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NASA Lunar Science Institute Cooperative Agreement Notice

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Notices of Intent Due:
Proposals Due:
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**NASA LUNAR SCIENCE INSTITUTE
COOPERATIVE AGREEMENT NOTICE**

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NASA LUNAR SCIENCE INSTITUTE COOPERATIVE AGREEMENT NOTICE

1.0 FUNDING OPPORTUNITY DESCRIPTION

1.1 Introduction to the Funding Opportunity

The NASA Lunar Science Institute (NLSI) announces, through the release of this Cooperative Agreement Notice (CAN), an opportunity for the submission of multi-institutional team-based proposals for research. Proposals must clearly articulate an innovative, broadly-based research program in lunar science, together with plans to advance the full scope of NLSI objectives, as defined in the Institute's Mission Statement (see Section 1.3 and <http://lunarscience.arc.nasa.gov>).

Participation in this solicitation is open to all categories of organizations (see Section 3.1). Proposals involving multiple cooperating organizations must be submitted by a single institution which becomes the Lead Institution; the Lead Institution must be the Principal Investigator's (PI's) home institution. The intent of this solicitation is to provide funding to U.S. institutions; non-U.S. organizations are eligible to propose, but are not eligible to receive research funding from NASA (see Section 3.3).

1.2 Definitions and Terms

- Institute = NASA Lunar Science Institute (NLSI).
- Principal Investigator (PI) = scientist who is the leader of the proposing research team (see Section 3.2).
- Co-Investigator (Co-I) = other senior member of a research team (see Section 3.2).
- Collaborator = additional team member, not necessarily funded through this cooperative agreement (see Section 3.2).
- Institution = any research organization.
- Lead Institution = PI's home institution and the research organization submitting the proposal, either individually or on behalf of a group of cooperating Institutions.
- Co-institution = any of the group of cooperating institutions other than the Lead Institution.
- Team = the group of scientists from the Lead Institution and Co-institutions that will carry out the proposed research.
- NLSI member = any individual Team participant so identified by a Team PI.

1.3 Overview of the Institute

Lunar Science is central to NASA's objectives for robotic and human exploration of the Moon. The Mission of the NASA Lunar Science Institute and its members is to advance the field of lunar science by:

- Carrying out and supporting collaborative research in lunar science, investigating the Moon itself, and using the Moon as a unique platform for other investigations;
- Providing scientific and technical perspectives to NASA on its lunar research programs, including developing investigations for current and future space missions;
- Supporting the development of the lunar science community and training the next generation of lunar science researchers; and
- Supporting Education and Public Outreach by providing scientific content for K-14 education programs and communicating directly with the public.

For the NLSI, lunar science is broadly defined to include studies:

- *Of the Moon:* Investigations of the nature and history of the Moon (including research on lunar samples and investigations of the population and flux of impactors) to learn about this specific object and thereby provide insights into the evolution of our solar system;
- *On the Moon:* Investigations of the effects of the lunar environment on physical and biological systems. This also includes the equipment that supports lunar inhabitants and the effects of robotic and human presence on the lunar environment; and
- *From the Moon:* Use of the Moon as a platform for performing scientific investigations, including observations of the Earth and other celestial phenomena that are uniquely enabled by being on the lunar surface.

Because the institutions which compose the NLSI will be geographically dispersed, the NLSI will be a “virtual institute” based on the successful model of the NASA Astrobiology Institute (<http://astrobiology.nasa.gov/nai>). The Teams themselves will propose and carry out their own research, but will benefit from interaction with other NLSI Teams and the unique expertise that each Team brings. This structure is necessary to ensure that the NLSI has the breadth and talent to address a diverse range of questions in lunar science and provide appropriate findings to NASA.

The NLSI website (<http://lunarscience.arc.nasa.gov>) contains additional information about the Institute. A National Research Council study released in 2007, *The Scientific Context for Exploration of the Moon* (http://www.nap.edu/catalog.php?record_id=11954), also provides reference material about many aspects of lunar science.

1.4 Principal Investigators and the Executive Council

A Principal Investigator (PI) heads each NLSI Team. The Team PIs, together with the NLSI Director and Deputy Director, constitute the NLSI Executive Council. This Council meets regularly by videocon and in person to serve as a forum for the exchange of technical and scientific information and the exchange of individual viewpoints concerning science priorities and opportunities for further collaboration with entities in and out of government, among other topics. The Executive Council is charged with the following specific roles:

- Raise, discuss, and provide insight into issues such as Institute-wide research objectives, lunar science mission opportunities, and priorities for technology development;
- Consider and comment on potential external partnerships (e.g., international, interagency, or corporate);

- Comment on the conduct of the Institute and discuss possible metrics and evaluative approaches aimed at assessing the progress of the NLSI; and
- Consider and provide perspective on other lunar science issues at the request of the Director.

1.5 International Partners

The NLSI is initiating a program of partnerships with international lunar science organizations to provide collaborative research opportunities for all members of the international science community. Through this International Partners program, and separate from this or any future CAN, non-U.S. lunar science organizations can propose to become either Associate or Affiliate Members of the NLSI. These partnerships are formed on a no-exchange-of-funds basis. International institutions interested in partnership with the Institute are encouraged to consider this program as an alternative to responding to this CAN. See Section 3.3.1 for more information.

For international institutions wishing to propose to this CAN on a no-exchange-of-funds basis, detailed guidelines are provided in Section 3.3.

1.6 Electronic Communication and Collaboration

The Institute uses a variety of modern telecommunications and information technology tools to conduct virtual meetings, seminars, and conferences; link the NLSI Teams; share knowledge; and enable effective interactions both within and amongst teams. Proposers must plan (and budget) for the adequate availability of Information Technology (IT) expertise, both to support Team members as they incorporate these tools into their activities and to provide a representative to the NLSI IT Working Group (ITWG). This group, composed of IT representatives from each Team, works together to evaluate and implement the effective use of information technology tools. NLSI will provide any necessary communication equipment to the selected teams and will train ITWG members in the use of the equipment and other tools (see Section 4.4).

1.7 Education and Public Outreach

The NLSI is committed to fostering the broad involvement of the science community in Education and Public Outreach (E/PO), with the goal of enhancing the Nation's formal education system and contributing to general public understanding of science, technology, engineering, and mathematics (STEM).

NLSI's E/PO Program consists of the activities undertaken by the Teams with coordination by the Institute's central office, providing links with NASA missions, and leading national and international E/PO activities. Team efforts could include, but are not limited to, educational exhibits at museums, science centers, and national parks; production of K-14 curricular materials and associated teacher training workshops; youth summer camp programs; undergraduate mentoring programs, public presentations, conferences, and lectures; and targeted activities in underserved communities.

Each Team must identify an individual as E/PO Lead who is responsible for the Team's E/PO activities and who participates in the NLSI E/PO Working Group. This group meets via regular teleconferences, at the annual NLSI Lunar Science Conference, and other educational and scientific meetings, as necessary.

NASA, more generally, delivers a comprehensive Agency education portfolio implemented by the Office of Education, the Mission Directorates, and the NASA Centers. Through the portfolio, NASA contributes to our Nation's efforts in achieving excellence in STEM education. The NASA Science Mission Directorate (SMD) is a major contributor to the overall NASA education and outreach effort. The NLSI's participation in NASA's comprehensive approach to E/PO is based on key documents that establish guiding policies for these activities:

- *NASA's Education Strategic Coordination Framework: A Portfolio Approach* is the guiding document for E/PO across the Agency. It builds on the education goals outlined in the *NASA 2006 Strategic Plan*, identifying three specific and measurable Outcomes to allow achievement of those goals. The *Framework* is available at <http://education.nasa.gov/about/strategy>, and the *NASA 2006 Strategic Plan* is available at <http://www.nasa.gov/news/budget>.
- *Explanatory Guide to the NASA Science Mission Directorate Education and Public Outreach Evaluation Factors* outlines the evaluation factors by which NASA SMD evaluates its education and outreach investments. These factors help investigators align their proposed E/PO efforts with the goals and objectives of NASA and SMD education and outreach. This *Guide* is intended to give a flavor of what exemplary E/PO can be rather than a prescription for what to do. It is available at <http://nasascience.nasa.gov/researchers/education-public-outreach/explanatory-guide-to-smd-e-po-evaluation-factors>.

1.8 NASA Safety Policy

All prospective proposers to this CAN are advised that the highest priority in all of NASA's programs is safety. Safety is the freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment. NASA's safety priority is to protect the public, astronauts and pilots, the NASA workforce (including employees working under NASA award instruments), and high value equipment and property.

2.0 AWARD INFORMATION

2.1 Award Type and Funding Information

It is anticipated that \$8-10M will be available for this selection in the first award year, leading to approximately 5-7 awards to selected lead institutions, each of 4 years duration. Annual funding allotments after the first award year will be provided only after the submission of an acceptable progress report (see Section 6.3). Note that all funding awards are contingent upon the availability of appropriated funds.

NASA will negotiate cooperative agreements with the selected lead institutions and will administer all funding. Except as provided below, cooperative agreements in accordance with regulations 14 CFR Part 1260 for educational and nonprofit institutions and 14 CFR part 1274 for commercial organizations will be used as funding instruments for the NASA Lunar Science Institute (see *Grants and Cooperative Agreement Handbook*, NPR 5800.1, available at <http://ec.msfc.nasa.gov/hq/grcover.htm>).

Specific resource arrangements established under this notice will vary depending on the nature of the lead institution as follows:

- (a) Institutions of Higher Education and State and Local Government: Cooperative agreements will be negotiated.
- (b) Nonprofit and For-Profit Organizations: Cooperative agreements will be negotiated. See Section 3.4 for information on cost-sharing.
- (c) U.S. Government-Owned, Contractor-Operated National Laboratories (not including Civil Service or military staff laboratories): Necessary resources will be provided via an interagency funds transfer and documented under a Memorandum of Agreement between the sponsoring organization and NASA.
- (d) Non-NASA Government-Owned and Operated Laboratories: Necessary resources will be funded via an interagency funds transfer and will be documented using a Memorandum of Agreement between the other agency's laboratory and NASA. Negotiated project resources may be used to cover direct project costs.
- (e) NASA Centers (including JPL): The necessary resources for NASA-led proposals will be provided via NASA's internal funding procedures. If researchers from other institutions are included on a successful NASA-led proposal, then the necessary resources will be provided by the Center through the funding mechanisms listed above, as appropriate.

When NASA personnel are part of a selected team led by an institution other than a NASA Center, necessary resources will be provided directly to the participating NASA Center through NASA's internal funding procedures. The cost for any NASA participation (under currently specified requirements for full cost accounting) must be included in the total cost of the proposal, for evaluation purposes and identified in the proposal budget as a direct cost separately from the funding agreement with the Lead Institution (see Section 4.5).

2.2 Period of Performance

The Cooperative Agreements will have a nominal four-year period of performance. A Cooperative Agreement implies a substantial involvement between, and contribution by, NASA and the recipient, in addition to the provision of research funding.

2.3 Cancellation of CAN

NASA reserves the right to make no awards under this CAN in the absence of program funding or for any other reason. NASA assumes no liability (including bid and proposal costs in case of cancellation) for canceling the CAN or for anyone's failure to receive actual notice of cancellation. Should cancellation be necessary, notice will be made to all institutions submitting a Notice of Intent and it will also be sent to the SMD research solicitations E-mail list (free to all registered users of the NASA proposal data base system at <http://nspires.nasaprs.com>), published in Federal Business Opportunities (<http://www.fedbizopps.gov/>), and published by the NASA Acquisition Internet Service (NAIS; <http://prod.nais.nasa.gov/>).

2.4 Schedule for Awards

NASA's goal for announcement of selections is ≤ 120 days after receipt of proposals with initial awards distributed in early 2009. However, these estimates can change, based on the workload experienced by NASA, the availability of funds, the status of NASA's annual appropriation, and any necessary postselection negotiations with the proposing organization(s) needed for the award(s) in question.

2.5 Description of NASA Contribution

The NASA Lunar Science Institute is a distributed consortium that represents a partnership among NASA and competitively selected NLSI Teams to promote, conduct, and lead integrated multidisciplinary lunar science research. The Director and administrative staff of the NLSI are located at the NASA Ames Research Center. NASA's contribution to the proposed cooperative relationship under this CAN, through the NLSI central office, is to coordinate and integrate the work of the individual NLSI Teams, facilitate collaboration among the members of the Institute and its international partners, develop and implement the full scope of other NLSI programs and activities, and otherwise, further advance the field of lunar science. NASA does this, in part, by providing funding, structure, and management to support the research and other activities of the individual NLSI Teams.

3.0 ELIGIBILITY INFORMATION

3.1 Proposing Organizations

NASA welcomes proposals in response to this CAN from all qualified proposers. Participation in this program is open to all categories of U.S. and non-U.S. organizations, including educational institutions, industry, not-for-profit institutions, the Jet Propulsion Laboratory, as well as NASA Centers and other U.S. Government agencies. Historically Black and Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSI), and Tribal Colleges and Universities (TCU), as well as other minority educational institutions, small disadvantaged businesses, veteran-owned small businesses, service-disabled veteran-owned small businesses, HUBZone small businesses, women-owned small businesses, and organizations owned and controlled by socially and economically disadvantaged individuals are encouraged to apply. In accordance with Federal statutes and NASA policy, no eligible applicant shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under any program or activity receiving

financial assistance from NASA on the grounds of race, color, creed, age, sex, national origin, or disability.

3.2 Principal Investigators

Every organization submitting a proposal in response to this CAN must designate a single Principal Investigator (PI) who will be responsible for the quality and direction of the entire proposed investigation and for the use of all awarded funds. Note that NASA does not accept the designation of a “Co-Principal Investigator;” there must be only one PI who is solely responsible for the proposed investigation.

NASA strongly encourages proposers to identify only the most important personnel to aid in the execution of their proposals. Co-Investigators (Co-Is) may be identified who are critical for the successful completion of an investigation through the contribution of unique expertise and/or capabilities, who serve under the direction of the PI, and who receive compensation directly under the award. A Co-I must have a well-defined role in the investigation that is explicitly defined in the Management section of the proposal (see Section A.2.3 below). In addition, for all proposals submitted in response to this CAN, evidence of the commitment of all Co-Is to participate in the proposed investigation is required by way of a brief statement, even if they are from the same institution as the PI (see Section A.2.3 below). Other team members should be listed as Collaborators.

A senior, leading Co-I may be additionally designated as an “Institutional PI” if his/her institution is committed to make a major contribution to a proposal submitted by a PI from another institution. At the recommendation of the NLSI Director, NASA may elect to provide an award directly to that Co-I institution with the Institutional PI serving as the “PI” for what otherwise would be a subaward from the proposing PI institution. However, in such a case, the proposal's designated PI is still held responsible by NASA for the overall scientific direction of the proposed effort. Note that the PI budget submission should assume that such a secondary award will not be made; all costs associated with a proposal should be included in the budget submission.

3.3 Guidelines for Non-U.S. Participation

3.3.1 NLSI International Partners Program

The NASA Lunar Science Institute welcomes partnership with other international science organizations to provide collaborative opportunities for its researchers within the global science community. Non-U.S. lunar science organizations can propose to become either Associate or Affiliate Members of the NLSI. Associate Membership entails a formal agreement between NASA and the foreign government. International organizations that do not elect to pursue formal government-to-government agreements would be considered Affiliate Members. Proposals for Associate or Affiliate Membership can be submitted at any time to the NLSI Director and should not be submitted in response to this CAN.

International partner membership requires long-term commitment from both the partner and the NLSI, together with tangible and specific plans for scientific interaction that will produce results

of mutual benefit to both the NLSI and the international partner. Although the focus of this program is research in lunar science, it also includes collaborative activities that address any of the objectives defined in the NLSI Mission Statement, particularly space flight mission support and training of the next generation of lunar scientists. It is preferred that organizations proposing partnership represent a broad range of academic or research groups able to represent the lunar science activity within a country.

The expectations described above apply to both Affiliate and Associate Membership. However, due to the government-to-government nature of Associate Membership, such agreements will be required to demonstrate a higher level of specificity and productivity in the planned collaborations, the sources of support for those activities, as well as the expected benefit to both the NLSI and the international partner.

Further information on the NLSI International Partners program may be found at <http://lunarscience.arc.nasa.gov> (select “International”).

3.3.2 Additional Guidelines Applicable to Non-U.S. Proposals and Proposals Including Non-U.S. Participation Submitted in Response to this CAN

(1) NASA will consider proposals from non-U.S. entities. However, non-U.S. entities are not eligible to receive funding from NASA to carry out research programs. Therefore, unless otherwise noted, proposals from non-U.S. entities should not include a cost plan unless the proposal involves collaboration with a U.S. institution, in which case a cost plan for only the participation of the U.S. entity must be included. Proposals from non-U.S. entities and proposals from U.S. entities that include non-U.S. participation must be endorsed by the respective government agency or funding/sponsoring institution in the country from which the non-U.S. entity is proposing. Such endorsement should indicate that the proposal merits careful consideration by NASA and, if the proposal is selected, that sufficient funds will be made available to undertake the activity as proposed. Non-U.S. institutions expressing interest in collaborating with the NLSI are, as an alternative to this solicitation, encouraged to become familiar with and consider the NLSI’s International Partnership Program (see Section 3.3.1).

(2) U.S. research award recipients may directly purchase supplies and/or services from non-U.S. sources that do not constitute research, but award funds may not be used to fund research carried out by non-U.S. organizations. However, subject to export control restrictions, a foreign national may receive remuneration through a NASA award for the conduct of research while employed either full- or part-time by a U.S. organization.

(3) All non-U.S. proposals must be written in English and comply with all other submission requirements stated in this CAN. All non-U.S. proposals will undergo the same evaluation and selection process as those originating in the U.S. All proposals must be received before the established closing date. Those received after the closing date will be treated in accordance with the provisions of Section 4.2.4. Non-U.S. sponsors may, in exceptional situations, forward a proposal without endorsement if the endorsement is not possible before the announced closing date. In such cases, the NASA HQ sponsoring office (through the NLSI point of contact, section 7.0) should be advised when a decision on endorsement can be expected.

(4) Successful and unsuccessful proposing non-U.S. entities will be notified regarding selection by letter from the NASA sponsoring office, and copies of these letters will be sent to the non-U.S. sponsor. Should a non-U.S. proposal or a U.S. proposal with non-U.S. participation be selected, NASA's Office of External Relations will arrange with the non-U.S. sponsor for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsor will each bear the cost of discharging their respective responsibilities. Depending on the scope of the proposed cooperation, NASA's Office of External Relations may choose to pursue a Memorandum of Understanding (MOU), Letter of Agreement (LOA), an implementing agreement under a framework agreement, or some combination of these agreements, in order to allow the cooperation to take place. Additionally, in some cases, interim agreements may be put in place until a more permanent arrangement is reached. Except in rare cases, agreements will not be put in place for concept study periods, if there were to be any such periods.

3.3.3 Export Control Guidelines Applicable to Proposals

Proposers are advised that, under U.S. law and regulations, spacecraft and their specifically designed, modified, or configured systems, components, and parts are generally considered "Defense Articles" on the United States Munitions List and subject to the provisions of the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120-130. Information regarding U.S. export regulations is available at http://www.pmdtc.state.gov/itar_index.htm. While explicit inclusion of such material in a proposal is not prohibited, it may, in some circumstances, complicate NASA's ability to evaluate the proposal since occasionally NASA may use the services of foreign nationals who are not lawful permanent residents of the U.S. to review proposals submitted in response to this CAN. Therefore, proposers to this CAN are strongly encouraged not to include material subject to the provisions of ITAR in their proposals, although the effort being proposed may itself be subject to ITAR (see website noted above). If it is essential to include any export controlled information subject to ITAR in a proposal, a notice to that effect must be prominently displayed on the title page of the proposal that shall state:

The information (data) contained in [insert page numbers or other identification] of this proposal is (are) subject to U.S. export laws and regulations. It is furnished to the Government with the understanding that it will not be exported without the prior approval of the proposer under the terms of an applicable export license or technical assistance agreement.

Note that it is the responsibility of the proposer to determine whether any proposal information is subject to the provisions of ITAR.

3.4 Cost Sharing or Matching

Institutions of higher education are not required to propose or provide matching funds for the cooperative agreement; nonetheless, NASA can accept cost sharing if it is voluntarily offered. Cost sharing is required for commercial organizations to receive a cooperative agreement, unless the commercial organization can demonstrate that it will not receive substantial compensating benefits for the partnership effort. If no substantial compensating benefits will be received, then cost sharing is not required, but can be accepted.

4.0 PROPOSAL AND SUBMISSION INFORMATION

4.1 Address to Request Proposal Package

This CAN contains all instructions and references needed to respond to the announcement.

4.2 Proposal Submission

4.2.1 Proposal Submission Date, Time, and Location

CAN Release Date:	June 2, 2008
Notices of Intent Due:	June 27, 2008
Questions Due:	Up to 10 days prior to proposal due date
Proposals Due (by electronic submission):	August 29, 2008, 11:59 pm Eastern Time

Address for submission of proposals:

All proposals submitted in response to this CAN must be submitted in a fully electronic form. No hard copy of the proposal is required or permitted. Electronic proposals must be submitted by one of the officials at the PI's organization who is authorized to make such a submission; electronic submission by the authorized organization representative (AOR) serves for the proposal as the required original signature by an authorized official of the proposing organization.

Proposers may opt to submit proposals in response to this CAN via either of two different electronic proposal submission systems: either via the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) at <http://nspires.nasaprs.com> or via Grants.gov. Additional information about the NSPIRES system can be found in Section A.1 of Appendix A.

4.2.2 Notice of Intent to Propose

Notices of Intent (NOIs) to propose are requested by the date given in Section 4.2.1, to aid NASA in establishing a peer review process that is free from conflicts of interest and that incorporates the requisite expertise. The submission of an NOI is not a commitment to submit a proposal, nor is information contained therein considered binding on the submitter. Notices of Intent will be treated as competition-sensitive material. NOIs are to be submitted electronically by entering the requested information through the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) at <http://nspires.nasaprs.com>. Additional information about the NSPIRES system can be found in Section A.1 of Appendix A. For the purpose of generating an NOI, the system will request the following information:

- the Principal Investigator's name, physical location mailing address, phone number, and E-mail address;
- the name(s) and institution(s) of any Co-Investigator(s) known by the NOI due date;
- a descriptive title of the intended investigation;
- a brief description of the investigation to be proposed; and
- a brief description of the proposed E/PO effort.

A separate NOI should be submitted for each intended proposal. Note that this NOI is also the preliminary version of the *Proposal Cover Page/Proposal Summary*; and can be used to update the information for the final *Proposal Cover Page/Proposal Summary*. Additional details regarding the *Proposal Cover Page/Proposal Summary* can be found in Section A.2.3 of Appendix A.

In order to be able to submit an NOI or the required *Proposal Cover Page/Proposal Summary* for their proposal, all investigators proposing to this CAN must be preregistered in the NASA proposal database system (NSPIRES) and receive a User ID and password. This includes the PI and all Co-Investigators and Collaborators. Registration into this proposal data system can be done at the website <http://nspires.nasaprs.com>. Early registration is advised. A Help Desk is available at (202) 479-9376 or by E-mail at nspires-help@nasaprs.com.

4.2.3 Questions Related to this CAN

Clarification questions regarding this solicitation should be submitted in writing or via E-mail no later than 10 days prior to the proposal due date to the designated point-of-contact given in Section 7.0.

Note that, where appropriate, questions and answers will be made publicly available on the NSPIRES web page on which this CAN is posted. It is the responsibility of interested proposers to check for such information prior to the submission of their proposals.

4.2.4 Late Proposals

No late proposals will be accepted.

4.2.5 Withdrawal of Proposals

Proposals may be withdrawn by the proposer at any time before award. Proposers are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate withdrawal of the proposal or termination of evaluation.

4.3 Content and Form of Proposal Submission

Detailed requirements for the content and form of proposal submission are contained in Appendix A of this CAN.

4.3.1 General Scope

Proposals should clearly articulate the innovative lunar research program to be pursued; its relevance to NASA goals and objectives; the associated costs and institutional commitment offered; the relevance of the Team's research program and associated approach to the nature of the NLSI consortium; and the specific areas in which the Team's activities will contribute to supporting and developing the field of lunar science. It is expected that the Team members will represent more than one institution, and in many cases an interdisciplinary approach is also appropriate. Proposers are advised to thoughtfully address their approach to science management

within the Team, discussing how the members and their individual contributions will be integrated into a productive whole, including the use of information technology (IT) to promote participation and cohesion both within and between Teams. Proposers should clearly articulate how their proposal will contribute to the overall goals of the Institute.

4.3.2 Institutional Commitment

The term 'institutional commitment' is intended to include those aspects of existing or proposed infrastructure that will contribute in a substantial way to the development of the field of lunar science and the NLSI. Contributions by both the lead institution and other Team members or institutions can be considered. Examples include: training of undergraduate, graduate, and postgraduate students in lunar science and its related fields; academic degree or certification programs in lunar studies; permanent or tenure-track positions; offices, laboratories, and other experimental or computational facilities; communications technology equipment and/or staff time; associated research groups that can be shown to be of direct and substantive benefit to the Institute and the lunar scientific community; and engineering and technology planning and development capabilities that allow substantive contributions to existing or planned NASA space or lunar/planetary exploration missions. In general, the cooperative offer of these and other critical resources to be provided at no cost to the NLSI by the proposer is considered *prima facie* evidence of institutional commitment.

4.3.3 Specific Objectives

Successful proposals must address and be highly responsive to all three evaluation criteria (see Section 5.1).

Proposals should include broadly based investigations of the highest quality that address lunar science objectives. Proposals that address a single question should bring integrated, interdisciplinary expertise and methodology to bear on the question. Proposals consisting of projects addressing multifaceted questions must demonstrate credible, scientific connections amongst the projects. It is expected the teams will bring together broadly based expertise from more than a single institution. The merit of the proposed investigation will be evaluated as part of Criterion 1 (see Section 5.1.1).

Proposals must put forth specific plans of how the proposed team will integrate with the overall Institute – its members, programs, and objectives – to further expand the scope and impact of the lunar science community. The merit of the proposed plans will be evaluated as part of Criterion 2 (see Section 5.1.2).

The research, training, E/PO, and other activities described in each proposal must demonstrate how they relate strategically to NASA's lunar science and exploration goals. The relevance of the proposed activities will be evaluated as part of Criterion 3 (see Section 5.1.3).

4.3.4 Desirability for Teaming with Underrepresented and Minority Institutions

NASA recognizes that critical steps must be taken to broaden the participation of underrepresented groups and Minority Institutions in NASA missions, research, and education

programs (e.g., see *NASA Science Plan 2007-2016* at <http://nasascience.nasa.gov/about-us/science-strategy>). The NLSI is committed to increasing the participation of underrepresented groups in its activities and strongly encourages Minority Institutions to participate in proposals as Lead or Co-Institutions.

NASA's Office of Equal Opportunity Programs recognizes the definition of a Minority Institution as identified by the Office of Civil Rights, U.S. Department of Education. Additional information regarding the criteria for designation as a Minority Institution and the current list of qualifying institutions can be found at the following websites:

- For Tribal Colleges and Universities see:
<http://www.ed.gov/about/inits/list/whtc/edlite-tcllist.html>
- For Historically Black Colleges and Universities see:
<http://www.ed.gov/about/inits/list/whhbcu/edlite-list.html>
- For Hispanic Serving Institutions see:
http://www.hacu.net/assnfe/CompanyDirectory.asp?STYLE=2&COMPANY_TYPE=1.5

4.3.5 Education and Public Outreach

As detailed in Section 1.7, above, E/PO must be an integral element of all NLSI proposals. Up to 5% of the total proposed budget in each proposal may be allocated to E/PO activities. Following selection and award, Institute members are expected to be actively involved in implementing their Team's E/PO program(s) and to participate in NLSI's E/PO program as coordinated by the NLSI central office. Connections to other Science Mission Directorate (SMD) or Exploration Systems Mission Directorate (ESMD) E/PO efforts are strongly encouraged.

4.4 Proposal Funding Restrictions

(1) The construction of facilities is not an allowed activity for any of the programs solicited in this CAN unless specifically stated. For further information on the allowability of costs, refer to the cost principles cited in the *Grants and Cooperative Agreements Handbook*, Section 1260.127 (<http://ec.msfc.nasa.gov/hq/grcover.htm>).

(2) Travel, including foreign travel, is allowed as may be necessary for the completion of the proposed investigation, as well as for publicizing its results at appropriate professional meetings.

(3) Profit for commercial organizations is not allowable under grant awards, but is allowable under contract awards.

(4) U.S. research award recipients may directly purchase supplies and/or services from non-U.S. sources that do not constitute research, but award funds may not be used to fund research carried out by non-U.S. organizations. However, subject to export control restrictions, a foreign national may receive remuneration through a NASA award for the conduct of research while employed either full- or part-time by a U.S. organization.

(5) Regardless of whether functioning as a team lead or as a team member, personnel from NASA Centers must propose budgets based on Full Cost Accounting (FCA) and consistent with

NASA's current implementation of simplified FCA for the requested year of performance. Proposal budgets from NASA Centers must include all costs that will be paid out of the resulting award. Costs that will not be paid out of the resulting award, but are paid from a separate NASA budget (e.g. Center Management and Overhead (CM&O)) and are not based on the success of this specific proposal, should not be included in the proposal budget. For example, CM&O should not be included in the proposal budget while direct civil service labor, travel, and other direct charges (including procurements and contractor labor) to the proposed task should be included.

(6) Non-NASA U.S. Government organizations should propose based on FCA unless no such standards are in effect; in that case, such proposers should follow the *Managerial Cost Accounting Standards for the Federal Government*, as recommended by the Federal Accounting Standards Advisory Board (for further information, see <http://www.hq.nasa.gov/fullcost/>). Proposal budget totals must include all costs that will be paid out of the resulting award.

(7) Partnering between NASA scientists and scientists from other Federal laboratories can take a number of forms, both formal and informal. Any and all valid mechanisms are open for consideration by NASA. Examples include: Intergovernmental Personnel Act (IPA) appointments, an interagency agreement, leaves of absence or sabbaticals to participate on-site at any of the institutions, Memoranda of Understanding (MOUs) for shared facility usage, arrangements for joint appointments, and/or opportunities for Government scientists to teach at accredited universities.

(8) Any costs for the purchase and/or usage of specific hardware or software, or any costs associated with the use of high performance networks essential for the proposed research, must be included in the budget. NASA will cover all costs associated with the purchase and installation of a room-based videoconferencing system for a designated conference room at the Lead Institution. NASA may cover costs associated with certain additional communication and collaboration tools, as needed, to be negotiated at the start of the award.

5.0 PROPOSAL EVALUATION AND SELECTION

5.1 Evaluation Criteria

The three criteria for evaluation of proposals in response to this CAN are:

Science and technical merit	50%;
Merit of the plan to support other Institute objectives	30%; and
Relevance	20%.

Selection is expected to be highly competitive, and deficiencies in any of the three evaluation criteria may result in the nonselection of a proposal. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the offeror's most favorable terms.

5.1.1 Science and Technical Merit (50%):

This criterion addresses the scientific and technical merit of the proposed research program, including innovative and interdisciplinary approaches to fulfill the research objectives. This criterion also includes appropriate scientific breadth of the research, quality of scientific staff, and the management approach proposed for the productive coordination of the various elements. In addition, this criterion will include the likelihood that the period of performance is adequate, and will include an assessment of cost – whether it is realistic and reasonable, both in the context of the proposed scope of work and compared to the funds available through this CAN. Because this is the first CAN for selection of NLSI Teams, it is not appropriate to restrict the subject matter of the proposed research unduly. It is expected that the selected research programs will themselves help to define the overall content and direction of future NLSI research. However, the following broad research questions should be used as guidelines in defining the scientific content of the proposed work, related to science *of* the Moon, *on* the Moon, and *from* the Moon:

- How did the Moon form and how did its interior structure arise?
- How has the impact history of the Earth-Moon system been recorded on the lunar surface? This topic can include evaluation of the population of impactors over time.
- How have volcanic processes on the Moon been initiated over lunar history and how do the volcanic flows reflect the interior composition?
- How have solar processes and space weather altered the lunar surface over time and been recorded in the lunar regolith?
- How will the lunar environment (e.g., gravity, dust, radiation, plasma, etc.) affect surface operations and influence designs for living on the Moon?
- What are the environmental conditions and the volatile content of the lunar poles?
- How will increased human activities alter the lunar environment?
- How can life from Earth adapt to long stays on the Moon?
- How can the Moon be used as a platform to advance important science goals in astronomy, Earth observation, and the physical and life sciences?

5.1.2 Merit of the Plan to Support Other Institute Objectives (30%: 10% E/PO, 20% other):

This criterion addresses the merits of the proposed activities, in addition to and distinct from the scientific and technical quality of the research plan, that will contribute to the objectives of the Institute as a multidisciplinary collaborative consortium. Teams are expected to be multi-institutional, and every team and every member of the NLSI is expected to be an active participant in the Institute's cooperative endeavors. In evaluating the elements specifically advanced to address this section, reviewers will assess the degree to which the proposers understand the demands of participation in the NLSI and how well they are prepared to meet those demands. Included in this criterion is the evaluation of the required E/PO component.

Required Subelement: Education and Public Outreach (10%): An active and innovative E/PO program in lunar science can include one or more of the following areas: K-14 education

programs such as teacher training initiatives; work with informal education providers such as science centers, museums, planetaria, community-based organizations, local, state, or national parks, etc.; higher education programs such as summer internships or other mentoring programs; targeted underserved communities including urban, rural, and minority communities; and the general public. Partnering with education professionals and leveraging funds from elsewhere within or outside NASA are especially encouraged.

The specific evaluation criteria that will be used to evaluate the E/PO component of each proposal, together with specific guidelines for preparing an E/PO plan, can be found in the Explanatory Guide to the NASA SMD E/PO Evaluation Factors, available at: <http://nasascience.nasa.gov/researchers/education-public-outreach/explanatory-guide-to-smd-e-po-evaluation-factors>. Costs associated with the E/PO effort are to be explained within the narrative of the E/PO plan and incorporated into the overall Budget Summary of the proposal (see Section A.2.3 in Appendix A).

Other Possible Subelements within this Criterion (20%):

The following categories are presented as nonexclusive examples of activities that contribute to the objectives of the NLSI as a cooperative organization that supports its members, the public, and contributes leadership to NASA and the wider scientific community. The potential activities below exemplify the NLSI's commitment to interdisciplinary education and expansion of the professional community, to the training of young career scientists, and to service to NASA. They also represent the importance of institutional commitment from the proposing organizations. A proposal is not required to show strength in all of these areas.

- **Training:** development of undergraduate and/or graduate courses, degree programs, or other formalized curricula in lunar science.
- **Professional Community Development:** staffing or activities that strengthen and support the development of the profession of lunar science, such as publications programs, workshops, seminar series, and/or focus groups.
- **Information Technology:** creative and innovative ways to use modern communication and other information technologies to enable research, training, collaboration, and other interactions among Institute members.
- **Teaming with Minority Institutions:** efforts to include underrepresented groups in a broad cross-section of team activities, including research, training, E/PO, and other collaborative activities.
- **Staff:** institutional commitment in the form of faculty or staff time dedicated to lunar science, including personnel for support of E/PO.
- **Facilities:** major laboratory or other research facilities, especially facilities that can be made available to researchers from other institutions.
- **Commercial Space Development:** activities that support the development of and strengthen ties with commercial space enterprises.
- **Other:** any other additional evidence of commitment to building a strong interdisciplinary lunar science community and enhancing the effectiveness of the NLSI.

5.1.3 Relevance (20%):

This criterion addresses the relevance of the overall, integrated proposal to the lunar science and exploration goals of NASA. Proposals must demonstrate the potential contribution of the effort to NASA's mission, as expressed in the most recent NASA and SMD strategy documents (<http://nasascience.nasa.gov/about-us/science-strategy>). Proposals of high relevance must also demonstrate an understanding of, and articulate how, the proposed research relates to and will influence the field of lunar science, as well as ongoing and planned research activities and flight missions of NASA. Strategic relevance would be demonstrated by, but is not limited to, the following:

- support of current or future lunar space missions,
- technology or instrument development related to lunar missions,
- fundamental research having clear and critical but longer-term implications for acquiring or interpreting data from the Moon,
- training of the next generation of multidisciplinary lunar scientists,
- synergistic collaboration with other funding agencies, or other NASA programs, particularly between science and exploration, and
- leveraging synergies and benefits of human and robotic exploration.

5.2 Evaluation Process

Proposals submitted under this CAN will be reviewed by panels composed of the proposers' professional peers who have been screened for conflicts of interest. In addition, the panel reviews may be augmented by one or more mail reviews solicited by the SMD or ESMD Program Officers that are made available to the panel reviewers once they convene. As a general rule, and as based on its deliberations, a peer panel is authorized to wholly or partially accept or reject any such mail reviews. The final consensus evaluation determined by the panel is reviewed and approved for completeness and clarity by the chairperson of the panel and the attending SMD and ESMD Program Officers.

The number and significance of strengths and weaknesses for each of the three criteria (science and technical merit – including cost effectiveness, merit of the plan to support other institute objectives, and relevance) will be used to evaluate the proposal. A single overall grade will be given to each proposal based on the following adjectival scale:

Review panels are instructed not to compare proposals to each other, but to base all evaluation comments on the criteria and objectives as stated in the CAN. To help ensure uniformity of the reviews, NASA asks its reviewers to document their findings using clear, cogent language that is understandable to the nonspecialist. NASA asks reviewers to organize their comments into major and minor strengths and weaknesses, where it is understood that a minor weakness is correctable if addressed early in the period of performance, but that a major weakness is considered a serious flaw that would effectively prevent in part or wholly the proposed objectives from being accomplished or that otherwise may render the proposal unsuitable for consideration for funding (e.g., the proposal fails to address the CAN's objectives, does not show promise of making a significant advance in its field, or is too costly compared to the available resources).

Summary Evaluation	Basis for Summary Evaluation	Relationship of Summary Evaluation to Potential for Selection
<u>Excellent</u>	A comprehensive, thorough, and compelling proposal of exceptional merit that fully responds to the objectives of the CAN as documented by numerous and/or significant strengths and having no major weaknesses.	High priority for funding pending the availability of funds and programmatic balance in the context of the objectives of the CAN and/or the existing program as a whole.
<u>Very Good</u>	A highly competent proposal of very high merit that fully responds to the objectives of the CAN, whose strengths fully outbalance any weaknesses.	Selectable subject to the availability of funds, NASA's discretion to determine programmatic balance, and that no Excellent proposal having substantially the same objective(s) is displaced.
<u>Good</u>	A competent proposal that represents a credible response to the CAN whose strengths and weaknesses essentially balance.	May be selected as funds permit for purposes of programmatic balance once dissimilar programmatic areas represented by Excellent and Very Good proposals have been funded.
<u>Fair</u>	A proposal that provides a nominal response to the CAN but whose weaknesses outweigh any perceived strengths.	Not selectable regardless of the availability of funds.
<u>Poor</u>	A seriously flawed proposal having one or more major weaknesses (e.g., an inadequate or flawed plan of research or lack of focus on the objectives of the CAN).	Not selectable regardless of the availability of funds.

5.3 Selection Process

At the conclusion of the review process, selection recommendations are developed by the appropriate SMD and ESMD Program Officers, with concurrence of the NLSI Director, and submitted to the Selection Official together with the evaluation report and materials. The Selecting Official for the NLSI CAN is the Director of the Planetary Science Division of SMD in consultation with ESMD.

Note that NASA reserves the right to offer selection of only a portion of a proposed investigation; in such a case, the proposer will be given the opportunity to accept or decline NASA's offer. For this program, it is expected that a cooperative agreement will be sought for all selected institutions other than Government agencies, for which an interagency transfer of

funds will be used, or NASA Centers, for which internal funding procedures will be used (see Section 2.1).

6.0 AWARD ADMINISTRATION INFORMATION

6.1 Notice of Award

As soon as possible after the selection is concluded, the Selecting Official or Program Officer will inform each proposer of the selection or non-selection of his/her proposal by postal letter or electronic mail and will offer a debriefing. For selected proposers, the offeror's business office will be contacted by a NASA Awards Officer, who is the only official authorized to obligate the Government. Any costs incurred by the offeror in anticipation of an award will not be reimbursed. Awards are made to the proposing institution, not directly to the proposal PI.

6.2 Administrative and National Policy Requirements

This solicitation does not invoke any special administrative or National policy requirements, nor do the awards that will be made involve any special terms and conditions that differ from NASA's general terms and conditions as given in the *Grants and Cooperative Agreements Handbook* (available at <http://ec.msfc.nasa.gov/hq/grcover.htm>).

6.3 Award Reporting Requirements

Annual funding allotments after the first award year will be provided only after the submission of an acceptable progress report. The requirement for annual reporting is met by satisfactory input to the NLSI's Annual Science Report.

All information disseminated as a result of this cooperative agreement shall contain a statement which acknowledges the NLSI's support and identifies the award by number (e.g., "These results are based upon work supported by the NASA Lunar Science Institute under award No(s) GRNASM99G000001, etc.").

7.0 POINT OF CONTACT FOR FURTHER INFORMATION

Clarification questions regarding this solicitation should be submitted no later than 10 days prior to the proposal due date in writing or via E-mail to:

NASA Lunar Science Institute
Dr. David Morrison
Interim Director, NLSI
NASA Ames Research Center N17-1
Moffett Field CA 94035-1000
Phone: 650-604-1850
Fax: 650-604-1700
E-mail: David.Morrison@nasa.gov

8.0 ANCILLARY INFORMATION

8.1 Sources of Information and Data

The NLSI supports research investigations relevant to the scientific interpretation of data from past lunar missions that are now in the public domain and to the science and exploration objectives of future missions. NLSI supports investigations that use only publicly available and released data. Data to be used in proposed investigations must be available in the Planetary Data System (PDS) (<http://pds.nasa.gov>) or other publicly accessible archive(s) no later than 30 days prior to the submission due-date for NLSI proposals. Spacecraft data that have not been placed in the public domain or that has not yet been acquired may not be proposed for use in NLSI investigations. In all cases, it is the responsibility of the investigator to acquire any necessary data. Therefore, before submitting a proposal, each proposer must determine that the necessary data are available. Proposers who wish to use photographic and cartographic materials may access such data through the nearest Regional Planetary Image Facility (RPIF). RPIF locations are listed on the RPIF home page at <http://www.lpi.usra.edu/library/RPIF>.

Members of current lunar flight teams who wish to apply to the NLSI program must clearly demonstrate that their proposed investigation will use only released and publicly available data. Additionally, current flight team members must clearly demonstrate how the proposed NLSI research does not overlap – and is nonredundant with – data analysis duties/responsibilities already funded within the respective mission.

8.2 Public Access to Data

As a matter of NASA policy, all data taken or products created in the performance of a NASA research award are considered to be public domain. In addition, NASA may judge that new data or products (including items produced in the pursuit of Education/Public Outreach efforts) obtained through an investigation selected through this CAN may be of value to the science and/or education communities at large. If so, NASA reserves the right to direct that such items be deposited in an approved publicly accessible site and will negotiate appropriate funding to enable such activities (e.g., the reduction and calibration of the data into a format amenable for use by peer scientists).

8.3 Accessibility and Usability Guidelines

NASA shall ensure that employees with disabilities have access to and use of information and data that is comparable to information and data available for other employees or members of the public without disabilities. The proposal shall address how electronic and information technology accessibility will be met. For additional information regarding the Architectural and Transportation Barriers Compliance Board (Access Board) policies, the following resources are provided:

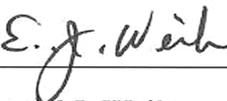
- Accessibility Guidelines <http://www.hq.nasa.gov/webmaster/accessibility/>
- Usability Guidelines <http://www.usability.gov>

9.0 Concluding Statement

Through this solicitation, the NASA Lunar Science Institute seeks to strengthen and enrich the lunar science and exploration community. We enthusiastically invite proposals to help us achieve this goal.



James L. Green
Director
Planetary Science Division



Edward J. Weiler
Associate Administrator
for Science Mission Directorate

APPENDIX A

CONTENT AND FORM OF PROPOSAL SUBMISSION FOR NASA LUNAR SCIENCE INSTITUTE

- A.1 NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES)
- A.2 Guidelines for Preparation of Proposal
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A.1 NASA SOLICITATION AND PROPOSAL INTEGRATED REVIEW AND EVALUATION SYSTEM (NSPIRES)

This CAN requires that the proposer register key data concerning their intended submission, including organizational affiliation, with NASA's master proposal database system, the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES), located at <http://nspires.nasaprs.com>. Potential applicants are urged to access the system well in advance of the proposal due date to familiarize themselves with its structure and enter the requested identifier information, including organizational affiliation.

It is especially important to note that every individual named on the proposal's *Cover Page* (see further below) must be registered in this NASA proposal data system and that such individuals must perform this registration themselves; that is, no one may register a second party, even the Principal Investigator of a proposal in which that person is committed to participate. This data site is secure and all information entered is strictly for NASA's use only.

It is also important to note that the proposal must be submitted electronically by one of the officials at the organization with which the PI is affiliated who is authorized to make such a submission. Every organization that intends to submit a proposal to NASA in response to this CAN, including educational institutions, industry, nonprofit institutions, NASA Centers, the Jet Propulsion Laboratory, and other U.S. Government agencies, must be registered in this NASA proposal data system. Such registration must be performed by an organization's electronic business point-of-contact (EBPOC) in the Central Contractor Registry (CCR), found at www.ccr.gov.

A.2 GUIDELINES FOR PREPARATION OF PROPOSAL

A.2.1 Standard Default Formats

The proposal will be in the form of a single electronic file in PDF format that is uploaded into the NSPIRES system and submitted to NASA by an authorized organizational representative (AOR) of the proposing organization. The proposal is accompanied by data entered directly into the NSPIRES system by completing the online proposal *Cover Page/Proposal Summary*.

The standard, default formats for all proposals submitted in response to this CAN are as follows:

- English text using an easily read font having no more than 15 characters per inch on 8.5x11 inch pages.
- Single column format with at least 1 inch (2.5 cm) margins all around.
- No reference to World Wide Web sites for material needed to complete or to review the proposal.
- Use of only metric and standard engineering units.
- Strict adherence to the fixed page limits given in Section A.2.2.
- Maximum file size of no more than 15 MB.

A.2.2 Checklist For Proposal Preparation and Submission

All proposals are to include the following materials in the order and using the titles as given. Details for each item are given in the same order in Section A.2.3.

CONSTITUENT PARTS OF A PROPOSAL

(required and optional, in order of assembly)

	<u>PAGE LIMITS*</u>
· Proposal <i>Cover Page/Proposal Summary</i>	Generated by NSPIRES, proposers do not need to attach separately
· Proposal Title Page (optional)	1
· Table of Contents	1
· Executive Summary	3
· Summary of Personnel, Commitments, and Costs	1
· Research and Management Plan	30**
· Relevance	5
· References	As required
· Plan to Support Other Institute Objectives	10***
· Facilities and Equipment (as appropriate)	5
· Curriculum Vitae	For the PI: 3 For each Co-I: 1
· Current and Pending Support	As required
· Statement(s) of Commitment from Proposing Personnel	As required
· Letters of Commitment from Consortium Institutions	As required
· Budget Summary and Details	As required

* where each side of a sheet containing text or illustration counts as a page and each “n-page” fold-out counts as n-pages.

** including illustrations, tables, and figures.

*** including illustrations, tables, and figures; must include a section, of up to 5 pages, on Education and Public Outreach

A.2.3 Details of Proposal Contents

All proposals in response to this CAN should be assembled with the following parts in the order listed (note that some are optional). Proposals that omit any of their required parts will be returned without review. Proposals should be limited to a total of less than 15 MB. Only a single PDF file need be attached and any warnings from NSPIRES about missing documents (like PI CV and Current and Pending) should be ignored if the material is within the single PDF file. Do not upload missing documents separately; they must be included in the single PDF file that represents the complete proposal.

- *Proposal Cover Page*

All proposals submitted in response to this CAN must be prefaced with the required electronic proposal *Cover Page* (All sections 1 through 10, accessible at <http://nspires.nasaprs.com>). This form includes the following: a cover page that contains the identifier information for the

proposing institution and personnel, a *Proposal Summary* that provides an overview of the proposed investigation that is suitable for release through a publicly accessible archive, and a Budget Summary of the proposed research. Note that NSPIRES requires a fundamental change in the submission procedure. In particular, entry by the PI of the data requested above must be followed by the electronic "submission" of these data by an official at the PI's organization who is authorized to make such a submission. Coordination between the PI and his/her authorizing official on the final editing and submission of the proposal materials is facilitated through their respective accounts in NSPIRES.

Upon accessing NSPIRES by logging in and selecting the NLSI CAN, information for the *Proposal Cover Page* will be requested which includes:

- 1) The name and full institutional mailing address of the proposing Principal Investigator, telephone, and E-mail address.
- 2) The name and title of the Authorizing Official of the proposing institution.
- 3) Names, institutional affiliations, and E-mail addresses of Co-Investigators, Collaborators, and all other named team members.
- 4) Full descriptive title of proposed investigation.
- 5) The proposed start and end dates of the full period of performance.
- 6) A summary of the proposed investigation. The *Summary* (limited to no more than 4000 characters) provides background and perspective to the interested reader and, therefore, must include the following information:
 - a) A description of the key, central objectives of the proposed research activity in terms that a nonspecialist can grasp and a statement of methods proposed to accomplish those proposed objectives;
 - b) The perceived significance of the proposed work to NASA Science Mission Directorate interests; and
 - c) A brief description of the proposed E/PO program.
- 7) Designation of the type of institution per the definitions.
- 8) The physical mailing address, telephone number, and E-mail address of the office of sponsored research programs at the proposing institution.
- 9) A Budget Summary for each year of the proposed period of performance, as well as the total effort (see additional information below).

Special conditions and instructions concerning the *Proposal Cover Page/Proposal Summary*:

- 1) Any needed changes to the electronically submitted information may only be made by editing the electronic submission by following the instructions of the Web page.
- 2) The AOR submission of the proposal certifies that the proposing institution has read and is in compliance with the three required certifications printed in full in Section A.3 of this Appendix; therefore, it is not necessary to separately submit these certifications with the proposal.
- 3) NASA Science Mission Directorate will publish the name of the proposal, the PI, the proposing institution, and the *Proposal Summary* of every selected investigation in a public data base. Therefore, the Summary should not include proprietary information that precludes its unrestricted release (also see below concerning proprietary information).

- *Proposal Title Page*

The *Proposal Title Page* is optional, and its design is at the discretion of the proposer. If one is included, at a minimum it must include the full title of the proposal, the name of the Principal Investigator, the name and address of the proposing institution, and a list of any other institutions participating in the proposed investigation. In addition, as required, this page may contain a “Notice of Restriction on Use and Disclosure of Proposal Information” in accordance with the following policy:

It is NASA policy to use information contained in proposals for evaluation purposes only. While this policy does not require that the proposal bear a restrictive notice, offerors or quoters should, in order to maximize protection of trade secrets or other information that is commercial or financial and confidential or privileged, place the following Notice on the Title Page of the proposal and specify the information subject to the Notice by inserting appropriate identification, such as page numbers, in the Notice. In any event, information (data) contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the Notice.

**Notice of
Restriction on Use and Disclosure of Proposal Information**

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal, the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

In addition, as detailed in section 3.3.2, if it is essential to include any export controlled information subject to ITAR in a proposal, a notice to that effect must be prominently displayed on the title page of the proposal that shall state:

The information (data) contained in [insert page numbers or other identification] of this proposal is (are) subject to U.S. export laws and regulations. It is furnished to the Government with the understanding that it will not be exported without the prior approval of the proposer under the terms of an applicable export license or technical assistance agreement.

- *Table of Contents*

A *Table of Contents* shall identify each of the key parts of the proposal, including the subsections of the proposal's central Research and Management section, and Plan for Supporting Other Institute Objectives. To facilitate developing and assembling the proposal, each of its principal sections may be individually numbered.

- *Executive Summary*

The *Executive Summary* should clearly describe the proposed program: its rationale, innovations, distinguishing features, unifying intellectual focus, proposed research, and training plans; its approach to management of its participating personnel and institutions; and its proposed Education/Public Outreach activities. In addition, this *Summary* should briefly address the proposed institutional commitment(s), as well as the commitment to implementing the collaborative and networking concepts of the NASA Lunar Science Institute.

- *Summary of Personnel, Commitments, and Costs*

The proposal must contain a one page summary list, in simple tabular form of the proposer's own choosing, that gives the names and intended work commitment for the PI and every Co-I of the proposed investigation both in time (rounded to the nearest 0.01 of a Work Year) and unburdened salary (rounded to the nearest \$1K) for each year of the proposed period of performance (Note: "unburdened" means without addition of overhead or fees). These entries of commitments should be shown separately for the research effort and for the E/PO Plan.

- *Research and Management Plan*

The proposal should contain sufficient detail to fully describe the proposed effort in order to enable a reviewer to make informed judgments about the overall merit of the proposed research and about the probability that the investigators will be able to accomplish their stated objectives with the resources requested and with their own resources. In addition, the proposal should indicate clearly the interdisciplinary nature of the research, innovative approaches, and how the individual researchers (and their institutions, if a consortium of institutions is proposed) will be integrated so as to carry out the plan.

This section is the main body of a proposal and should cover the following topics in the order given, all within the specified limit of 30 pages:

- The objectives and expected significance of the proposed research, including a complete description of any instruments or hardware proposed to be built in order to carry out the research (Note: see also the Facilities and Equipment section below for the description of critical equipment needed for carrying out the proposed research).
- How the proposed work is expected to build on and otherwise extend the state of knowledge in the field.
- The technical approach and methodology to be employed in conducting the proposed research, including any special facilities of the proposing institution(s) and/or capabilities of the proposer(s) for carrying out the work.
- An outline of the general plan of work, including anticipated key milestones for accomplishments and the management structure for the personnel involved.
- A statement of the expected contribution by the PI and each Co-I identified on the proposal, even if they do not derive support from the proposed budget (Note: Co-Is who have either insignificant or unjustified roles will be considered a weakness for purposes of the evaluation of the proposal).

Each proposal must indicate how the activities of the researchers from different science disciplines will be integrated in implementing the proposed research program, as well as the proposed E/PO effort. This part should define the roles and responsibilities of each participant and note the proportion of each individual's time to be devoted to the proposed research activity. The proposal should state clearly and unambiguously whether these key personnel have reviewed the proposal and endorsed their participation. If multiple institutions are involved in the proposal, this part should provide a specific plan for bringing the separate elements together into a well-functioning unit. If a consortium of institutions is proposed, letters verifying cooperation, coordination, and commitments of resources from administrative officials of the consortium members must be included as an appendix to the proposal.

This section may contain illustrations that amplify and demonstrate key points in the main text of the proposal (including milestone schedules, if appropriate). Any illustrations and figures must be of publication quality, of an easily viewed size, and have self-contained captions that do not contain critical information not provided elsewhere in the proposal.

- *Relevance*

In this section, proposers are asked to explicitly address the relevance of their program to the factors described in Criterion 3 (see Sections 5.1 and 4.3.3). Proposals must demonstrate specific relevance. For example, relevance to missions should, when possible, describe specific missions and how they are advanced, relevance to other NASA science programs should describe the specific program and the resulting synergy which is expected, collaborations with other funding partners should describe the individual organizations and the nature of the partnership, major impact to lunar science objectives should describe the particular significance of the work and its impact on the field, and relevance to other Institute objectives (student training, IT/communication, E/PO, etc.) should include expected results and a specific discussion of how they would improve the effectiveness of the NLSI or the expansion of the lunar science community.

- *References*

All citations given in the *Research and Management Plan* must be included in full in a list of references, without page limits. It is highly desirable that references use the full title of the paper or article being referenced. In all cases, standard and easily understood abbreviations for journals must be used.

- *Plan to Support Other Institute Objectives*

Refer to Section 5.1.2 in the main body of this CAN for the criterion regarding proposed efforts to address the objectives of the Institute in addition to research. The proposed commitments and activities in this section should be organized according to the categories indicated in Section 5.1.2. The plan must include a separate section on E/PO, which includes a specific E/PO budget. The E/PO budget should also be incorporated into the overall proposal budget (see instructions for budget below). Successful proposals are also expected to include some combination of the

other elements indicated in Section 5.1.2, as appropriate, to describe their areas of strength in supporting other Institute objectives.

Statements regarding institutional commitment should provide, in detail, the specific resources that the proposing institution(s) will make available to this effort at reduced and/or no cost to NASA's Lunar Science Program, together with an estimate of the value of those resources to this program. The basis for this estimate should be clearly articulated so that the Government can accurately assess the proposed institutional commitment (see Section 4.3.2 in the main body of this CAN for examples of institutional commitment). This part should clearly show how these resources will benefit the implementation of the proposed research effort, the proposed training, education and outreach plan, and/or the development of the networked institute concept.

- *Facilities and Equipment*

As appropriate, this section should describe any facilities (including any U.S. Government owned facilities) and/or major equipment critical for carrying out the proposed project that are already available or would need to be purchased in order to carry out the proposed investigation. In the latter case, these costs should be entered in the required proposal *Budget Summary* and described in accompanying budget details.

- *Curriculum Vitae*

The PI must submit a *Curriculum Vita* (not to exceed three pages) that includes a history of his/her professional training and positions and a bibliography of publications relevant to the proposal. The proposal must also include a one page *Vita* for each Co-I. A Co-I who serves as an Institutional PI (see Section 3.2), or as the lead Co-I for an E/PO effort, may submit a *Vita* using the same page limit as for the PI. No *Curriculum Vitae* are required for Collaborators.

- *Current and Pending Support*

Information must be provided for all ongoing and pending projects and proposals that involve the proposing PI and any Co-Is who are expected to perform a significant share of the proposed work (e.g., an Institutional PI; see Section 3.2), whether or not their contributions are specific costs in the proposal's budget. Information is required for each of two categories of support awards that exist at the time of the proposal submission deadline, namely:

- a) Current Support (for any of the period that overlaps with the proposal being submitted to this CAN), and
- b) Pending Support (including the proposal to this CAN).

For each of these categories, the following information should be provided for each such key individual on the proposal team as noted above:

- Title of award or project;
- Program name (if appropriate) and sponsoring agency or institution (including point of contact with telephone number);
- Proposed period of performance and budget; and

- Commitment in fractions of a full time Work Year (WY = 2080 hours).

In addition, the name of any other institution, including an individual point of contact with their telephone number, to which the proposal submitted to this CAN, or any part thereof, has been or will be submitted for consideration of funding should be provided. For such pending research, the PI must notify the NLSI immediately (see Section 4.2.5) of any successful proposals that are awarded anytime after the proposal submission date until the time of selections.

- *Statement(s) of Commitment from Co-I's and/or Collaborators*

Every Co-I and Collaborator, from either a U.S. or from a non-U.S. institution, identified as a participant in the proposal must submit a brief, signed statement of commitment that acknowledges his/her participation even if they are from the PI's own institution. In the case of more than one Co-I and/or Collaborator from the same institution, a single, multiply-signed statement is acceptable. Each statement should be addressed to the PI and must contain a specific reference to the proposal and the nature of the work being contributed. E-mails are acceptable.

- *Letters of Commitment from Consortium Institutions*

Each institution proposing as part of a consortium proposal must provide a letter signed by an appropriate member of its administration that certifies its commitment to its resources offered in the proposal (office space, computer or laboratory facilities, in-kind services, etc.).

- *Budget Summary and Details*

The required *Proposal Cover Page* contains a table for the submission of a *Budget Summary* in accordance with the following format and instructions. A *Budget Summary* is to be submitted for each year of the proposed effort, NSPIRES will calculate the total budget. The proposed costs are to be summarized according to the following general categories (see *Budget Summary of Proposal Cover Page* for further detail):

- Direct Labor for PI organization (salaries, wages, and fringe benefits)
- Other Direct Costs:
 - Subcontracts (including any non-Federal team member costs)
 - Consultant Services
 - Equipment
 - Materials and Supplies
 - Travel
 - Other (including any Federal team member costs)
- Indirect Costs (Facilities and Administrative Costs)
- Total Estimated Costs

Instructions for the *Budget Summary* are as follows:

- 1) Provide a complete Budget Summary for each individual year of the proposed period of performance (NSPIRES will calculate totals).

- 2) Provide, as attachments, detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost as follows.
- Direct Labor (salaries, wages, and fringe benefits): Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.
 - Other Direct Costs:
 - a. Subcontracts: Attachments should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting.
 - b. Consultants: Identify consultants to be used, why they are necessary, the time they will spend on the project, and rates of pay (not to exceed the equivalent of the daily rate for Level IV of the Executive Schedule, exclusive of expenses and indirect costs).
 - c. Equipment: List separately. Explain the need for items costing more than \$5,000. Describe basis for estimated cost. General purpose equipment is not allowable as a direct cost unless specifically approved by the NASA Grant Officer. Any equipment purchase requested to be made as a direct charge under this award must include the equipment description, how it will be used in the conduct of the basic research proposed, and why it cannot be purchased with indirect funds.
 - d. Supplies: Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
 - e. Travel: Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination and number of travelers, where known.
 - f. Other: Enter the total of direct costs not covered by above. Subawards to Government team members and/or facilities (including the Jet Propulsion Laboratory) requiring a separate funding vehicle (e.g., interagency fund transfer) should be included here, and no indirect burden should be applied to this amount. Attach an itemized list explaining the need for each item and the basis for the estimate.
 - g. Proposed Cost Sharing (if any): Neither NSPIRES nor Grants.gov allows for notating cost sharing on the standardized budget form. However, if cost sharing is proposed, it should be discussed in detail in the Budget Narrative. Further, if cost sharing is based on specific cost items, identify each item and amount in the Budget Detail with a full explanation provided in the Budget Narrative.
 - Facilities and Administrative (F&A) Costs: Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.
 - Subtotal-Estimated Costs: Enter the sum of all items listed above.
 - Total Estimated Costs: Note that this amount must match the amount presented on the *Proposal Cover Page*.
 - Note also the following important considerations when completing the *Budget Summary*:

- (i) Costs associated with the E/PO plan are to be incorporated into the overall *Budget Summary* of the proposal. The total annual cost of the E/PO budget must also be identified in the E/PO plan for each year of the proposal. Sufficient detail should be included in the narrative of the E/PO plan to identify the individual major items associated with the total cost of the E/PO effort for each year.
- (ii) If a proposal is selected for award, failure to adequately address the provisions of the Instructions for Equipment will require that NASA contact the proposing institution for the required information. Such activity may delay the award until the purchase is either justified as a direct charge for general-purpose equipment or is budgeted as an indirect expense.
- (iii) If a PI from a non-Government institution proposes to team with a Co-I from a U.S. Government institution (for this purpose, JPL is considered a NASA Center), then the institutional budget for that Government Co-I is to be included in the proposal's Budget Details, and the cost for this Government Co-I is to be listed under Other Direct Costs in the *Budget Summary*. If the proposal is selected, NASA will execute an inter- or intraagency funds transfer, as appropriate, to cover the cost of the Government Co-I. Conversely, if a Government PI institution teams with a private sector Co-I institution, that Government institution is expected to cover such Co-I costs through a subcontract that they execute. Therefore, such private sector Co-I costs should be entered under Subcontracts on the *Budget Summary*.
- (iv) The proposing (PI) institution must subcontract the funding of all proposal Co-I's who reside at other institutions (except for a Government Co-I for a private sector PI as noted above); that is, NASA will not separately make awards to Co-Is at distributed institutions regardless of the cost impact to the PI proposal for the management of such subcontracts. Private sector Co-I costs should be entered under Subcontracts on the *Budget Summary*.
- (v) In addition to the *Budget Summary*, and in accordance with the Instructions for *Budget Summary* presented above, the proposing institution must append at the end of the proposal sufficient details in narrative format to allow a full understanding of the budget. The proposing institution may also append the proposed budget in the format of their choice and without page limit.
- (vi) Regardless of whether functioning as a team Institutional PI, or as a team member, personnel from NASA Centers must propose budgets based on Full Cost Accounting (FCA) and consistent with NASA's current implementation of simplified FCA for the requested year of performance. Proposal budgets from NASA Centers must include all costs that will be paid out of the resulting award. Costs that will not be paid out of the resulting award, but are paid from a separate NASA budget (e.g. CM&O) and are not based on the success of this specific proposal, should not be included in the proposal budget. For example, CM&O should not be included in the proposal budget while direct civil service labor, travel, and other direct charges (including procurements and contractor labor) to the proposed task should be included. Non-NASA U.S. Government

organizations should propose based on FCA unless no such standards are in effect; in that case such proposers should follow the *Managerial Cost Accounting Standards for the Federal Government* as recommended by the Federal Accounting Standards Advisory Board (for further information, see <http://www.hq.nasa.gov/fullcost>).

A.3 REQUIRED CERTIFICATIONS

These individual Certifications are included for reference only and need not be signed and returned; language is now included on the *Proposal Cover Page* that confirms that these certification requirements are met once the *Proposal Cover Page* is submitted by the Authorizing Institutional Representative.

A.3.1 Certification Regarding Debarment, Suspension, and Other Responsibility Matters--Primary Covered Transactions

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Proposal Identification _____

Signature _____ Date _____

Name and Title: _____

Institution: _____

A.3.2 Certification Regarding Lobbying

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL. "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Proposal Identification _____

Signature _____ Date _____

Typed Name: _____

Title: _____

Name of Institution: _____

Address of Institution: _____

A.3.3 Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination in Federally Assisted Programs

The _____ (Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant")

HEREBY AGREES THAT it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1972 (20 U.S.C. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and the Age Discrimination Act of 1975 (42 U.S.C. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and HEREBY GIVES ASSURANCE THAT it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which it retains ownership or possession of the property. In all other cases, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

THIS ASSURANCE is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognizes and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.

Dated _____

(Applicant)
By _____
(President, Chairman of Board,
or comparable authorized official).

(Applicant's mailing address)