SLAC NATIONAL ACCELERATOR LABORATORY

SLAC
By the Numbers

What is SLAC National Accelerator Laboratory? The numbers tell the tale.

Founded in **1962** with **200** employees.

Today we have **1,500** employees from **55** countries

432 postdocs and grad students

2,700 scientists from around the world use our cutting-edge facilities each year.

4 Nobel prizes awarded to **6** laureates for research at SLAC that discovered **2** fundamental particles, proved protons are made of quarks and showed how DNA directs protein manufacturing in cells.

426-acre site near the main Stanford campus.

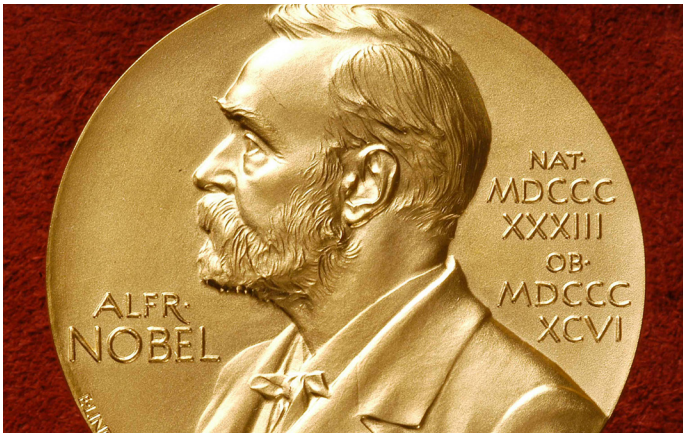
Our linear accelerator structure is **3,073.72** meters (**1.9** miles) long – one of the longest modern buildings on Earth.

Electrons zip down the accelerator at **669,600,000** mph – **99.9999999**% of the speed of light.

The energy each electron gains is equivalent to **33 billion** AA batteries.

Technology we're developing could make future accelerators up to **1,000** times shorter.

325 universities and research institutes make use of our resources. **40** companies use our X-ray facilities for research aimed at developing medicines and other products.



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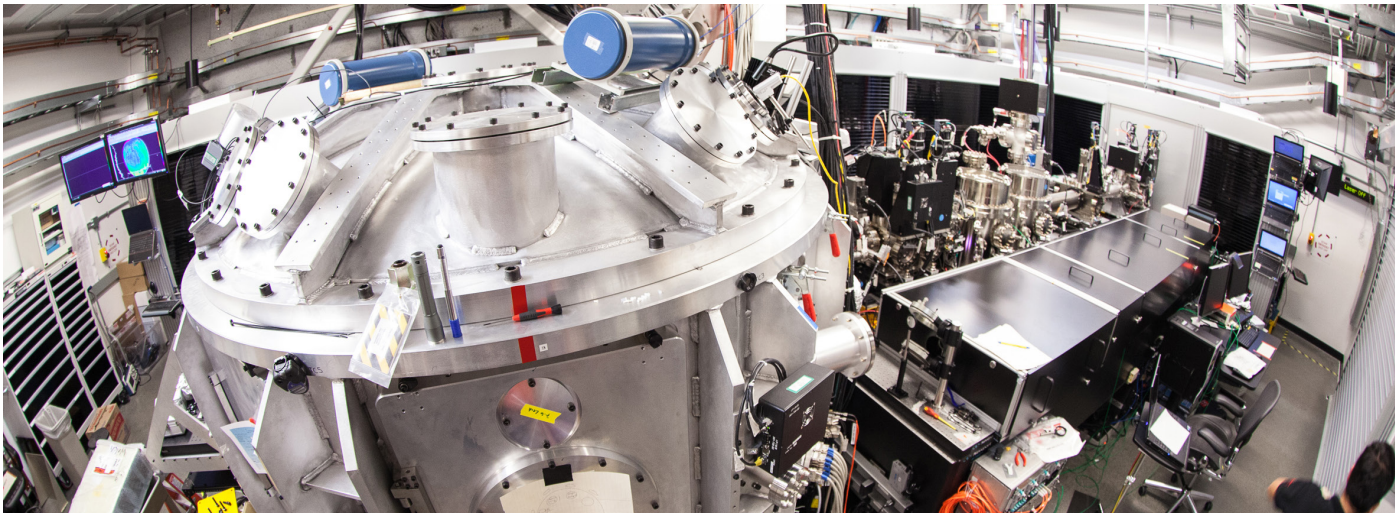
Office of Science



SLAC works with Stanford in **5** joint research centers that focus on cosmology and astrophysics, materials and energy science, cryogenic electron microscopy, catalysis and ultrafast science.

Our X-ray laser zaps samples with pulses that are **millionths of a billionth** of a second long.

A **3.2-billion**-pixel camera we're building for the world's deepest sky survey will shoot the equivalent of **800,000 8**-megapixel digital camera images per night. Over a span of **10** years it will take pictures of more galaxies than there are people on Earth.

Our labs create **36-million**-degree-F matter that mimics extreme conditions in the hearts of stars and planets, and pressures equivalent to **5,200** large African elephants stacked on **1** square inch of ground.

SLAC's highest experiment orbits **300+** miles overhead at **17,400** mph and has discovered **200+** pulsars.

SLAC's deepest experiment will hunt for dark matter in a Canadian nickel mine **6,800** feet below ground.

Our telescope near the South Pole looks for patterns left by cosmic inflation in the first **trillionth of a trillionth of a trillionth** of a second after the Big Bang.

Our LCLS-II X-ray laser beam will be **10,000x** brighter and fire **8,000x** faster than the first LCLS beam, up to **1 million** pulses per second.

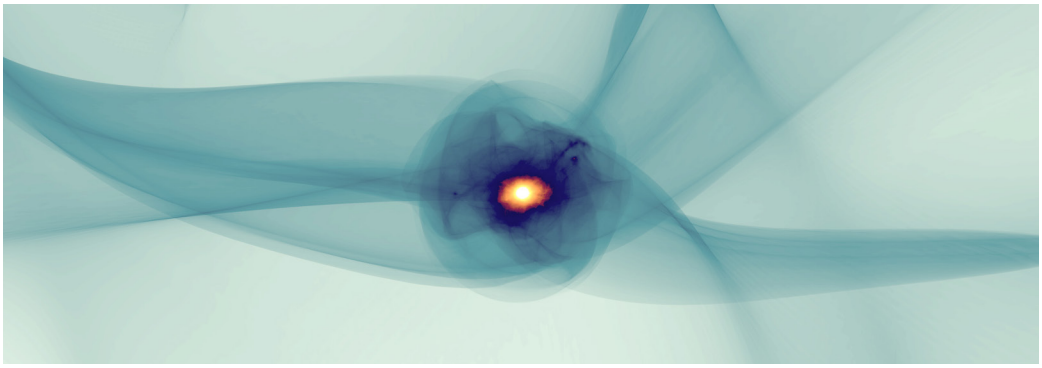
The new beam will operate at **2** degrees Kelvin – colder than outer space.

We hauled **699** tons of equipment out of the SLAC linac to make room for it.

In **1975** the Homebrew Computer Club began meeting in the SLAC auditorium and helped spark the personal computing revolution.

In **1991** we opened the **1st** website in North America. It helped physicists share their research results.

SLAC's **1st** scientific discovery was a fossil: *Neoparadoxia repenningi*, found in **1964** during excavation for the linac. It lived **14 million** years ago and resembled a hippo.



Top: An experimental station at SLAC's Linac Coherent Light Source X-ray laser where scientists study matter exposed to extreme heat and pressure. Bottom: **10 million** years after the Big Bang, a halo of dark matter forms around a galaxy in this visualization from the joint SLAC/Stanford Kavli Institute for Particle Astrophysics and Cosmology.

SLAC is operated by Stanford University for the U.S. Department of Energy Office of Science

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