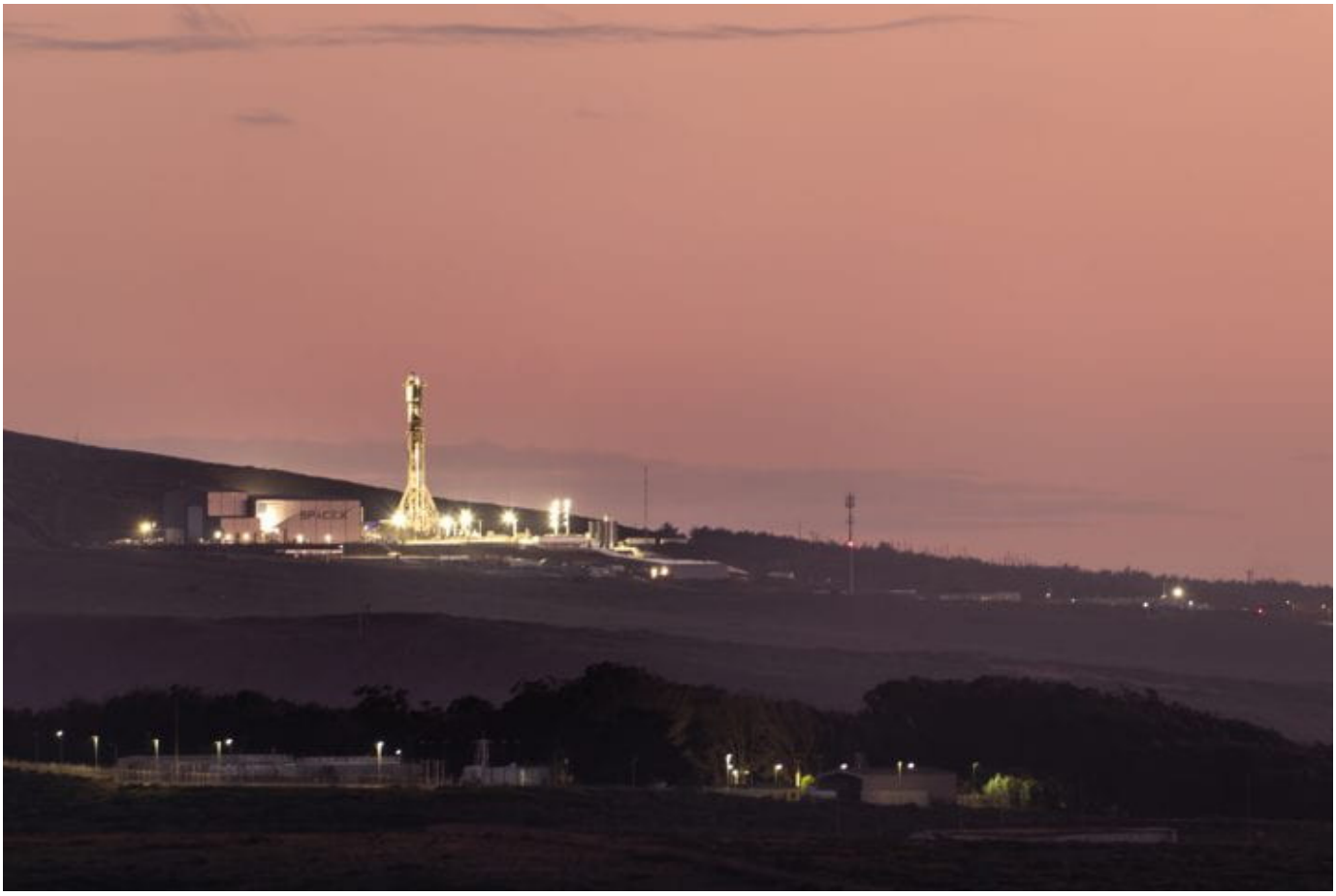
UC Irvine astronomers view launch of new NASA space telescope

Two-year SPHEREx mission will map the universe and look for life-supporting molecules in the Milky Way.
Friday, March 14, 2025
Brian Bell
UC Irvine News



On the evening of Tuesday, March 11, a SpaceX Falcon rocket was staged on a launch pad at Vandenberg Space Force Base on California's central coast. Its payload was SPHEREx, NASA's new space telescope on a two-year mission to map the cosmos.

Picture Credit:
Asantha Cooray / UC Irvine

A UC Irvine astronomer got a privileged view of the launch of a rocket from Vandenberg Space Force Base on California's central coast on Tuesday as a SpaceX thruster carried into orbit SPHEREx, NASA's newest space telescope.

Lead scientist Asantha Cooray, UC Irvine professor of physics & astronomy, was in the NASA control room as the rocket blasted off. Cooray is leader of the team that will be analyzing scientific observations related to distant galaxies with SPHEREx from UC Irvine, one of 10 institutions involved in the project.

"The launch Tuesday evening was an amazing experience, especially with the sonic boom of the landing booster at Vandenberg," said Cooray. "We came close to another delay after six launch attempts since February 27, but the weather cleared at around 6 p.m. for the launch window at 8:10 p.m."

Image



Asantha Cooray, UC Irvine professor of physics & astronomy, was at Vandenberg Space Force Base in California to witness the launch of NASA's new SPHEREx space telescope. Cooray is leading a team at UC Irvine who will use data from the observatory to study cosmic history and galaxy evolution. UC Irvine

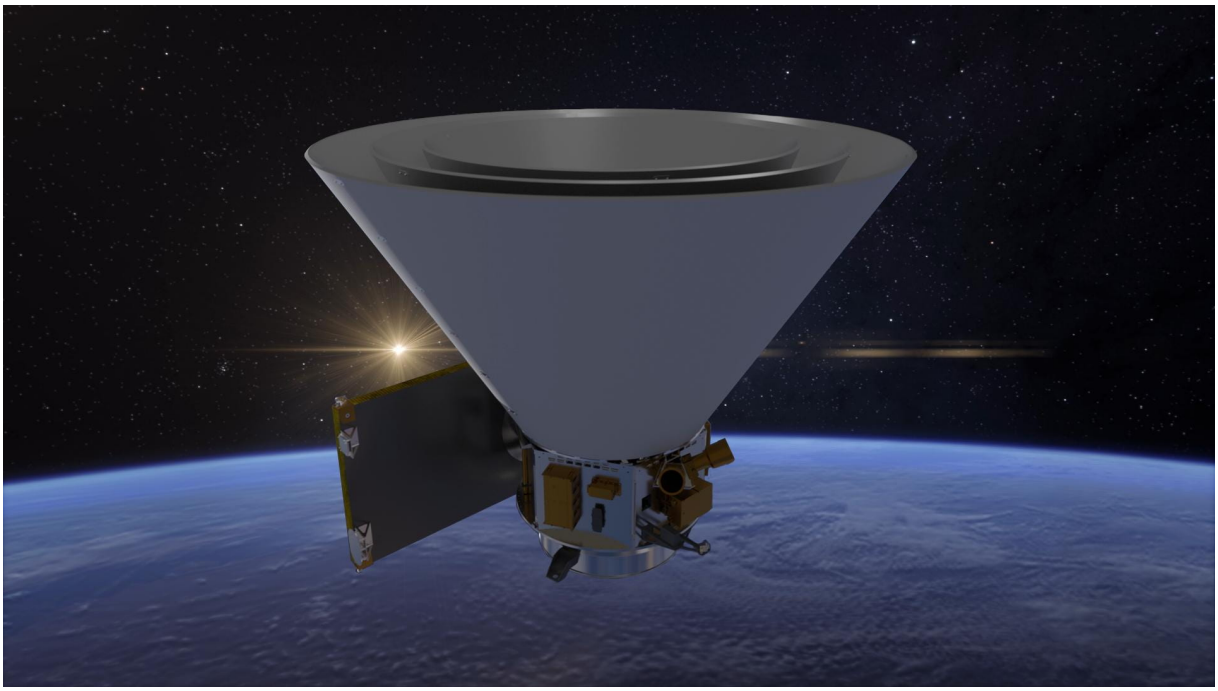
Cooray was situated near Vandenberg Space Force Base since before the first scheduled launch in late February, so he was able to observe the launch first-hand.

Members of his research group watched from the rooftop of the Anteater Recreation Center on campus.

“The journey from designing a space telescope mission to launching the instrument into Earth’s orbit takes many years and requires scientists involved to have a lot of patience, so to see the launch happen in person is very exciting,” said Cooray. “But most exciting of all is looking forward to using SPHEREx to make new discoveries and learn more about the universe.”

SPHEREx, which is short for Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer, will be used to study hundreds of millions of galaxies and other space objects during its two-year mission. Using 102 color filters, the observatory is designed to create a map of the entire night sky in infrared wavelengths that are invisible to the human eye.

SPHEREx differs from NASA’s other famous space-based observatories, including the Hubble Space Telescope and the James Webb Space Telescope. While those two are designed to zero in on specific points in space to obtain high-resolution data, SPHEREx is a survey telescope that will take wide-angle pictures of the universe to cover the full sky.



NASA’s SPHEREx space telescope was launched into orbit 400 miles above the Earth’s surface recently. The instrument will be used to create an all-sky map of the universe to help astronomers answer questions about the

history of the cosmos and learn more about the presence of water and other life-supporting molecules in the Milky Way galaxy. NASA

Astronomers using the observatory, including those at UC Irvine, will investigate the origins of the universe and phenomena such as inflation, the moment trillionths of a second after the Big Bang in which the universe underwent a huge expansion. SPHEREx will enable scientists to study galaxy formation and evolution across entire universe and explore the presence of water and other life-sustaining molecules in the Milky Way galaxy.

The SPHEREx spacecraft will orbit Earth slightly more than 400 miles overhead. It will remain above our planet's night-day boundary for the entire mission, using its conical photon shields to protect it from the sun's rays and from their reflections off of the Earth's surface. This will allow the telescope to maintain its 380-degrees below zero (42 Kelvin) temperature to ensure optimal deep-space observations. SHEREx will orbit Earth every 98 minutes, imaging a 360-degree strip of the cosmos with each pass, completing an all-sky map in six months.

"SPHEREx will help us detect light emitted by all galaxies, even ones that have been invisible to us thus far," said Cooray. "This map of the universe will help us find answers to some of the most fundamental questions we have about cosmic history."

SPHEREx is managed by NASA's Jet Propulsion Laboratory in Southern California for NASA's Astrophysics Division within the Science Mission Directorate in Washington.

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