.

"The Lab's capabilities are well-aligned with this Administration's priorities," she said, citing such core Lab strengths as "discovery science in fundamental physics; biosciences for energy, environment, manufacturing and health; and programs in the energy sciences area."

Through partnerships with DOE and other federal agencies, as well as with state and



local groups, and expanded collaborations with the UC system, the Lab is building its future. That future holds strong prospects for new programs and construction, such as an upgraded Advanced Light Source, a proposed revamped Charter Hill complex, and the now-under-construction Biological and Environmental Program Integration Center (BioEPIC), where researchers will seek to understand how microbes interact with soils and plants to influence the environment.

"There are big compelling scientific problems to solve and Berkeley Lab has the expertise and resources to help solve them," Burns said. "DOE understands that scientific innovation happens within the national laboratory system, and Berkeley Lab is looked to as a leader."

Burns, a recognized expert in f-element (lanthanides and actinides) and radiochemistry, has been an individual leader within the national laboratory system for more than 25 years. Before coming to Berkeley Lab last August, her most recent appointment was at Los Alamos National Laboratory. She had been at Berkeley Lab years earlier while earning her Ph.D. in Chemistry at UC Berkeley as a Hertz Fellow.

"Los Alamos and Berkeley have been my two national lab "homes," Burns said. "I was born and raised in Los Alamos when it was still known as the Los Alamos Scientific Laboratory. During my time at Cal, I accessed the facilities in Building 70A and elsewhere so I spent a fair amount of time on the shuttle or walking up the hill."

In her ZOOM talk, Burns highlighted among other projects the Stage-4 groundbased Cosmic Microwave Background experiment, for which Berkeley Lab is the lead institution; the Tri-Institutional Partnership in Microbiome Research led by the Joint Genome Institute; carbon mitigation, hydrogen and energy storage research; and computing sciences. She also emphasized the importance of "placebased partnerships," in which the Lab engages local communities in its research efforts, and workforce development and education opportunities.

"People are what drive the Lab," Burns said. "We will be working to foster more partnerships within the Bay Area and across the country to help us better integrate our research with the needs of the nation."

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Speaker Nancy Pelosi and California Congressional Members Visit Lab

On February 25, 2022, Berkeley Lab hosted Speaker of the House Nancy Pelosi, Rep. Barbara Lee, Rep. Doris Matsui, UC President Michael Drake, and Intel CEO Patrick Gelsinger for a tour of the Advanced Light Source (ALS), meet and greet with student researchers, and press conference on the America Competes Act. Lab leaders and researchers shared ways the ALS propels research in the fields of clean energy, microelectronics, human health, and more. A video of the visit can be viewed <u>here</u>.

Celebrating the 40th Anniversary of EX-Ls

2022 marks the 40th year since the founding of EX-Ls. This is the second of four brief articles on the history of EX-Ls – this one focusing on the second decade of the organization. An in-person 40th anniversary celebration is being planned for August 18th at the Berkeley Yacht Club (our first such in-person event in over two years) – details forthcoming. So watch this space!

In the second decade – 1992 to 2001 – EX-Ls settled into the current pattern of having quarterly luncheons and/or, in some cases, tours. In the early '90's, the luncheon venues included Spenger's Fish Grotto, the Alameda Naval Air Station Officers' Club, and Oak Knoll Naval Hospital – all of which are now closed.

Spenger's became the go-to lunch venue for the rest of the decade. Many of the

luncheon speakers were from various departments at the lab – covering a wide variety of topics, from bubble chambers to research on aging to disinfection of water by UV light. The Lab director (or his designee) typically put in an annual appearance to give a "State of the Laboratory" talk. One of the speakers, in 1997, was Molly Lawrence (E.O



Lawrence's widow). Molly was the first honorary life member of EX-Ls. In 1993,

Deputy Lab Director Pier Oddone led an EX-Ls tour of the newly opened Advanced Light Source – no doubt some of those on the tour must have had a sense of déjà vu, as the dome above the new ALS previously crowned the 184-Inch Cyclotron, whose construction on Charter Hill beginning in 1940 established the Lab's present site.



In addition to these activities, in 1995 EX-Ls began sending a delegate to the Council of University of California Retiree Associations (CUCRA), which plays an important role as an advocate for UC retirees and retirees from the three national labs (Berkeley, Livermore and Los Alamos). EX-Ls thus

has a voice in providing reviews and feedback to UC Office of the President (UCOP) -- health care plans have been a recent much discussed topic. In 1997, the UC Berkeley Retirement Center was founded, initially serving UCB emeriti and staff retirees. Berkeley Lab retirees began participation in the Retirement Center in 2002 (aided and abetted by EX-Ls advocacy – more about this in the next installment). As it turns out, EX-Ls is the second oldest retiree organization among the four served by the Retirement Center – the emeriti organization was formed in 1980, the UCB staff retiree organization was established in 1988 and the organization for retirees from the UCOP was set up in 1989.

Past presidents of EX-Ls during this decade were: Conway Peterson 1992 -1994 Igor Blake 1994 -1996 Clay Sealy 1996 -1998 Paul Hernandez 1998 Ken Mirk 1999 Tom Beales 2000 Per Dahl 2001

Berkeley Lab Scientific Highlights in the News

Quantifying California's Lithium Valley: Can It Power Our EV Revolution?



The Salton Sea geothermal field in California potentially holds enough lithium to meet all of America's domestic battery needs, with even enough left over to export some of it. But how much of that lithium can be extracted in a sustainable and environmentally friendly way? And how long will the resource last? These are just a few of the questions that Berkeley Lab researchers hope to answer in a new project sponsored by DOE's Geothermal Technologies Office. With the push by California and many other states and countries to expand adoption of electric vehicles (EVs), the demand for batteries – and the lithium needed to make those batteries – is skyrocketing. There are currently 11 commercial plants at the Salton Sea field producing geothermal energy, a clean, renewable form of energy in which hot fluids are pumped up from deep underground and the heat is then converted to electricity. Berkeley Lab, working in partnership with UC Riverside and the Geologica Geothermal Group, Inc., will quantify and characterize the lithium in this hypersaline geothermal reservoir. The project is the first comprehensive scientific effort to map out California's so-called "Lithium Valley," and attempt to gain a detailed understanding of the mineral-rich underground brine at the Salton Sea geothermal system.

A Laser-Powered Upgrade to Cancer Treatment



Berkeley Lab biologists and physicists have teamed up to create new opportunities for cancer treatment using laser-generated proton beams. The ongoing project seeks to adapt the nascent technology of laser-driven ion accelerators to make an effective type of radiation therapy more readily available to patients. To alleviate the financial burdens of current proton therapy technology, the Lab researchers are developing more compact sources of ions for proton accelerators and investigating the potential benefit of using these accelerators to deliver proton beam radiation therapy at ultrahigh doses within extremely short exposure times – a technology called FLASH radiotherapy. Though the approach remains experimental for now, FLASH radiotherapy could change the landscape of radiation oncology.

CUORE team places new limits on the bizarre behavior of neutrinos

Researchers at the Cryogenic Underground Observatory for Rare Events (CUORE). announced this week that they had placed some of the most stringent limits yet on the strange possibility that the neutrino is its own antiparticle. CUORE has spent the last three years patiently waiting to see evidence of a distinctive nuclear decay process, only possible if neutrinos and antineutrinos are the same particle.

Their new data shows that this decay doesn't happen for trillions of trillions of years, if it happens at all. CUORE's limits on the behavior of these tiny phantoms are a crucial part of the search for the next breakthrough in particle and nuclear physics – and the search for our own origins. Berkeley Lab leads the participation by the United States in this international effort.



Advanced Quantum Testbed Releases Progress Report



April 14 was World Quantum Day, an international effort to promote public understanding of quantum science and technology around the world. Fittingly enough, Berkeley Lab's Advanced Quantum Testbed (AQT) has released its 2021 progress report. The AQT is a DOE-funded state-of-the-art collaborative research laboratory and open access testbed whose mission is to advance quantum computing based on superconducting circuits. Since AQT's launch in 2018, researchers there have developed a full-stack platform that encompasses the design and fabrication of novel qubits; the development of architecture for quantum processing; the development of cryopackaging and cryogenics; the development of a room temperature control chain; and the creation of a suite of tools for quantum characterization, verification and validation.

In Memoriam

Stephen Abraham Gerald (Jerry) Abrams Robert Avery Paul Banchero Alan Black David Fong Paul Hames Malcom Howells Brian Kincaid Bert Kortegaard Almon (Bud) Larsh Jenn-Shyang Liu Nancy Montoya Mack Morgan

Mealie Morris Francis Spurlock Sandra Stewart Dieter Typke John Wool

2022 EX-Ls OFFICERS, INFORMATION & CALENDARS

EX-Ls BOARD OF DIRECTORS

President: Howard Hatayama 1st Vice-President: Kim Williams (interim) 2nd Vice-President: open Secretary: Ken Barat Treasurer: Howard Matis Membership: Jane Tanamachi Activities Coordinator: Kathy Bjornstadt (interim) LBNL Liaison: Margaret Dick CUCRA Representative: Nancy Brown UCBRC Advisory Board: Ben Feinberg/Howard Hatayama Editor EX-Ls Newsletter: Lynn Yarris 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: Camille Koue, UCBRC

2022 EX-Ls Board Meeting Calendar

July 7, 3:00 - EX-Ls Board Meeting October 13, 3:00 - EX-Ls Board Meeting

2022 Virtual Luncheon Meetings & Events

May 19, 1:00 - EX-Ls Virtual Luncheon ZOOM talk by Faith Dukes August 18, 1:00 - EX-Ls In Person 40th Anniversary @Berkeley Yacht Club Event October (date TBD) – Director's Retiree Reception November 17 – EX-Ls Virtual Luncheon ZOOM talk by Cindy Regnier

Newsletter Suggestions

If you have an item to suggest for the EX-Ls Newsletter or an article you would like to see please contact Lynn Yarris: <u>lcyarris@gmail.com</u>