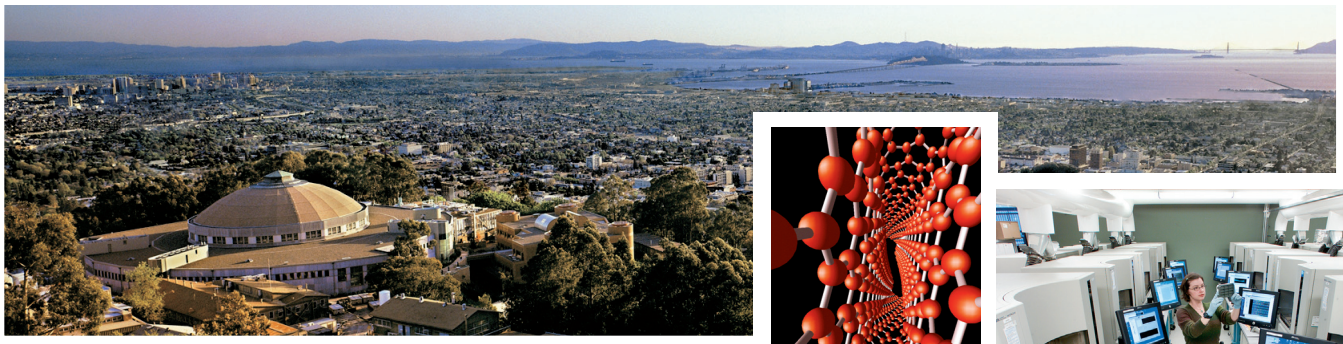
LAWRENCE BERKELEY NATIONAL LABORATORY



ABOUT BERKELEY LAB

The Lawrence Berkeley National Laboratory (Berkeley Lab) was founded in 1931 by Ernest O. Lawrence, who won the Nobel Prize in physics in 1939 for his invention of the cyclotron, which led to a Golden Age of particle physics and revolutionary discoveries about sub-atomic matter and the nature of the universe. Lawrence believed in a multidisciplinary team approach to science, and his laboratory is generally regarded as the birthplace of "big science."

Today, Berkeley Lab performs research across a broad spectrum of program areas, including nanoscience and advanced materials, life and physical biosciences, computing, energy and earth sciences, and high-energy physics and cosmology. Its scientific excellence has been recognized by a profusion of awards and honors. Eleven Nobel laureates, a dozen National Medal of Science winners and more members of the National Academy of Sciences than any other national laboratory have called Berkeley Lab their home.

Berkeley Lab is managed by the University of California (UC) for the Office of Science in the U.S. Department of Energy (DOE). It is located on a 200 acre site in the hills above the UC Berkeley campus, has a staff of approximately 4,000 employees and an annual budget of more than $520 million. Berkeley Lab enjoys a shared history and relationship with UC that is unique among the DOE national laboratories. More than 250 Lab scientists hold joint appointments with UC Berkeley and other UC campuses, and nearly 800 students, graduate and undergraduate, are employed each year.

As a San Francisco Bay Area institute, Berkeley Lab is also proximate to a host of other federal laboratories, universities and private sector R&D firms. This has provided outstanding opportunities for academic and industrial scientific partnerships. Current industrial collaborations include building the next generation of semiconductors and computer chips, and developing synthetic biology techniques for energy and biomedical applications.

MAJOR USER FACILITIES AND RESEARCH CENTERS INCLUDE:

The Molecular Foundry (TMF) — The only DOE Nanoscale Science Research Center on the West Coast, TMF research encompasses inorganic materials, including nanocrystals, nanotubes and lithographically patterned structures; and organic materials, including polymers, DNA and proteins. This research utilizes

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both "top-down" fabrications, in which existing structures and objects are made smaller; and "bottom-up" fabrications, in which atoms and molecules are connected together to make larger structures and objects.

Advanced Light Source (ALS) — The ALS is an electron synchrotron and storage ring designed to accelerate electrons to relativistic energies and extract from them beams of ultraviolet and x-ray light that are a hundred million times brighter than light from the most powerful x-ray tubes. This light can be focused to atomic-sized spots and is strobed, like a stop-action camera, flashing up to 500 million pulses per second, with each pulse lasting only a few trillionths of a second. ALS light is ideal for protein crystallography and nanofabrications.

National Energy Research Scientific Computing Center (NERSC) — One of the most powerful unclassified computing centers in the country, NERSC's array of supercomputers are capable of investigating problems of vast complexity, producing remarkably detailed models.

The Energy Sciences Network (ESnet) — A high-speed network serving thousands of DOE scientists and collaborators worldwide, ESnet is a recognized leader in high-bandwidth and reliable connections.

National Center for Electron Microscopy (NCEM) — Home to several of the world's most powerful electron microscopes, including the One Ångstrom Microscope, which broke the single angstrom resolution barrier, and the Transmission Electron Aberration-corrected Microscopes (TEAM 0.5 and 1.0), now being constructed, which will make it possible to see atoms individually positioned in space, and help scientists assemble nano-scale structures.

The Joint Genome Institute (JGI) — A multi-purpose genome sequencing and research center, JGI brings together the research capabilities of Berkeley Lab, Lawrence Livermore and Los Alamos National Laboratories. JGI's scientific mission encompasses comparative, functional, and evolutionary genomics, shedding light on many natural processes that support life on our planet.

Berkeley Center for Synthetic Biology (BCSB) — Berkeley Lab established the world's first synthetic biology department, and has now joined forces with the California Institute for Quantitative Biomedical Research (QB3) to create the BCSB. The goal is to design biological systems and components that can address problems which cannot be solved through naturally-occurring entities. This research holds enormous promise for human health, renewable energy and the environment. QB3 is a collaboration between the UC campuses of Berkeley, San Francisco and Santa Cruz.

Helios — This Berkeley Lab initiative unites proven scientific and engineering expertise in biophysics, biochemistry, electrochemistry, nanotechnology and environmental energy sciences to create or advance new solar-based energy technologies. Emphasis here is twofold: the development of efficient carbon-neutral biofuel technologies that could replace oil for transportation; and the development of materials and nanostructures that can be used in the production of new photovoltaic devices comparable in efficiency to today's solid-state solar cells, but far more durable and much cheaper to mass-produce.

Berkeley Electrochemical Research Council (BERC) — BERC performs and oversees research on advanced rechargeable batteries and fuel cells. The goal is to develop high-performance electrochemical technologies that are low cost, long lived and environmentally safe. BERC is a part of Berkeley Lab's Environmental Energy Technologies Division, whose nationally acclaimed programs have netted millions of dollars in energy savings.

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