# By the Numbers

slac.stanford.edu

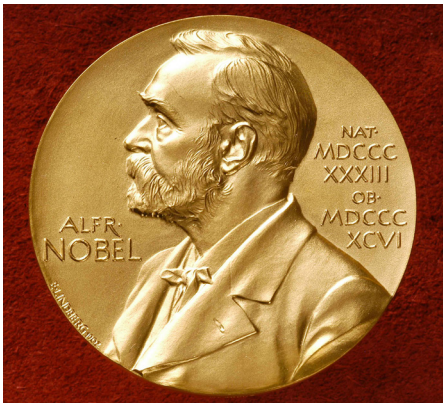
## What is SLAC National Accelerator Laboratory? The numbers tell the tale.

As one of **17** Department of Energy national labs, SLAC pushes the frontiers of human knowledge and drives discoveries that benefit humankind. We invent the tools that make those discoveries possible and share them with researchers all over the world.

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

Today we have more than **1,800** employees plus over **300** postdocs and grad students.

**Thousands** of researchers from around the world use our cutting-edge facilities.




**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 University 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.

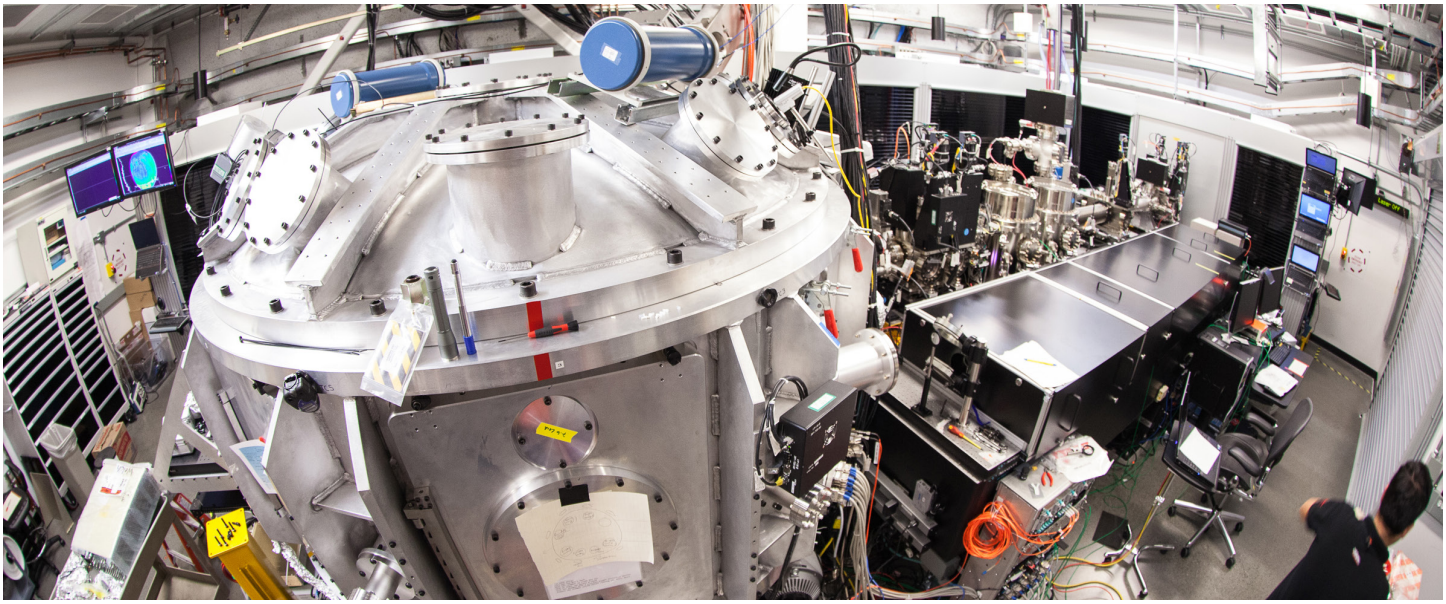
Technology we're developing could make future accelerators up to **1,000** times shorter.

**180** universities and research institutes make use of our resources.

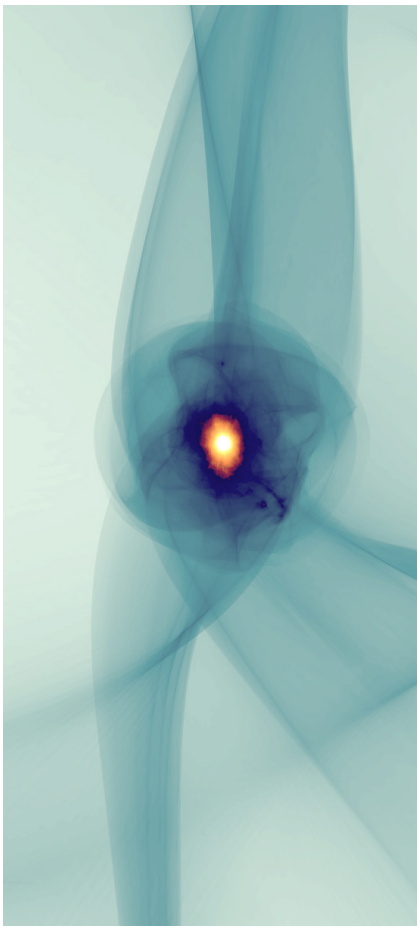
**20** companies use our X-ray facilities for research aimed at developing medicines and other products.

SLAC NATIONAL ACCELERATOR LABORATORY

Stanford University | U.S. DEPARTMENT OF ENERGY



Above: An experimental station at SLAC's Linac Coherent Light Source X-ray laser where researchers study matter exposed to extreme heat and pressure. (Matt Beardsley/SLAC National Accelerator Laboratory) Below: **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 works with Stanford in **6** joint research centers and facilities that focus on cosmology and astrophysics, materials and energy science, batteries, 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.

The **3,200**-megapixel LSST Camera we designed and built 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 upgraded LCLS X-ray laser beam will be **10,000x** brighter and fire **8,000x** faster, 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.