



**National Aeronautics and
Space Administration**

**COOPERATIVE AGREEMENT
NOTICE No. NNG16541308C**

**A Cooperative Agreement Notice for the
Establishment of a Center for Research and Exploration
in Space Science and Technology II (CRESST II)**

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- **Proposals Due June 21, 2016**

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FUNDING OPPORTUNITY DESCRIPTION

1.1 Introduction and Purpose

The Goddard Space Flight Center (GSFC) "Center for Research and Exploration in Space Science and Technology" (CRESST) II will carry out observational, experimental, and theoretical research in support of the National Aeronautics and Space Administration (NASA) strategic science mission objectives relating to:

- a. The Solar System, stars, galaxies, and the universe at large;
- b. The informational and computational sciences related to the unique needs of data systems required to interpret data from the space sciences; and
- c. The development of the technology required to achieve these scientific challenges.

This Cooperative Agreement will allow for substantial programmatic involvement in the form of collaboration between GSFC and the proposer as well as joint development of research objectives.

The goal is to establish a focused partnership that:

- a. Brings together GSFC and external scientists to implement the NASA strategic goal in Space Science;
- b. Builds on the capabilities and strengths of participating organizations in Space Science;
- c. Provides organization and staffing flexibility to adapt to evolving research program needs;
- d. Increases the involvement of minority and women scientists in space science research;
- e. Facilitates access to student talent and provides opportunities for their participation in NASA programs; and
- f. Establishes an environment for free scientific research and professional advancement of participating CRESST II scientists, especially for scientists with less than 10 years of experience past the Ph.D. degree:

1.2 NASA Safety Policy

All prospective proposers to this Cooperative Agreement Notice (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.

1.3 Funding

The Government's obligation to make an award is contingent upon the availability of appropriated funds from which payment can be made and the receipt of a proposal that NASA determines is acceptable for award under this announcement.

1.4 Description of NASA Contributions

The CRESST II will focus primarily on scientific research. It is expected to strengthen cooperative relationships between the recipient and Government scientists in the Goddard Sciences and Exploration Directorate (SED), and will provide a vehicle to increase the involvement of the external science community in the pursuit of NASA goals.

The CRESST II Director and administrative staff are located at NASA GSFC. NASA's contribution to the proposed cooperative relationship under this CAN, through CRESST II, is to coordinate and integrate the work of the individual CRESST II teams, facilitate collaboration among the members of the SED and its international partners, and develop and implement the full scope of other SED programs and activities. NASA does this, in part, by providing structure and management to support the research and other activities of individual SED Teams.

2 AWARD INFORMATION

2.1 Scope of the Agreement

Objectives

A broad and vigorous space research program in NASA is vital for the advancement of knowledge. Scientists at NASA in collaboration with outside scientists play a key role in conceiving new space missions, providing mission requirements, and achieving research objectives aimed at understanding the origins, structure and evolution of systems in the universe and exploring the Solar System.

The CRESST II is expected to strengthen cooperative relationships between the recipient and Government scientists in the Goddard Sciences and Exploration Directorate (SED), and will provide a vehicle to increase the involvement of the external science community in the pursuit of NASA goals.

The CRESST II will conduct research collaboratively with organizational elements within the Goddard SED (Code 600). Research may involve analysis of data from operating and past missions, and modeling and design of missions planned or under development. Future research activities will evolve as a function of priorities, budgets, funding opportunities, and success of proposal submissions.

The CRESST II will maintain a free scientific research environment where challenging scientific results consistent with program goals, based on measured data and proper scientific methods are allowed, respected, and not subject to publication constraints or censorship.

2.1.2 SED Organizations and Research Objectives

The participating components of Code 600 that will be collaborating with the CRESST II and areas of research are identified in the following sections:

2.1.2.1 Astrophysics Science Division (Code 660)

The Astrophysics Science Division (ASD) supports the science requirements of the GSFC projects that explore the universe and search for life. The Division provides scientific leadership to achieve NASA's strategic science goals in exploration of the Universe, by addressing the following questions:

- How do galaxies, stars, and planetary systems form and evolve?
- What is the diversity of worlds belonging to and beyond our solar system?
- Which planets might harbor life?
- What powered the big bang?
- What is the nature of the mysterious Dark Energy that is pulling the universe apart?
- What happens to space, time, and matter at the edge of a black hole?
- What are the cycles of matter and energy in the evolving universe?

To do this the Division conducts a broad program in the realm of Astronomy, Astrophysics, and Fundamental Physics. This is the study, by way of photons, particles, and gravitational waves, of processes in cosmic sites and the physical processes operating therein. These involve complimentary studies using submillimeter, infrared, optical, UV, X-rays, gamma rays, gravitational waves, and energetic charged particles. Division scientists develop theoretical models of the origin and structure of astrophysical objects and processes, design experimental approaches and hardware to test these theories, interpret and evaluate data gathered from the experiments, archive and disseminate the data, provide expert user support to the community, publish conclusions drawn therefrom, and undertake education and public outreach programs centered on the Division's science missions. The ASD organizational elements participating in the CRESST II are:

2.1.2.1.1 High Energy Astrophysics Science Archive Research Center (HEASARC) Office (Code 660.1)

The High Energy Astrophysics Science Archive Research Center (HEASARC) provides leadership in the Division's Mission Operations and Data Analysis Activities. The HEASARC supports the use, by the broadest possible community of astrophysics data through data archive access, data analysis software, multi-mission standards, calibration

support and assistance with Guest Observer programs. The HEASARC Office includes the Legacy Archive for Microwave Background Data Analysis (LAMBDA) and provides dedicated science support facilities for individual missions, in addition to assisting upcoming and future missions with their data processing, calibration, analysis and archiving needs.

The Office provides support and general oversight for the following Science Support Centers:

Swift Science Support Center
XMM-Newton U.S. Guest Observer Facility
Fermi Science Support Center

The HEASARC is also responsible for assisting with data archive support for the Chandra mission, and data archive and Guest Observer support for the Nuclear Spectroscopic Telescope Array (NuSTAR) mission. Data, documentation, and science support are available at the HEASARC for a broad range of completed NASA, European Space Agency (ESA), and Japanese mission datasets, including those from Advanced Satellite for Cosmology and Astrophysics (ASCA), Broad Band X-Ray Telescope (BBXRT), BeppoSAX, Cosmic Background Explorer (COBE), Compton Gama Ray Observatory (GRO), the Einstein Observatory, European X-Ray Observatory Satellite (EXOSAT), Extreme Ultra Violet Explorer (EUVE), High Energy Astronomy Observatory (HEAO 1), the Eighth Orbiting Solar Observatory (OSO-8), Roentgen Satellite (ROSAT), The Rossi X-Ray Timing Explorer (RXTE), Suzaku, and the Wilkinson Microwave Anisotropy Probe (WMAP).

Additional information can be found at:

<http://heasarc.gsfc.nasa.gov/>

2.1.2.1.2 Astroparticle Physics Laboratory (Code 661)

The Astroparticle Physics Laboratory conducts research at the interface between cosmology and high-energy particle physics to investigate the birth and evolution of the Universe in terms of unified theories of fundamental interactions. This includes a broad range of space-based scientific investigations to study the origin, nature, and effect of cosmic rays, and the electromagnetic radiation that carries the signature of nuclear, thermal, dark matter, and acceleration processes throughout the Universe. The Laboratory supports the Heliophysics Science Division by providing cosmic ray detectors to determine the energy and composition of the solar wind.

Additional information can be found on the World Wide Web

<http://science.gsfc.nasa.gov/astrophysics/astroparticle/>

2.1.2.1.3 X-ray Astrophysics Laboratory (Code 662)

The X-ray Astrophysics Laboratory conducts astrophysical investigations of a broad range of systems from remote robotic observations of nearby solar system objects, to cosmological structures utilizing the radiation that they produce, primarily using X-ray radiation. This includes the physics of extreme environments, such as those near the event horizons of black holes, and on the evolution of stars, galaxies, and large-scale structure. The Laboratory also supports the Heliophysics Science Division by providing detectors to characterize the surface composition of solar system bodies and the Solar System Exploration Division by providing remote observations of solar system bodies.

Additional information can be found on the World Wide Web

<http://science.gsfc.nasa.gov/astrophysics/xray/>

2.1.2.1.4 Gravitational Astrophysics Laboratory (Code 663)

The Gravitational Astrophysics Laboratory (Code 663) conducts a broad range of scientific investigations into astrophysical regimes dominated by extreme gravity. The laboratory provides the scientific and technical leadership to develop space-based gravitational wave observatories and includes a mix of theorists and experimentalists. Research encompasses a variety of areas, including numerical relativity, gravitational-wave sources and data analysis, mission formulation, theoretical modeling of high energy astrophysical sources, and precision metrology.

Additional information can be found on the World Wide Web

<http://science.gsfc.nasa.gov/astrophysics/gravity/>

2.1.2.1.5 Observational Cosmology Laboratory (Code 665)

The goal of the Observational Cosmology Laboratory is to understand the origin, evolution, and ultimate fate of the Universe, including: (1) what powered the big bang, (2) the size, shape, and matter-energy content of the Universe; (3) when the first stars and galaxies appeared and their evolution with cosmic time; and (4) the nature of the mysterious dark energy that is driving the universe apart.

Additional information can be found on the World Wide Web

<http://science.gsfc.nasa.gov/astrophysics/cosmology/>

2.1.2.1.6 Exoplanets and Stellar Astrophysics Laboratory (Code 667)

The Exoplanets and Stellar Astrophysics Laboratory studies the formation and evolution of stars and planetary systems using advanced telescopes and theoretical techniques. The Laboratory develops new technology and ideas that help us understand our place in the universe. Research also contributes to the search for Earth-like planets and habitable environments around other stars. Key areas of research include exoplanet searches and theoretical modeling, stellar debris disks, young stellar objects, stellar astrophysics, and numerical modeling of planetary system evolution.

Additional information can be found on the World Wide Web
http://science.gsfc.nasa.gov/astrophysics/exoplanets_stars/

2.1.2.2 Solar System Exploration Division (Code 690)

The Solar System Exploration Division (SSED) plans, organizes, evaluates, and implements a broad program of scientific research, both theoretical and experimental, to explore the solar system and to study the formation and evolution of planetary systems. The Division provides scientific expertise and leadership to support GSFC projects and to achieve NASA's strategic goals in the exploration of the Moon, Mars, outer planets, and beyond.

Representative research questions addressed by the Division are:

- How do planets and planetary systems form, evolve, and diverge in their evolution?
- What processes determine the dynamics and evolution of planetary interiors, surfaces, and atmospheres?
- How and why does the Earth differ from the other terrestrial planets in our solar system and planets in extrasolar planetary systems?
- How do the small bodies in the solar system form and evolve?
- Where are other habitable environments in the solar system?
- Is there now, or was there ever, life on other planets within our solar system?
- What are the characteristics of extrasolar planets, how do they compare with planets found in our own solar system, and what do they tell us about the origin and evolution of planetary systems and habitable planets?
- How do solar variations affect the planets, interplanetary space, and human explorers?

To do this the Division conducts a broad program of research in the areas of:

- **Astrochemistry** (comet ices, prebiotic organics, gas-phases, interstellar grains, asteroids);
- **Planetary systems** (planetary atmospheres, comets, moons, small bodies, extrasolar planetary systems);
- **Planetary geodynamics** (interiors, crustal evolution and dynamics, geology, topography, crater formation, volcanism, orbital-rotational-climactic studies);
- **Space geodesy** (planetary gravity and rotation, time-variable gravity, geophysical fluids);
- **Planetary magnetospheres** (planetary magnetism and electrodynamics, radiowaves);
- **Comparative planetary studies** and studies of Earth as a planet (interior, geodynamics, atmospheric chemistry);
- **Solar system data systems**;

- **Education and Public Outreach;**
- **Cross-cutting research areas in Astrobiology, Lunar Exploration, and Mars Exploration;**
- **Innovative instrumentation for remote and in situ studies of solar system objects, including small satellites and CubeSat configurations.**

Division personnel develop theoretical models of the origin and structure of solar systems and their objects, and the processes that alter them. They design experimental approaches and hardware to test these theories, and they collect, interpret, and evaluate data gathered from these experiments. They publish conclusions based on this experimental and theoretical research. They archive and disseminate the data, provide expert user support to the community, and undertake education and public outreach programs centered on the Division's science missions and services. The SSED elements participating in the CRESST II are:

2.1.2.2.1 Solar System Exploration Data Services Office (Code 690.1)

The Solar System Exploration Data Services Office (SSEDSO) coordinates the management and archiving of NASA space science data. As part of this mission, the Office operates the National Space Science Data Center (NSSDC) and provides requested guidance to the active science archive centers. The NSSDC provides master catalogs, data standards, and other information services. It oversees the preservation of NASA space science data for the next generation of researchers. The Center ensures access to existing and future NASA space science archives. SSEDSO has two archive functions: Crustal Dynamics Data Information System and management of the Planetary Data System. In addition, SSEDSO can provide the necessary in-house expertise to support these and other data services.

Additional information can be found on the following website:

<http://science.gsfc.nasa.gov/solarsystem/dataarchives/>

2.1.2.2.2 Astrochemistry Laboratory (Code 691)

Members of the Astrochemistry Laboratory conduct remote sensing, in situ, and direct sample-return measurements, as well as observations, modeling studies, and laboratory experiments to better understand chemical processes in astrophysical and planetary environments. Laboratory personnel also develop X-ray, gamma ray, and neutron instrumentation for planetary missions.

Additional information can be found on the following website:

<http://science.gsfc.nasa.gov/solarsystem/astrochemistry/>

2.1.2.2.3 Planetary Systems Laboratory (Code 693)

Researchers in the Planetary Systems Laboratory place special emphasis on study of the atmospheres of solar system bodies based on observations in the infrared spectral region.

They investigate atmospheric physical processes in a broad context by comparing Earth's atmosphere to those of other planets. In addition, the Laboratory specializes in the design of novel optical and infrared instruments and detectors. Instruments developed in the Laboratory have flown on missions to Mars, the outer planets, and Pluto, with significant scientific participation of Laboratory personnel.

Additional information can be found on the following website:

<http://science.gsfc.nasa.gov/solarsystem/planetarysystems/>

2.1.2.2.4 Planetary Magnetospheres Laboratory (Code 695)

Scientists in the Planetary Magnetospheres Laboratory conduct research on solar system magnetic fields, solar system radio astronomy, planetary dust, exosphere, and plasma environments. The Laboratory also develops new concepts for autonomous space research and operations through external partnerships. Magnetometers developed at the Laboratory have flown to the Moon and every planet in the solar system at least once, and sometimes multiple times across different missions. Radio astronomy research targets the planets, the Sun, and their space environments and is partnered with numerous international collaborations and partners.

Additional information can be found on the following website:

<http://science.gsfc.nasa.gov/solarsystem/magnetospheres/>

2.1.2.2.5 Planetary Geodynamics Laboratory Code (698)

Scientists in the Planetary Geodynamics Laboratory carry out research on the structure, dynamics, and evolution of the solid Earth, moon, and planets using in-situ and remote-sensing data. Relevant data types include imagery, geodetic information derived from spacecraft tracking and space geodetic networks, gravity, topography, and magnetic field information. Laboratory research is built around mission support, measurements, and modeling. It works toward improved understanding of the dynamics of the solar system, how and why Earth is similar to -- and different from -- other planetary bodies, and the current and likely future state of the Earth, especially regarding hazards to humans. Processes currently being studied at the Laboratory include impact cratering, volcanism, seismicity, mass redistribution (including ice mass change), sea level change, rotational variations, spin-orbit coupling, and core dynamo generation of magnetic fields.

Additional information can be found on the following website:

<http://science.gsfc.nasa.gov/solarsystem/planetarygeodynamics/>

2.1.2.2.6 Planetary Environments Laboratory (Code 699)

Researchers in the Planetary Environments Laboratory study the chemistry of atmospheres and surfaces of planets and their moons. They participate in all phases of planetary investigations, from defining and developing specialized instrumentation to analyzing, interpreting, distributing, and archiving data collected during flight missions.

They provide a basis for planetary mission studies through a vigorous program of planetary analog research that includes laboratory simulations of planetary environments, geochemical and isotopic analysis, computational modeling of planetary atmospheres, and field studies of planetary analog sites.

Additional information can be found on the following website:

<http://science.gsfc.nasa.gov/solarsystem/atmosenvironments/>

2.1.3 Research Activities in Following Years of the Cooperative Agreement.

The research to be carried out by the CRESST II that will be funded by NASA beyond the first year of the agreement must retain consistency with the Science Mission Directorate Strategic Plan. The specific research activities of the Goddard Science and Exploration Directorate are expected to evolve and will depend on the strategic plan of the NASA Science Mission Directorate and its implementation plan. They will depend as well on the success rate of the Goddard civil servants, in concert with the scientists of the CRESST II, to submit winning proposals to NASA Headquarters. These proposals will be selected through a competitive peer review process. Potential areas of broader work in the future include:

- The origin, structure and evolution of planetary systems;
- Physics of magnetospheres and their interactions with the solar wind and with planetary atmospheres;
- Research in Gravitational Wave astrophysics;
- Research in Gravitational Wave data analysis;
- Theoretical studies in Infrared Astrophysics;
- Infrared and millimeter astronomical data analysis and interpretation; and
- Modeling of exoplanetary atmospheres.

2.1.4 External Proposals by CRESST II Scientists

CRESST II scientists will generally be encouraged to seek funding from other NASA programs and especially other sources, following SED policy and procedures. These procedures include:

- Work performed under this partnership must be relevant to NASA, GSFC, and SED strategic goals;
- Any requirements for on-site space, facilities, or other resources must be approved in advance;
- Funding for GSFC institutional costs is included in the proposal and provided by GSFC; and
- Any proposal requiring a substantial commitment from GSFC (e.g., instrument, balloon or payload development) must be coordinated with the GSFC New Business process through the SED.

Because this is a collaborative agreement, proposals including an SED Co-Investigator are encouraged.

2.2 Special Programs

2.2.1 Visiting Scientists

When research objectives require unique science discipline expertise or partnership with other organizations, the CRESST II may be expected to support the identification, recruitment, and selection of potential collaborative partners, including:

1. Creating joint research appointments for leading researchers from other organizations;
2. Recruiting scientists in specialty disciplines for specific research projects;
3. Recruiting and attracting Visiting Fellows from university professors on sabbatical leave to broaden the pool of experience and creativity;
4. Providing positions for scientists from other organizations to team on proposals for new initiatives.

The CRESST II will, as appropriate and as needed, establish Visiting Scientist positions, including arrangements for:

- salaries with home institutions;
- travel;
- VISAs;
- access to the Center through GSFC Security; and
- other logistical support as needed.

2.2.2 Post-Doctoral Researchers and Graduate Students

The proposer will support the recruitment and selection of post-doctoral researchers and graduate students where appropriate for specific research tasks. Objectives of these positions could include:

- Providing research opportunities for high potential recent doctoral graduates to develop candidates for future research positions in NASA and university programs;
- Maintaining a graduate student program to attract high potential students to participate in CRESST II research activities;

- Providing research opportunities for high potential post-doctoral researchers and students from under-represented groups to broaden the diversity of the hiring pool for future space science research positions; and
- Providing science research, engineering, computer science, technician, or other scientific/technical expertise needed to directly support research activities.

These positions must be approved in advance by SED, with the needs and attributes jointly developed by the recipient with SED.

2.2.3 Short-Term Visitors, Workshops, Conferences, Seminars, And Summer Schools

The CRESST II will support short-term visitors (up to a year) for collaboration, presentation of seminars, and program coordination. The CRESST II will arrange travel, Center access, and other support as needed for selected researchers to participate in on-site and field activities with CRESST II colleagues.

The CRESST II will organize a series of scientific colloquia to promote the exchange of scientific ideas and results among the CRESST II/GSFC team and with leading researchers in the broader science community. The CRESST II will select speakers and organize agendas to address the scientific challenges of CRESST II/GSFC research programs. The CRESST II will be responsible for implementing the colloquia series, including arranging speaker travel and access to Goddard.

The CRESST II will also conduct workshops, conferences, and other special events. Summer programs for undergraduate and graduate students will also be organized by the CRESST II.

2.3 Program Management

The proposer shall provide an efficient management structure for planning research activities with GSFC scientists; identifying, recruiting, and retaining quality research staff; and (for team proposals) for allocating and managing research work among team members.

2.4 Facilities

Work performed under current university agreements is primarily being performed in GSFC laboratory facilities. Office and laboratory space will be available for work performed under CRESST II based on approved research funding. Proposers should propose an approach for location of CRESST II researchers if not on-site at GSFC, and for use of any laboratory capabilities that could complement and extend the research capability at Goddard.

For CRESST II personnel working on-site, GSFC will provide office space, telephone connections, and office supplies. Additionally, GSFC will provide existing on-site computer capabilities, if required.

The CRESST II shall provide on-site personnel with computing capabilities necessary to conduct the research if such facilities are not available at GSFC. In accordance with the NASA Grant and Cooperative Agreement Manual, costs for the purchase of equipment will be permitted in the cooperative agreement only if it is determined that the equipment is scientific/technical in nature and relevant to the research being conducted.

Government property will not be provided to the CRESST II for use off-site unless required to perform approved research activities of limited duration and approved by GSFC/SED in advance. The CRESST II management will assure that all Government property is managed following NASA/GSFC property management policy and procedures.

2.5 Cancellation of the CAN

NASA reserves the right to make no awards under this CAN and, in absence of program funding or for any other reason, to cancel this CAN by having a notice published at Grants.gov. NASA assumes no liability for canceling the CAN or for anyone's failure to receive actual notice of cancellation. Cancellation may be followed by issuance and synopsis of a revised CAN.

2.6 Schedule

The estimated schedule for the review and selection of proposals for this CAN is as follows:

- Proposals due June 20, 2016
- Evaluations Completed October 31, 2016
- Selection and Award by November 30, 2016
- Effective and start date of January 24, 2017

2.7 Term of the Agreement

The term of the awarded Cooperative Agreement is planned have a basic period of two (2) years and shall commence upon the effective date indicated on the award agreement. There will be four (4) 2 year option periods to extend this agreement, for a total potential ten (10) year period of performance.

3 ELIGIBILITY INFORMATION

3.1 Eligible Applicants.

Participation in this program is limited to U.S. organizations, specifically educational and not-for-profit institutions. Other NASA Centers, and other U.S. Government agencies are not eligible.

Work or research performed under a cooperative agreement resulting from this CAN must be performed within the United States unless required to support NASA international collaborative agreements and have prior approval by GSFC/SED. Proposals including other work or research that will be performed outside of the United States, in whole or in part, are not acceptable and will not be given further consideration for award.

3.2 Cost Sharing or Matching

If an institution of higher education, or other non-profit organization wants to receive a grant or cooperative agreement, cost sharing is not required, however, NASA can accept cost sharing if it is voluntarily offered. The NASA Grant and Cooperative Agreement Manual at Section 5.7(5)(a) describes the acceptable forms of cost sharing.

4 PROPOSAL AND SUBMISSION INFORMATION

4.1 Conformance to Guidance

NASA does not have any mandatory forms or formats for preparation of responses to CAN's; however, proposals shall conform to the procedural and submission guidelines covered in these instructions. Since NASA may accept proposals without discussion, proposals should initially be as complete as possible and be submitted on the proposer's most favorable terms.

In order to be considered responsive to the solicitation, a submission must, at a minimum, present a program for collaborative research to be conducted under the CRESST II within the areas of interest delineated by the CAN; contain sufficient scientific/technical, management and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific, current, or pending NASA solicitation. NASA reserves the right to reject any or all proposals received in response to the CAN when such action is considered in the best interest of the Government.

4.2 Proposal Contents

4.2.1 General

Proposals for the CRESST II must be submitted according to the instructions contained herein. Proposal shall contain as a minimum:

All Section pages shall be numbered and identified with the proposer's name, CAN

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number and date. Subsequent revisions, if requested, shall be similarly identified to show revision number and date. A table of contents shall be provided with figures and tables listed separately.

Section Component	Page Limitations	No. of Copies
Proposal cover sheet	Excluded	
Table of contents	Excluded	
Project Summary**	Excluded	
Scientific/Technical Section	25 Pages	Original plus 5 hard copies and 2 electronic copies
Management Section	18 Pages	Original plus 5 hard copies and 2 electronic copies
Cost Section	Excluded	Original plus 5 hard copies and 2 electronic copies
Key Personnel Biography	2 pages per	
References	Excluded	
Representations and Certifications	Excluded	

****Concise abstract (100-200 words) describing the objective of the proposed effort.**

Two electronic copies of the proposer's proposal shall be submitted (in addition to the hardcopies specified above) in Microsoft Word or editable Adobe PDF format. In the event of any inconsistency between data provided on the CD-ROMs and hard copies, the hard copy data will be considered to be correct.

Proposers are advised that the overall page limit for the proposal text shall not exceed 50 pages, utilizing one side of each page. The science and technical section of the proposal shall not exceed 25 pages, the management section shall not exceed 18 pages, and the cost section shall not exceed 7 pages. The page limit does not include References, which can be as long as necessary to support the content. The biographical sketches shall be limited to two (2) pages per key personnel. These sketches are not included in the 50-page limit. Any information in excess of the page limitation will not be evaluated.

A page is defined as one side of a sheet, 8-1/2" x 11", with at least one inch margins on all sides, using not smaller than 12 point type Times New Roman font. Line spacing or the amount of vertical space between lines of text shall not be less than single line (Microsoft Word's default line spacing). Character spacing shall be "Normal", not "Expanded" or "Condensed." The margins may contain headers and footers, but shall not contain any quotation content to be evaluated. Information may be submitted on single or double-sided sheets, but shall not exceed the page limitations.

Bindings: Proposals shall be adequately bound in a manner that allows for ease of separation to facilitate the evaluation process. To facilitate the recycling of shredded proposals after review, proposals shall be submitted on plain, white paper only.

Restriction on Use and Disclosure of Proposal Information:

Information contained in proposals is used for evaluation purposes only. Proposers should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the notice. In any event, information 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 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 Proposer, 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.

4.2.2 Scope of Proposal

Proposals should clearly articulate the innovative research program to be pursued; relevance of the Team's research program to the NASA Science Mission Directorate's goals and objectives; and the specific areas in which the Team's activities will contribute to the Astrophysics Division and Solar System Exploration Division (Section 2.1.2).

4.2.3 Scientific/Technical Approach Section of the Proposal.

The Scientific/Technical section of the proposal shall demonstrate the proposer's capability and approach for performing the research and other activities expected as part of the CRESST II. The Scientific/Technical proposal shall contain the following, at a minimum:

- a. A scientific/technical discussion identifying challenges, objectives, key scientific/technical approaches, and the expected staffing level and skill mix required to accomplish the research identified in Section 2.1.2 and the special programs listed in Section 2.2. The discussion should be detailed for the first year only, except that it should include details for specific activities that would begin in later years, if the options are exercised. The first year discussion in the scientific/technical section of the proposal should also include information for the first year's Annual Research Program Plan (ARPP). Upon award of the cooperative agreement to the successful recipient, the first year ARPP will be included as Attachment 1 to the agreement. For the subsequent years, the discussion in the scientific/technical section of the proposal is expected to be general, to

outline the proposer's expectation of the next challenging research questions and an approach for exploring their answers.

- b. The proposal shall include a discussion of the roles of GSFC scientists, post-docs, graduate, and undergrad students in the program and areas where collaborative research is expected. This is in support of the goal to advance scientific understanding of Astrophysics, Space, and Solar System science through instrument technology, space observations, and research.
- c. The proposal shall include the names and a brief biography of the key personnel (up to ten members of the proposer's team) involved in the research. In the case of the scientific personnel, include any relevant publications and their applicability to the proposer's proposed research approach.
- d. It is expected that Ph.D. scientists between 3 and 10 years post-doctoral will be appointed as "research scientists," rather than as departmental staff members. Proposers should discuss a proposed career structure designed to attract and retain distinguished, internationally recognized Astrophysics, Space, and Solar System Science researchers, including recruitment of highly qualified personnel from other expiring agreements or innovative approaches to partnerships with other US educational and not-for-profit institutions to retain access to the services of such highly-qualified personnel. The proposers should address how the research scientists will progress in their careers during the proposal period, including advances in a job title series, pay progression, and overall professional development.

4.2.4 Management Approach Section of the Proposal

The management section of the proposal should contain as a minimum:

- a. A discussion of how the proposer will efficiently and effectively plan the research effort, focusing on programmatic, reporting, financial and administrative matters. The discussion of the interaction of CRESST II researchers with GSFC researchers in establishing the Annual Research Program Plan should be included. If a consortium proposes on this effort, include a description of how research work will be assigned and managed among the consortium partners. Additionally, the proposer shall describe any plans for continuity of existing research programs on-going at time of award;
- b. A discussion of the internal structure of the CRESST II and its expected effectiveness in attracting and retaining highly qualified scientists, and

permitting means of professional advancement within CRESST II and beyond for early career scientists (<10 years past the Ph.D.)

- c. A discussion on how the proposer shall manage a varying annual budget resulting from competitive proposals.
- d. A discussion of how leading researchers from the broader science community becomes involved in the activities of the CRESST II. In particular, the proposer should outline plans for attracting university professors to spend sabbatical years at Goddard, and for attracting high potential graduate students to carry out their thesis research.
- e. A discussion of how researchers from historically black colleges and universities (HBCU's) and other minority institutions can become involved in performing innovative research efforts of the CRESST II.
- f. A discussion on the proposer's past performance of:
 - i. Hiring and retaining distinguished, high quality Space and Earth Science Researchers.
 - ii. Monthly financial reporting and quarterly progress reports at the research level.
- g. A discussion on how the proposer can increase public understanding of Astrophysics, Space and Solar System sciences through education and outreach.
- h. A discussion of facilities to be used for supporting research and special programs/activities (including facilities located at GSFC as well as any other facilities the proposer may offer), and the role of each facility to successfully complete the research/study.

4.2.5 Cost Section of the Proposal

The cost section of the proposal must be submitted in hard copy. In addition, two CD-ROMs containing the cost proposal in Microsoft Excel (Windows) must accompany the hardcopy. In the event of any inconsistency between data provided on the CD-ROM and hard copies, the hard copy data will be considered to be correct.

Proposers should identify any resources they intend to contribute in the performance of this effort. Non-monetary resources should be fully described, and financial resources should be quantified and distinguished from those resources expected to be provided by NASA.

The cost section of the proposal shall contain cost estimates sufficient for meaningful evaluation. For budget purposes, assume a start date of January 24, 2017. Budgets must be presented by cost elements as detailed below. If a consortium proposes on this effort,

separate annual budgets are required for each partner in the consortium. Additionally, summary budgets are required which show proposed cost by consortium partner for each year of proposed research. Any assumptions used to project the costs for individual partners should be stated.

The estimated costs must be broken down for each of the first five (5) years of the Agreement, using the assumed start date January 24, 2017 to show the following:

- a. Direct labor categories, labor hours, and labor costs associated with the research effort. For universities, the percentage of research time and salaries to be charged should be identified by academic year and summer effort;
- b. An itemized list of permanent equipment to be acquired showing the cost of each item. Permanent equipment is any article of nonexpendable tangible personal property having a useful life of more than two years, and an acquisition cost of \$1,000 or more per unit;
- c. A general description and total estimated cost of expendable equipment and supplies;
- d. Contemplated expenditures for travel with brief explanation. Estimated costs should include destination, number of days, airfare, per diem and transportation;
- e. Other direct costs (e.g., publications, computer costs, and insurance);
- f. Cost for consulting services, if any, showing number of days, daily rate, and estimated travel/per diem costs. The need for consulting services must be fully justified;
- g. A description of services or materials to be awarded by subagreement or subcontract. For awards totaling \$100,000 or more, provide the following specific information:
 - (1) If known, the identification of the proposed subawards and an explanation of why and how the subcontractor was selected or will be selected;
 - (2) Whether or not the award will be competitive and, if noncompetitive, rationale to justify the absence of competition;
 - (3) The proposed acquisition price in sufficient detail to allow for meaningful evaluation;
- h. Indirect costs indicating whether rates used are fixed or provisional and the time frames to which they are applicable (e.g., a fixed rate may apply until a

specified date, after which the rate becomes provisional). Additionally, provide the name, address, and telephone number of the Federal Agency and official having cognizance over such matters for the organization (i.e. audit agency such as DCAA, ONR, and HHS).

4.2.6 Representations and Certifications

The Authorized Organizational Representative's (AOR) signature on the Proposal Cover Page automatically certifies that the proposing organization has read and is in compliance with the Certifications, Assurances, and Representations listed in Enclosure A.

4.3 Proposal Submission Requirements and Deadline

PROPOSAL MARKING AND DELIVERY

(Proposer: You MUST comply with these instructions to ensure that the designated receiving office can identify, date and time mark, secure, and deliver your proposal to the Contracting Officer.)

4.3.1 External Marking of Proposal Package(s)

All proposal packages must be closed and sealed.

The required mailing address and external marking for proposals is as follows:

"Goddard Space Flight Center"
Greenbelt, MD 20771
Building 35—Shipping and Receiving Dock
Solicitation Number (NNG16541308C)
Attn: Tiffany Neal
Building 22, Room 205C
PROPOSAL—DELIVER UNOPENED"

Suggested additional marking if delivery is made by a commercial delivery service:

"COMMERCIAL DELIVERY PERSONNEL: THIS PROPOSAL MUST BE
DELIVERED TO THE DOCK MASTER, BUILDING 35 SHIPPING AND
RECEIVING DOCK, NO LATER THAN 2:00 PM EST, June 21, 2016.

4.3.2 Designated Receiving Office

The designated receiving office for proposals is the Shipping and Receiving Dock, Building 35, Goddard Space Flight Center, which must be accessed via the access road off of Good Luck Road and requires entry via the security guard gate. Proposals must be received at the designated receiving office no later than the time and date specified above.

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The Building 35 Shipping and Receiving dock is open from 7:30AM to 3:30PM, Monday through Friday, except Government holidays. Contractor personnel conduct the GSFC receiving function, which includes mailroom operations. Proposals must be marked with the date and time of receipt, subjected to security screening, secured, and delivered unopened to the Contracting Officer.

There is no public access to the Building 35 Shipping and Receiving Dock after entering the Building 35 security gate. All deliveries are subject to GSFC Security screening.

4.3.3 Methods of Proposal Delivery

There are three suggested methods of delivery to the designated proposal receiving office:

U.S. Postal Service Express Mail

Commercial Delivery Service

Delivery by company employee or other individual agent

It is highly encouraged for all proposers to use U.S. Postal Service Express Mail or Commercial Delivery Services.

If proposals are going to be delivered by a company employee or other individual that does not currently have badged access to Goddard Space Flight Center:

- a. Driver shall state that they are delivering a proposal and provide the specific Solicitation Number. Driver must show a copy of the solicitation cover page (or appropriate solicitation instructions or amendment), which includes the solicitation number and proposal due date. The delivery date should be within 1 week of the proposal due date. The solicitation number shall match the solicitation number on the properly marked proposal packages (see section 1 of this provision).
- b. If the Solicitation documentation is not provided or the proposal packages are not properly marked, the driver will not be allowed access to make the delivery. Note, any delays associated with this process will not result in the Government's acceptance of a late, proposal, which is why the use of the U.S. Postal Service or Commercial Delivery Services is highly encouraged.

Regardless of the method of delivery chosen, the proposer is responsible for delivery of the proposal to the designated receiving office no later than the date and time stated on the face page of the solicitation.

4.3.4 Communications Regarding This Solicitation

Any questions or comments regarding this solicitation shall cite the solicitation number and be directed to the following Government representative:

COOPERATIVE AGREEMENT
NOTICE No. NNG16541308C

Name: Tiffany Neal
Phone: 301-286-7905
(collect calls not accepted)
FAX: 301-286-1773
E-Mail: Tiffany.Neal@nasa.gov
*Address: Goddard Space Flight Center
Greenbelt, MD 20771
Attention: Tiffany Neal, Mail Code 210.8*

*(Note: Must be complete, including Mail Code, on all transmittals.)

The Government will answer relevant and appropriate questions regarding this solicitation, and post responses to those questions via the same websites hosting this CAN. All proposer questions are strongly encouraged to be submitted by no later than 04/21/2016.

4.3.5 Type of Award

The Government contemplates award of one **Cooperative Agreement** resulting from this solicitation.

4.4 Withdrawal of Proposals

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

4.6 The NASA Grant and Cooperative Agreement Manual

The NASA Grant and Cooperative Agreement Manual can be accessed at:

https://prod.nais.nasa.gov/cgi-bin/nais/nasa_ref.cgi

All applicants must provide the Dun and Bradstreet (D&B) Data Universal Numbering System (DUNS) number for their organization in the Cover Page of their proposal. The DUNS number is a unique nine-character identification number provided by the commercial company Dun & Bradstreet (D&B). Applicants may call D&B at 1-866-705-5711 to register and obtain a DUNS number, or access the D&B website at: <http://www.dnb.com/us/>. The process to request a DUNS number by telephone takes about 10 minutes, and is free of charge. The process to obtain a DUNS number through the web site takes about fourteen days, and is also free of charge. Organizations will use the same DUNS number with every proposal submitted for a Federal grant and cooperative agreement. Note that the DUNS number is site-specific.

NASA also requires the applicant's organization to be registered in the System for Award Management (SAM) database and obtain a Commercial and Government Entity (CAGE) code prior to submitting a proposal. The purpose of this requirement is to help centralize

information about grant recipients and provide a central location for grant recipients to change organizational information. Information for registering in SAM and online documents can be found at <http://www.sam.gov>. Before registering applicants and recipients should review the System for Award Management, which is also located at <http://www.sam.gov>. The process for obtaining a CAGE code is incorporated into the SAM registration.

5 PROPOSAL EVALUATION

5.1 Evaluation Process and Criteria

A selection decision will be made following a review of the proposals. The final decision is made by a designated NASA Source Selection Official. The Director of the Science Exploration Directorate at GSFC is the selection official for this Cooperative Agreement.

The proposals will be evaluated based on the following weighted criteria:

1. Scientific and Technical approach: (50%)
 - a. Scientific merit of the overall proposed research program, including the identification of the challenges, objectives, key scientific/technical approaches, and the expected staffing level and skill mix required to accomplish the research identified in Section 2.1.2 and the effectiveness of overall plans for conducting the special programs described in Section 2.2;
 - b. The roles to be performed by GSFC Scientists, post-docs, graduate students and undergraduate students and areas where collaborative research is expected will be evaluated for the effectiveness and efficiency. The goal to advance scientific understanding of Astrophysics, Space, and Solar System Science through instrument technology, space observations and research will be evaluated for their ability to contribute to the areas of interest to Astrophysics and Planetary
 - c. The biographies of key personnel will be evaluated for their applicability to the proposer's proposed research approach, including an assessment of their qualifications, backgrounds and experience/past accomplishments. In the case of the scientific personnel, the evaluation will also include the quality and breadth of publications and their applicability to the proposer's proposed research approach.
 - d. Effectiveness of proposed plans for a career structure designed to attract and retain distinguished, internationally recognized Astrophysics, Space, and Solar System Science researchers, including recruitment of highly qualified personnel from other expiring agreements or innovative approaches to partnerships with other US educational and not-for-profit institutions to retain access to the services of such highly-qualified personnel. The evaluation will consider the value of the approach in addressing how the research scientists will progress in their careers during the proposal period, including advances in a job title series, pay progression, and overall professional development;

2. The management approach for developing, approving, and modifying the research program plan will be evaluated, including the following areas: (30%)
 - a. The planned research effort, focusing on programmatic, reporting, financial and administrative matters and the discussion of the interaction of CRESST II researchers with GSFC researchers in establishing the Annual Research Program Plan will be evaluated for efficiency and effectiveness. If a consortium proposes on this effort, the efficiency and effectiveness of the proposer's approach for allocating and managing work among the partners will be assessed. Any proposed plans for continuity of existing research programs on-going at time of award will be evaluated for its effectiveness in achieving NASA's goals;
 - b. Merit of the internal structure of the CRESST II and its expected effectiveness in attracting and retaining highly qualified scientists, and permitting means of professional advancement within CRESST II and beyond for early career scientists (<10 years past the Ph.D.);
 - c. Effectiveness of the proposed approach to manage a varying annual budget resulting from competitive proposals;
 - d. Merit of the approach for leading researchers from the broader science community to become involved in the activities of the CRESST II. In particular, the plans for attracting university professors to spend sabbatical years at Goddard, and for attracting high potential graduate students to carry out their thesis research will be assessed;
 - e. Assessment of proposer's commitment to connect with and leverage historically black colleges and minority institutions in performing innovative research efforts of the CRESST II;
 - f. Effectiveness of the proposer's past performance record (1) in hiring and retaining distinguished, high quality Space and Earth Science researchers; and (2) in submitting monthly financial reporting and quarterly progress reports at the research project level;
 - g. The evaluation will consider the effectiveness of the proposer's approach and commitment to increasing public understanding of Astrophysics, Space, and Solar System Science through education and outreach;
 - h. The evaluation will assess the relevancy and effectiveness of the facilities to be used for the research and special programs/activities, to include facilities located at GSFC as well as any other facilities the proposer may propose.
3. Proposed costs will be evaluated, including consideration of realism, reasonableness, and the relationship to the available funds. Cost sharing is not part of the evaluation criteria. Neither the existence of proposed voluntary cost sharing nor the amount of such cost sharing will be used as evaluation criteria for the purposes of selection or as conditions for award. As a cooperative effort, proposals may include commitment of resources (financial and/or non-monetary) to contribute their unique capabilities to enhance the success of this effort. (20%)

5.2 Evaluation and Selection Process

As a matter of both policy and practice, proposals submitted to NASA are reviewed by panels composed of the proposer's professional peers, who have been screened for conflicts of interest. The number and significance of strengths and weaknesses for a proposal determines its final summary evaluation based on the following adjectival scale:

Summary Evaluation	Basis for Summary Evaluation
Excellent	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.
Very Good	A highly competent proposal of very high merit that fully responds to the objectives of the CAN, whose strengths fully outweigh any weaknesses.
Good	A competent proposal that represents a credible response to the CAN whose strengths and weaknesses essentially balance.
Fair	A proposal that provides a nominal response to the CAN but whose weaknesses outweigh any perceived strengths.
Poor	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).

NASA will evaluate the proposals by assessing strengths and weaknesses as defined below:

Weakness – a flaw in the proposal that increases the risk of unsuccessful performance

Significant Weakness – a proposal flaw that appreciably increases the risk of unsuccessful performance

Deficiency – a material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful performance to an unacceptable level

Strength– a proposal area that enhances the potential for successful performance or contributes toward exceeding the requirements in a manner that provides additional value to the government (this could be associated with a process, scientific/technical approach, materials, facilities, etc.).

Significant Strength— a proposal area that greatly enhances the potential for successful performance or contributes significantly toward exceeding the requirements in a manner that provides additional value to the government.

At the conclusion of the review process, a selection recommendation is developed by the Review Team, and submitted to the Selecting Official together with the evaluation report. In addition to the findings of the evaluation report, important considerations in the selection process will be the availability of funds and programmatic balance in the context of the objectives of the CAN and/or the existing program as a whole. The Selection Official will select the highest ranked proposals as judged against the evaluation criteria, the objectives of the Cooperative Agreement programmatic considerations, and the available financial resources.

Following selection, each proposer will be notified of the disposition of their proposal and, if desired, provided the opportunity to be debriefed. Those proposer that is selected will be advised that their organization will be contacted by the responsible NASA Procurement Office to initiate negotiations for potential award. It is important to note that, until an award is made, there is no guarantee that the recommended financial resources will be available.

6 AWARD ADMINISTRATION INFORMATION

6.1 Notice of Award

As soon as possible after the selection is concluded, the Source Selection Official or Program Officer informs each proposer of the selection or declination of his/her proposal by postal letter or electronic mail and offers a debriefing. For the selected proposer, the proposer's business office will be contacted by a NASA Grants Officer, who is the only official authorized to obligate the Government regarding execution of the Cooperative Agreement. Any costs incurred by the proposer in anticipation of any award will not be reimbursed.

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 Manual.

6.3 Award Reporting Requirements

A quarterly scientific/technical status and business status report will be required along with an annual report and an annual budget.

6.4 Award and Intellectual Property Information

Awards resulting from a proposal will be governed by the following:

2 C.F.R. 200 *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance)* at http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title02/2cfr200_main_02.tpl

2 C.F.R. 1800 NASA supplement to 2 C.F.R. 200 (open word file)
https://prod.nais.nasa.gov/pub/pub_library/srba/index.html

Grants and Cooperative Agreement Manual
https://prod.nais.nasa.gov/pub/pub_library/Grant_and_CooperativeManual.doc

Intellectual Property Resulting from Awards

Data Rights: NASA wishes to disseminate data and material produced under this awards as broadly as possible with minimal restrictions. While recipients are not restricted in their own use and distribution of data first produced in performance of an award, NASA's goal is to reduce restrictions on dissemination and use of data to the greatest extent possible, consistent with the terms and conditions of the award. Data rights differ based on whether data is first produced under an award or instead was developed at private expense outside the award.

"Limited Rights Data": The U.S. Government will not normally require delivery of confidential or trade secret-type technical data developed solely at private expense prior to issuance of an award, except as necessary to monitor scientific/technical progress and evaluate the potential of proposed technologies to reach specific scientific/technical and cost metrics.

Government rights in Technical Data Produced under Awards: The U.S. Government normally retains unlimited rights in technical data produced under awards, including the right to distribute to the public. However, invention disclosures may be protected from public disclosure for a reasonable time in order to allow for filing a patent application.

Invention Rights: Recipients that are Small Businesses or nonprofit organizations may elect to retain title to their inventions pursuant to the Bayh-Dole Act (35 U.S.C. § 202). Large business recipients are subject to section 20135 of the National Aeronautics and Space Act (51 U.S.C. § 20135) relating to property rights in inventions. Title to inventions made under an award by a large business recipient initially vests with NASA. However, these recipients may request a waiver to obtain title to inventions made under the award. Such a request may be made in advance of the award or within 30 days thereafter. Even if a waiver request is not made, or denied, a large business recipient may request a waiver on individual inventions made during the course of the award.

In the case of awards, intellectual property provisions (patent and data rights) are subject to the Federal Acquisition Regulations (FAR) and the NASA FAR Supplement (NFS).

In the case of grants and cooperative agreements, intellectual property provisions are subject to the terms and conditions in 2 CFR 200, 2 CFR 1800, and 14 CFR 1274.

7.0 POINTS OF CONTACT FOR FURTHER INFORMATION

Further Information

Address further questions regarding this CAN to:

CRESSTII/CAN
NASA/Goddard Space Flight Center
Attn: Tiffany Neal /Code 210.8
Building 22, Rm. 205C
Greenbelt Road
Greenbelt, MD 20771
Tel: 301-286-7905
FAX: 301-286-1773
Email: Tiffany.Neal@nasa.gov

8.0 ANCILLARY

NASA fosters and encourages the submission of proposals relevant to agency mission requirements by solicitations that describe areas of interest to NASA. Proposals received in response to this CAN will be used only for evaluation purposes.

NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to the CAN to be used as the basis of a solicitation, or in negotiation with other organizations, nor is a pre-award synopsis published for individual proposals.

A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific requests; however, information or materials that NASA and the awardees mutually agree to be of a confidential or privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

If a recipient intends to assert limited rights data or propose restricted computer software (as defined in FAR 27.404), then such data and software shall be clearly identified in the proposal.

ENCLOSURE A

Certifications, Assurances, and Representations

Certification of Compliance on Proposal Cover Page

By submitting the proposal identified in the Cover Sheet/Proposal Summary in response to this CAN, the Authorizing Official of the proposing organization as identified below:

- certifies that the statements made in this proposal are true and complete to the best of his/her knowledge;
- agrees to accept the obligation to comply with NASA award terms and conditions if an award is made as a result of this proposal; and
- confirms compliance with all applicable provisions, rules, and stipulations set forth in the Certifications, Assurances, and Representations contained in this NRA or CAN. Willful provision of false information in this proposal and/or its supporting documents, or in reports required under an ensuing award, is a criminal offense (U.S. Code, Title 18, Section 1001).

Assurance of Compliance with the National Aeronautics and Space Administration Regulations Pursuant to Nondiscrimination in Federally Assisted Programs

- "The Organization, corporation, firm, or other organization on whose behalf this assurance is made, hereinafter called "Applicant,"
- "HEREBY acknowledges and agrees that it must comply (and require any subgrantees, contractors, successors, transferees, and assignees to comply) with applicable provisions of national laws and policies prohibiting discrimination, including but not limited to:
- Title VI of the Civil Rights Act of 1964, as amended, which prohibits recipients of federal financial assistance from discriminating on the basis of race, color, or national origin (42 U.S.C. 2000d et seq.), as implemented by NASA Title VI regulations, 14 C.F.R. Part 1250.
- As clarified by Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination on the basis of limited English proficiency (LEP). To ensure compliance with Title VI, the Applicant must take reasonable steps to ensure that LEP persons have meaningful access to its programs in accordance with NASA Title VI LEP Guidance to Grant Recipients (68 Fed. Reg. 70039). Meaningful access may entail providing language assistance services, including oral and written translation, where necessary. The Applicant is encouraged to consider the need for language services for LEP persons served or encountered both in developing budgets and in conducting programs and activities. Assistance and information regarding LEP obligations may be found at <http://www.lep.gov>.

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- Title IX of the Education Amendments of 1972, as amended, which prohibits discrimination on the basis of sex in education programs or activities (20 U.S.C. 1681 et seq.) as implemented by NASA Title IX regulations, 14 C.F.R. Part 1253. If the Applicant is an educational institution:
 - The Applicant is required to designate at least one employee to serve as its Title IX coordinator (14 C.F.R. § 1253.135(a)).
 - The Applicant is required to notify all of its program beneficiaries of the name, office, address, and telephone number of the employee(s) designated to serve as the Title IX coordinators. (14 C.F.R. §1253.135(a)).
 - The Applicant is required to publish internal grievance procedures to promptly and equitably resolve complaints alleging illegal discrimination in its programs or activities (14 C.F.R. §1253.135(b)).
 - The Applicant is required to take specific steps to regularly and consistently notify program beneficiaries that The Applicant does not discriminate in the operation of its programs and activities. (14 C.F.R. §1253.140).
- Section 504 of the Rehabilitation Act of 1973, as amended, which prohibits The Applicant from discriminating on the basis of disability (29 U.S.C. 794) as implemented by NASA Section 504 regulations, 14 C.F.R. Part 1251.
 - a. The Applicant is required to designate at least one employee to serve as its Section 504 coordinator (14 C.F.R. §1251.106(a)).
 - b. The Applicant is required to notify all its program beneficiaries of the name, office, address, and telephone number of the employee(s) designated to serve as the Section 504 coordinator (14 C.F.R. §1251.106(a)).
 - c. The Applicant is required to publish internal grievance procedures to promptly and equitably resolve complaints alleging illegal discrimination in its programs or activities (14 C.F.R. §1251.106(b)).
 - d. The Applicant is required to take specific steps to regularly and consistently notify program beneficiaries that the Applicant does not discriminate in the operation of its programs and activities. (14 C.F.R. §1251.107).
- The Age Discrimination Act of 1975, as amended, which prohibits the Applicant from discriminating on the basis of age (42 U.S.C. 6101 et seq.) as implemented by NASA Age Discrimination Act regulations, 14 C.F.R. Part 1252.

The Applicant also acknowledges and agrees that it must cooperate with any compliance review or complaint investigation conducted by NASA and comply (and require any subgrantees, contractors, successors, transferees, and assignees to comply) with applicable provisions governing NASA access to records, accounts, documents, information, facilities, and staff. The Applicant must keep such records and submit to the responsible NASA official or designee timely, complete, and accurate compliance reports at such times, and in such form and containing such information, as the responsible NASA official or his designee may determine to be necessary to ascertain whether the Applicant has complied or is complying with relevant obligations and must immediately take any measure determined necessary to effectuate this agreement. The Applicant must

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comply with all other reporting, data collection, and evaluation requirements, as prescribed by law or detailed in program guidance.

The United States shall have the right to seek judicial enforcement of these obligations. 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.”

Under penalty of perjury, the undersigned officials certify that they have read and understand their obligations as herein described, that the information submitted in conjunction with this document is accurate and complete, and that the recipient is in compliance with the nondiscrimination requirements set out above.

Certification Regarding Lobbying

“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 any 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.

“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.

“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.”

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

“Pursuant to Executive Order 12549, Debarment and Suspension, and implemented at 2 CFR Parts 180 and 1880:

(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."

Assurance and Representation on China Restrictions

By submission of its proposal, the proposer represents that the proposer is not China or a Chinese-owned company, and that the proposer will not participate, collaborate, or coordinate bilaterally with China or any Chinese-owned company, at the prime recipient level or at any subrecipient level, whether the bilateral involvement is funded or performed under a no-exchange of funds arrangement.

Certification of Tax Compliance

For awards exceeding \$5 million, proposer certifies it has filed the Federal tax returns required during the three years preceding this certification, has not been convicted of a criminal offense under the Internal revenue Code of 1986, and has not, more than 90 days prior to certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

Representation Regarding Corporate Felony Convictions

If a corporation, the prospective recipient represents that it has not been convicted, or had an officer or agent acting on behalf of the corporation convicted, of a felony criminal violation under a Federal law within the preceding 24 months.

Representation Regarding Unpaid Corporate Tax Liabilities

If a corporation, the prospective recipient represents that it has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; unless an agency has considered suspension or debarment of the corporation and made a determination that this further action is not necessary to protect the interests of the Government.

Representation Regarding Restrictions on Reporting Waste, Fraud, and Abuse

The prospective recipient represents that it does not and will not require employees or its contractors—who seek to report fraud, waste, or abuse—to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or contractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a federal department or agency authorized to receive such information.

Note: Procurement personnel may obtain updates at time of award if needed. Procurement personnel will also obtain any outdated certifications needed on an annual basis (e.g., at time of annual funding).