

# NASA Selects Astrophysics Projects for New Science on the Moon

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NASA has selected four proposals focusing on astrophysics priorities in lunar science to facilitate the nation's exploration program. The proposed studies are part of a NASA effort to develop new opportunities to conduct important science investigations during the planned renewal of human exploration of the moon.

The newly-announced proposals for concept studies may lead to experiments placed on the moon that would allow for unprecedented tests of Einstein's General Theory of Relativity, instruments to probe the early evolution of structure in the universe, and observation of X-rays produced by the charged particles the sun emits, known as the solar wind. Instruments based on these concept studies also would provide unique information on the interior structure of the moon and on Earth-moon interactions.

"We're very excited by the proposals the scientific community sent us to advance lunar science through astrophysics," said Alan Stern, associate administrator for NASA's Science Mission Directorate, Washington.

"The moon figures prominently in NASA's exploration goals, and these projects each give us a way to expand our knowledge of the moon and our universe on a greater scale."

Two concept studies propose to place suitcase-sized instruments at various locations on the moon so the distance from the Earth to the moon can be determined to the submillimeter level. These observations will yield a wealth of science, including precision tests of general

relativity and greater understanding of the structure of the moon and Earth-moon interactions. The proposals are:

-- "A Lunar Laser Ranging Array for the 21st Century" from the University of Maryland at College Park. Douglas Currie is Principal Investigator.

-- "Precision Lunar Laser Ranging" from NASA's Goddard Space Flight Center in Greenbelt, Md. Stephen Merkowitz is Principal Investigator.

A third concept study proposes to place a small radio telescope array on the moon to study particle acceleration in celestial objects such as supernovae, quasars and the solar corona. It also will serve as a pathfinder for a future possible radio telescope to measure the growth of structure in the early universe. The study is "Radio Observatory for Lunar Sortie Science" from the Naval Research Laboratory in Washington. Joseph Lazio is Principal Investigator.

The fourth project will measure X-ray emissions caused by the solar wind and its interactions with Earth's magnetosphere. It also will help improve future measurements of low-energy X-ray emission from our galaxy. "Lunar-Based Soft X-ray Science" is the study from Goddard. Michael Collier is Principal Investigator.

Source: NASA

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