

News home page**News by topic**

Agriculture
Arts/Humanities
Business
Campus News
Engineering
Government/Law
Health
Science News
Social Sciences
Veterinary Medicine

Publications

UC Davis Magazine
Dateline UC Davis
Dateline electronic newsletter
Egghead blog
Futurity.org
California Aggie

Video

iTunes U
YouTube

Related news

Chancellor Katehi
UC Davis Athletics
UC Davis Health System
UC Newsroom
UCTV

News and Media Relations resources

For the news media

Strategic Communications

Third floor Mrak Hall
University of California,
Davis
One Shields Avenue
Davis, CA 95616

(530) 752-1930

Funds awarded to begin construction of Large Synoptic Survey Telescope

August 4, 2014

The National Science Foundation has agreed to support the Association of Universities for Research in Astronomy to manage the Large Synoptic Survey Telescope construction project, with a budget of up to \$473 million. The announcement caps more than 10 years of developing, planning and reviewing of the LSST concept.

"It's very gratifying to see NSF move forward with this funding," said J. Anthony Tyson, distinguished professor of physics at the University of California, Davis, and chief scientist for the LSST project. "LSST is the premiere instrument for exploring new physics, for exploring the 'dark sector' of the universe. It will let us explore the cosmos in a new way."

The LSST is designed to image the entire night sky every three nights for 10 years, producing 15 terabytes of data per night. Project designers aim to have this data freely available online within a minute of imaging. The telescope is now expected to see "first light" in 2019 and begin full science operations in 2022.

For Tyson, it's the culmination of almost two decades of effort.

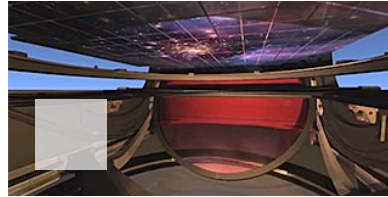
"It was apparent to us many years ago that what we needed to do to fully understand the universe was to make a huge survey that went out to the faintest objects over a very wide range of colors and wavelengths, and make a motion picture, effectively, to look at things that move and change in brightness," he said.

At the time, the Sloan Digital Sky Survey came closest, but still fell short of Tyson's goals. Advances especially in digital camera technology and computing power have steadily put the LSST within reach.

"For me, the greatest fun in science is when we know there is something really new around the corner, something we don't understand," Tyson said. "Here we know that our model of the universe is incomplete -- 95 percent of the universe is made of stuff we don't know anything about. That's interesting."

The LSST is the top-ranked large-scale, ground-based project for the next decade as recommended by the National Research Council's Astronomy and Astrophysics decadal survey in 2010. NSF is the lead agency responsible for the telescope and site, education and outreach, and the data management system, and the Department of Energy providing the camera and related instrumentation. Both agencies expect to support postconstruction operation of the observatory.

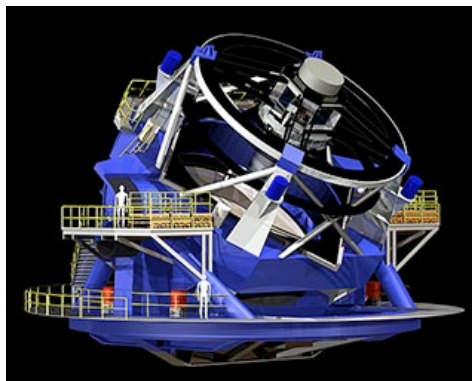
By creating a moving image of the sky, LSST will allow astronomers to



Tyson: Telescope brings new physics

Video (2 min 53 sec)

Videography by Ruben Rojas/UC Davis



The 8.4-meter LSST will use a special three-mirror design, creating an exceptionally wide field of view. (LSST/rendering)

[Printable version](#)

detect comets, asteroids, supernovae, gamma-ray bursts and other fast-moving or changing objects. It will give insight into the beginnings of the solar system. But most significantly, it will map the distribution of "dark matter," the invisible material that makes up about a quarter of the known universe, by looking for distortions of light from background objects. It will also give insights into "dark energy," the mysterious force that is causing the expansion of the universe to accelerate.

The early development of LSST was supported by the LSST Corporation, a nonprofit consortium of universities and other research institutions, including UC Davis. Fabrication of the major mirror components for LSST is already underway, thanks to private funding received from the Charles and Lisa Simonyi Foundation for Arts and Sciences, Bill Gates, and other individuals. Receipt of federal construction funds allows major contracts to move forward, including those to build the telescope mount assembly, the figuring of the secondary mirror, the summit facility construction, the focal plane sensors, and the camera lenses.

The Particle Physics Project Prioritization Panel, an advisory subpanel of the Department of Energy's High Energy Physics Advisory Panel, recommended last month that the department move forward with support for the LSST under all budget scenarios, even the most pessimistic.

The Association of Universities for Research in Astronomy is a consortium of 39 US institutions and six international affiliates that operates world-class astronomical observatories. AURA's role is to establish, nurture, and promote public observatories and facilities that advance innovative astronomical research. In addition, AURA is deeply committed to public and educational outreach, and to diversity throughout the astronomical and scientific workforce. AURA carries out its role through its astronomical facilities.

LSST project activities are supported through a partnership between the National Science Foundation and the U.S. Department of Energy. NSF supports LSST through a Cooperative Agreement managed by AURA. The Department of Energy funded effort is managed by the SLAC National Accelerator Laboratory. Additional LSST funding comes from private donations, grants to universities, and in-kind support from institutional members of the LSST Corporation, a nonprofit entity with headquarters in Tucson.

About UC Davis

UC Davis is a global community of individuals united to better humanity and our natural world while seeking solutions to some of our most pressing challenges. Located near the California state capital, UC Davis has more than 34,000 students, and the full-time equivalent of 4,100 faculty and other academics and 17,400 staff. The campus has an annual research budget of over \$750 million, a comprehensive health system and about two dozen specialized research centers. The university offers interdisciplinary graduate study and 99 undergraduate majors in four colleges and six professional schools.

Additional information:

- [LSST homepage](#)
- [Association of Universities for Research in Astronomy](#)
- [NPR: New Telescope To Make 10-Year Time Lapse Of Sky \(2012\)](#)
- [Large Synoptic Survey Telescope gets top ranking \(2010\)](#)
- [Telescope receives \\$30 million from Charles Simonyi and Bill Gates \(2008\)](#)
- [Congressional hearing on asteroid threat \(2007\)](#)
- [Google joins Large Synoptic Survey Telescope project \(2007\)](#)
- [Keck Foundation donates \\$1.5 million to the Large Synoptic Survey Telescope \(2007\)](#)

Media contact(s):

- Tony Tyson, Physics, (530) 752-3830, tyson@physics.ucdavis.edu
- Andy Fell, UC Davis News Service, (530) 752-4533, ahfell@ucdavis.edu

[Return to the previous page](#)

Copyright © The Regents of the University of California, Davis campus. All Rights Reserved.