



Lunar Science Opportunities for Students within Higher Education

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Abstract

The NASA Lunar Science Institute (NLSI) is a virtual institute focused on lunar science, training the next generation of lunar scientists, and education and public outreach. As part of the NLSI mission, we act as a hub for opportunities that engage the public through education and outreach efforts in addition to forming new interdisciplinary, scientific collaborations.

This talk will outline several opportunities for undergraduate and graduate students as well as early-career scientists and engineers to engage the lunar science and exploration communities through workshops, conferences, online seminars and classes, student exchange programs and internships.

1. Introduction

The NASA Lunar Science Institute (NLSI) was founded in 2008 to act as a virtual institute that provides interdisciplinary research centered on the goals of its supporting directorates: NASA Science Mission Directorate (SMD) and the Exploration Systems Mission Directorate (ESMD). NLSI consists of a diverse set of domestic teams and (currently) seven international teams, ultimately represented by greater than 75 distinct research institutions and more than 250 individual lunar researchers and EPO specialists. Primary research goals of the Institute revolve around three major themes: 1) studies OF the Moon (geology, formation, chemistry, interactions with the space environment), 2) studies ON the Moon (how the unique lunar environment affects robotic and human exploration and in turn how surface operations fundamentally change the lunar environment), and 3) studies FROM the Moon (how can we use the Moon as a unique

platform to study other natural phenomena such as cosmology, heliophysics, Earth observations, etc).

As the Institute's scientific goals are diverse, so are our opportunities for young researchers to participate in a variety of special programs designed to introduce them into the lunar research field and expose them to the larger planetary community.

1.1 NLSI Mission Statement

The Mission of the NLSI and its member investigators is to advance the field of lunar science by:

- 1) conducting collaborative research in lunar science, investigating the Moon itself and using the Moon as a unique platform for other investigations;
- 2) enabling cross-disciplinary partnerships throughout the lunar science community;
- 3) providing scientific and technical perspectives to NASA on its lunar research programs and missions;
- 4) training the next generation of lunar scientists; and
- 5) encouraging Education and Public Outreach (EPO) through formal education content development, informal student programs and participatory public events.

2. Opportunities for Young Researchers

The decline in funding opportunities after the termination of the Apollo missions to the Moon in the early 1970's produced a large gap in both the scientific knowledge and experience of the original lunar Apollo researchers and the resurgent group of young lunar scientists that have emerged within the last 15 years. One of NLSI's many goals is to bridge this gap through the many networking and scientific connections made between young researchers and established lunar principle investigators. To this end, NLSI has supported the establishment of NextGen Lunar Scientists and Engineers group (NGLSE), a group of students and early-career professionals designed to build experience and provide networking opportunities to its members. NLSI has also created the LunarGradCon, a scientific conference dedicated

solely to graduate and undergraduate students working in the lunar field. Additionally, NLSI produces monthly seminars and bi-yearly virtual workshops that introduce students to the wide variety of lunar science being performed in today's research labs. NLSI also brokers opportunities for domestic and international student exchange between collaborating laboratories as well as internships at our member institutions.

6. Summary

The NLSI provides opportunities for students to bridge the scientific and generational gap currently existing in the lunar field. This bridge is essential to the continued international success of scientific, as well as human and robotic, exploration.