

SPACE EXPLORATION SYMPOSIUM (A3)  
Moon Exploration – Poster session (2D)

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INTERNATIONAL LUNAR OBSERVATORY: THE MOON AS THE NEXT FRONTIER FOR  
ASTRONOMY**Abstract**

The International Lunar Observatory Association (ILOA) has been advancing ‘Astronomy from the Moon’ research and advocacy since it began development of its ILO-1 long-duration lunar South Pole mission early this century. With this mission development experience, and a Directorate including some of the world’s most preeminent experts on lunar exploration and astronomy, ILOA is well positioned to demonstrate the value of the Moon as the next frontier of astronomy.

The Moon has several clear advantages for astronomical observations such as an extremely thin exosphere, and a stable platform with 24-hour operability facilitating long-duration observations. The far side of the Moon, with its radio-quiet environment, has long been proposed as an ideal site for an array of radio telescopes.

The ILOA missions have focused on the South Pole as a preferred location. The Moon’s South Pole, with its peaks of near-Eternal Light provides a more stable environment in regards to thermal and power conditions, and a continual line of site to Earth for observation and communications. Visibility of Southern Hemisphere astronomical objects is ideal as ILOA intends to image the central portion of the Milky Way Galaxy in its historic First Light program for 21st Century education, inspiration and direction.

ILO-X is a more near-term mission (2015) to demonstrate the viability and value of astronomy from the Moon. ILOA is partnering with Moon Express Inc., a privately funded lunar enterprise focused on science, exploration and commerce on the Moon, to deliver a 7-cm optical telescope aboard its 2015 MX-1 mission in pursuit of the US\$40M Google Lunar XPRIZE competition.

China currently is pioneering astronomy from the Moon with its Lunar Ultraviolet Telescope, a key payload on the Chang’e-3 lander. Through its MoUs with both NAOC and CNSA, ILOA is already actively participating in astronomy from the Moon. The success of this project, the excitement it has inspired, and the channels for international collaboration it has provided, present clear support for additional future Moon observatory missions.

The first astronomical observatory was placed on the Moon by ILOA Director emeritus Cmdr. John Young during Apollo 16. A suite of observatories may soon be ringing the Moon as humanity develops the new frontier for astronomy. Development and maintenance of these observatories will likely be concurrent with advanced human missions to the 8th continent. The Moon thus will provide a vantage point for humanity to advance its exploration of the cosmos both astronomically and astronautically.