

VERA C. RUBIN OBSERVATORY

The Vera C. Rubin Observatory is an advanced telescope that will view more of the universe from the southern hemisphere than all previous ground-based telescopes combined. L3Harris built upon world leadership in space-based technology to develop an advanced telescope optic for Rubin Observatory. The 3.5-meter secondary mirror and mirror cell assembly will help scientists explore the structure and evolution of the universe and the objects in it.

THE DEEPEST, WIDEST VIEW OF OUR UNIVERSE

The observatory, a project led by a consortium of more than 35 universities, research institutions, corporations and individuals, will provide an unprecedented survey of the universe through panoramic imagery.

Once the observatory is fully operational, the telescope will survey the entire visible southern sky every few days for a decade. Over the course of the survey, the telescope's 3,200 megapixel camera will amass about 800 panoramic images for each patch of the sky over 10 years, essentially creating "movies" of the universe. The observatory's initial 10-year mission is named the Legacy Survey of Space and Time, or LSST.

The completed ground-based telescope will be located on Cerro Pachón in Chile and will provide scientists with the data needed to address today's most compelling questions in astro-

physics. Rubin Observatory has been designed as a public facility. Data will be available worldwide through the public engagement platform over the internet.

L3HARRIS' ROLE

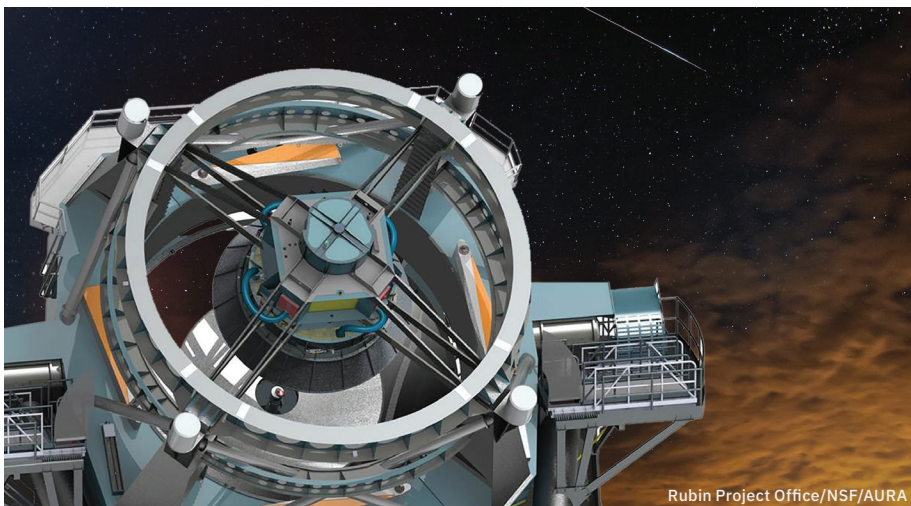
L3Harris was responsible for manufacturing the observatory's secondary mirror and associated ground support equipment. At 3.5 meters in diameter, the 3,500-pound secondary mirror is L3Harris' largest optic to date for a ground-based observatory, and was completed and shipped to the telescope's location in South America in 2018.

The secondary mirror is a solid meniscus design fabricated from ultra-low expansion glass.

L3Harris also manufactured the mirror's cell assembly, which consists of the polished secondary mirror, mirror support system, mirror cell electronics and sensors, thermal control system and the mirror control system.

BENEFITS

- > Deliver an unprecedented survey of the universe through panoramic imagery
- > Identify potentially hazardous asteroids and new solar systems
- > Understand dark energy that is driving the accelerating expansion of the universe
- > Create three-dimensional maps of the universe



Rubin Project Office/NSF/AURA

Unprecedented maps of the universe

Rubin Observatory will provide three-dimensional cosmic maps of the universe, as well as traditional images of luminous stars and galaxies. These maps will help scientists to understand the properties of dark energy and dark matter.

SHEDDING LIGHT ON DARK MATTER

The observatory was named a top priority in the National Research Council's Astro2010 report, "New Worlds, New Horizons in Astronomy and Astrophysics." The decadal survey ranked it as the top large-scale, ground-based project for the next decade.

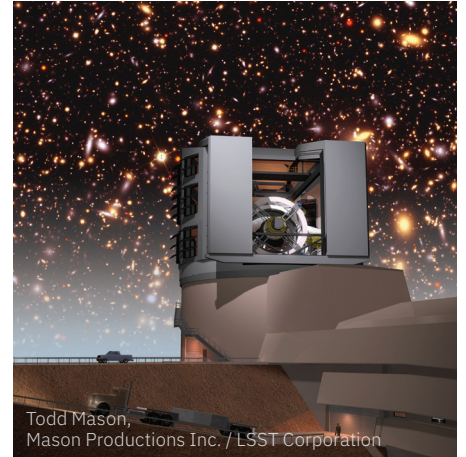
Over its 10 years of operation, the observatory will detect tens of billions of objects allowing it to chart the history of the expansion of the dynamic universe. It will also support the research areas of dark matter and energy.

CONSTRUCTION

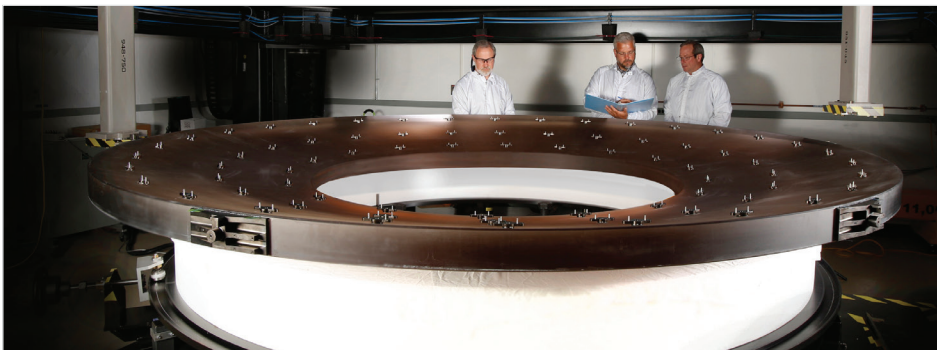
The National Science Foundation (NSF) is the lead federal agency for Rubin

Observatory construction and provides support for the telescope and site facility construction, the data management system and the education and public outreach components. The NSF-funded Rubin Project Office is managed by the Association of Universities for Research in Astronomy (AURA). The Department of Energy (DOE) supports the camera fabrication. The DOE-funded effort to build the Rubin Observatory camera is managed by the SLAC National Accelerator Laboratory. Additional observatory funding comes from private donations, grants to universities and in-kind support from Institutional Members.

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The observatory was known as the Large Synoptic Survey Telescope, or LSST, during its development. The NSF renamed it in January 2020 to honor Vera C. Rubin, an American astronomer whose work on galaxy rotation rates provided convincing evidence of the existence of dark matter. It is the first U.S. national observatory to be named after a woman.



Rubin Observatory secondary mirror

This material is based upon work supported by the National Science Foundation under Cooperative Agreement AST-1258333 issued to the Association of Universities for Research in Astronomy, Inc. ("AURA") for support of the LSST Project.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Vera C. Rubin Observatory (Rubin Project Office, AURA)

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