NEVADA
NASA EPSCoR

REQUEST for Letters of Interest and PROPOSALS: National NASA EPSCoR Rapid Response Research Cooperative Agreement Notice (CAN) Amendment

Release Date: December 15, 2021

Announcement for:

Faculty from University of Nevada, Las Vegas; University of Nevada, Reno; Nevada State College; College of Southern Nevada; Great Basin College; Truckee Meadows Community College; Western Nevada College, Desert Research Institute

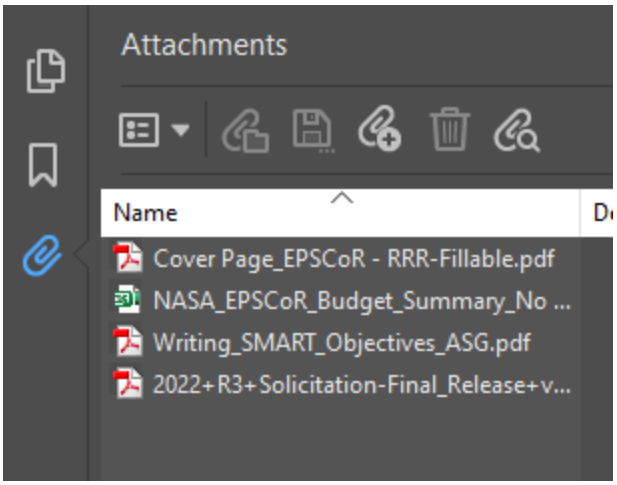
Letters of Interest Due: January 10, 2022 5:00 pm PT
Proposals Due: Selected PIs will submit proposals to the NSHE SPO/EPSCOR Office no later than March 1, 2022, 5:00 pm PT

Webinar about this solicitation will be held Dec 21, 2021 at 3 pm PT. Use this link to attend: Click here to join the meeting

NOTE: Please open this document in Adobe Acrobat to view attached paperclip resource files relevant to this solicitation.

Paperclipped Attachments

Please note, to view all relevant attachments to this solicitation including the budget summary, cover page, NASA Mission Directorates, etc., please open this PDF document in Adobe Acrobat and select the paperclip on the left-hand side of the screen (you may need to click the arrow to expand the panel where the paperclip is located). Any questions regarding the paperclip attachments or on how to access these documents can be directed to Michael Lujan at mlujan@nshe.nevada.edu.



INTRODUCTION

The National NASA EPSCoR Program has announced a new solicitation entitled "Rapid Response Research" (R3) program. The goal of this effort is to develop close collaborations among NASA, industry and university faculty to solve specific current NASA research challenges. It is anticipated that approximately 30 research proposals that will not exceed $100,000 each for a one-year project duration will be awarded to address a subset of the NASA topics listed in the National solicitation Appendices (attached). Each jurisdiction may submit one proposal per NASA science office; i.e., listed in the solicitation as separate appendices (one proposal per appendix). Nevada may submit, through the NV NASA EPSCoR Office, up to 11 proposals, one for each appendix addressing just one of the research topics for that appendix. We are therefore requesting that any NSHE faculty member interested in submitting a proposal first submit a letter of interest; see information below. If there are multiple faculty interested in a common topic area or multiple topic areas within one NASA science office division (appendix), we will request that the faculty consider collaborating on a single proposal. If collaboration is not an option, the NV NASA EPSCoR Technical Advisory Committee (TAC) will review the letters of interest and select the proposal(s) that will be submitted to the National solicitation.

The lead Science PIs must reach out to the NASA point of contact to talk about their research ideas before submitting a letter of interest (and before proposal submission); this was a specific request from the National NASA EPSCoR Project Manager.

Each funded NASA EPSCoR R3 CAN proposal is expected to establish research activities that will make significant contributions to one of the strategic research projects listed in the national solicitation (attached). The proposed research should also contribute to the overall research infrastructure, science, and technology capabilities, higher education, and economic development of Nevada.

The NASA science offices and contacts are listed below. Topic Areas for each NASA science office are listed in the attached National NASA EPSCoR R3 CAN solicitation, Appendices A – K. Note: PIs may resubmit proposals from previous R3 solicitations. Renewal proposals for current R3 awards are permitted with prior NASA point of contact (technical monitor) approval. You must receive this approval before submitting your proposal for renewal.

NASA Science Offices and Contacts

1) Biological and Physical Sciences (Appendix A)
Topic 1: Quantum Science; Contact: Brad Carpenter, Work Phone: (202) 358-0826, Email: bcarpenter@nasa.gov

Topic 2: Soft Matter-Based Metamaterials; Contact: Suman Sinha Ray, Email: suman.sinharay@nasa.gov

Topic 3: Oscillating Heat Pipes (OHP); Contact: John McQuillen, Work Phone: 216-433-2876, Email: john.b.mcquillen@nasa.gov

Topic 4: High Pressure Transcritical Combustion (HPCT); Contact: Daniel L. Dietrich; Work Phone: (216) 433-8759, Email: Daniel.L.Dietrich@nasa.gov

Topic 5: Extraction and Utilization of Materials from Regolith; Contact: Michael SanSoucie, Work Phone: 256-544-5269, Email: michael.p.sansoucie@nasa.gov

Topic 6: Effects of Chronic Radiation Exposure on Plant and Microbial interactions or Multigenerational Growth of Invertebrates; Contact: Sharmila Bhattacharya, Email: spacebiology@nasaprs.com

2) NASA AMES Research Center (Appendix B)
Contacts for all topics: Harry Partridge, harry.partridge@nasa.gov and *Aaron Brandis, aaron.m.brandis@nasa.gov who is the primary contact for all topics.
Topic 1: Thermal Conductivity Heat Transfer of Porous TPS Materials;

Topic 2: Measurements for Characterizing In-Depth Spectral Radiative Properties of TPS Materials

Topic 3: NuSil Coated PICA Material Response in CO2 Environments

Topic 4: Deposition of Ablation/Pyrolysis Products on Optical Windows

Topic 5: Predictive Modeling of Plasma Physics Relevant to High Enthalpy Facilities

3) Office of the NASA Chief Medical Officer (OCHMO) and Human Research Program/Space Radiation Element (Appendix C)
Overall points of contact: Dr James D. Polk; E: james.d.polk@nasa.gov, P: (202)358-1959;
Dr Victor S. Schneider: E: vschneider@nasa.gov, P: (202)358-2204; and Dr S. Robin Elgart, shona.elgart@nasa.gov, 281.244.0596
Topic 1: Pilot studies to examine the effects of whole-body irradiation on minipigs;

Contacts: Elgart, S Robin (JSC-SK4)[IPA] shona.elgart@nasa.gov, (281)244-0596; and Sishc, Brock J. (JSC-SA211)[WYLE LABORATORIES, INC.] brock.j.sishc@nasa.gov

Topic 2: Development of tissue chip models to accelerate space radiation research; ; Contacts: Elgart, S Robin (JSC-SK4)[IPA] shona.elgart@nasa.gov, (281)244-0596; and Sishc, Brock J. (JSC-SA211)[WYLE LABORATORIES, INC.] brock.j.sishc@nasa.gov

4) Aeronautics Research Mission Directorate (ARMD) (Appendix D)
Overall points of contact: Dr. Timothy Krantz, timothy.l.krantz@nasa.gov, 216.433.3580; Dr. Peggy A. Cornell, peggy.a.cornell@nasa.gov, 216.387.5138; and Dr. John M. Koudelka, john.m.koudelka@nasa.gov, 216.905.5139
Topic 1: Safety of Electro-mechanical Powertrains for Electrified Vertical Takeoff and Landing (eVTOL) Vehicles; primary contact: Dr. Timothy Krantz, timothy.l.krantz@nasa.gov, 216.433.3580

Topic 2: Impact Testing to Support the Development of an Artificial Bird Material for Aircraft Certification; Contacts: Dr. Robert K. Goldberg, Robert.K.Goldberg@nasa.gov, (216) 433-3330
Dr. Justin Littell, Justin.d.littell@nasa.gov, 757.864.5095; and Dr. Michael Pereira, mike.pereira@nasa.gov, 216.287.7340

Topic 3: Development of Characterization Techniques to Determine Key Composite Material Properties for the LS-DYNA MAT213 Model; Contacts: Dr. Robert K. Goldberg, Robert.K.Goldberg@nasa.gov, (216) 433-3330; Dr. Justin Littell, Justin.d.littell@nasa.gov, 757.864.5095; and Dr. Michael Pereira, mike.pereira@nasa.gov, 216.287.7340

5) Marshall Space Flight Center (MSFC) (Appendix E)
Overall contact: Jhonathan Rosales (jhonathan.rosales@nasa.gov, 256-961-2491
Topic 1: Additive Manufacturing of Nuclear Fuels (ceramics)

6) NASA SMD Computational, Information Sciences and Technology Office (CISTO) (Appendix F)
Overall contacts: James Harrington, james.l.harrington@nasa.gov, 301-286-4063, and Elizabeth A. Macdonald, elizabeth.a.macdonald@nasa.gov, 301-286-6690
Topic 1: Computational and Technological Advances for Scientific Discovery via AI/ML Modeling and Development implementing an open science approach. (Broadening participation of under-represented groups) Primary Contact: : James Harrington, james.l.harrington@nasa.gov, 301-286-4063

Topic 2: : Supporting Heliophysics Citizen Science Goals through Data Partnerships; Primary contact: Elizabeth A. Macdonald, elizabeth.a.macdonald@nasa.gov, 301-286-6690

7) SMD Astrophysics (Appendix G)
Overall contacts: Dr. Hashima Hasan, hhasan@nasa.gov , (202) 358-0692, and Dr. Mario Perez, mario.perez@nasa.gov, 202.358.1535
Topic 1: Astrophysics Technology Development

Topic 2: Astrophysics Data Centers

Topic 3: Astrophysics Documents

Topic 4: Decadal Survey

Topic 5: Citizen Science

8) SMD Planetary Science Division (Appendix H)
Overall contacts: Adriana C. Ocampo Uria, adriana.c.ocampo@nasa.gov, (202) 358-2152, and Carolyn Mercer, cmercer@nasa.gov, (216) 433-3411
Topic 1: Venus

Topic 2: High-Temperature Subsystems and Components for Long-Duration (months) Surface Operations

Topic 3: Aerial Platforms for Missions to Measure Atmospheric Chemical and Physical Properties

9) Commercial Space Capabilities (CSC) Research (Appendix I)
Overall contact: Warren Ruemmele, warren.p.ruemmele@nasa.gov
Topic 1: In-Space Welding

Topic 2: In-Space Fabrication

Topic 3: Materials and Processes Improvements for Propulsion State of Art (SoA)

Topic 4: Small Reentry Systems

10) SMD Earth Science Division (ESD) (Appendix J)
Overall contacts: Allison K. Leidner, allison.k.leidner@nasa.gov and Laura Lorenzoni, laura.lorenzoni@nasa.gov
Topic 1: Improve our understanding of carbon fluxes across the land-ocean interface

Topic 2: Carbon cycling dynamics

11) Office of Safety & Mission Assurance (Appendix K)
Addressing Knowledge Gaps in Planetary Protection for Crewed Mars Mission Concepts
Overall contact: J Nick Benardini, James.N.Benardini@nasa.gov
Topic 1: Microbial and Human Health Monitoring

Topic 2: Natural Transport of Contamination on Mars

Important Notes:

1) NASA EPSCoR R3 CAN proposals may be from a single NSHE institution; there is no requirement for collaboration among NSHE institutions.
2) The total amount to be awarded is $100,000 Federal with full indirect cost recovery.
3) There is no cost-share required for this opportunity (no institutional or state match).
4) The lead administrative PI will be Dr. Lynn Fenstermaker, the NV NASA EPSCoR Project Director. The lead research faculty member will be listed as the Science PI. The proposals will be submitted through the NSHE SPO/EPSCoR Office.
5) A letter of interest stating the specific topic of the proposal must be submitted by **January 10, 2022**, **5:00 pm PT** at the website listed in the instructions below.
6) The period of performance shall not exceed one year.
7) There will be no administrative fees attached to the budget, but there will be NSHE SPO/EPSCoR Office ICR on the total amount. (Work with Gibran Chavez-Gudino on the budget. NSHE SPO/EPSCoR Office ICR is 15% on the first $25,000 per subaward)
8) Please read the National solicitation (attached) for specifics about the proposal and research topics.
9) **The National NASA EPSCoR Project Manager has stated that the Science PI should contact the NASA point-of-contact listed for each topic area prior to proposal preparation and submission. We request that the Science PI communicate with the NASA contact prior to submission of a letter of interest to ensure that your proposal idea will meet NASA expectations.**
10) The National NASA EPSCoR R3 solicitation has a deadline of 11:59 pm (ET) on March 15, 2022. NSHE SPO/EPSCoR Office requires that the final selected proposals be submitted to the NSHE SPO/EPSCoR Office by **March 1, 2022, 5:00 pm PT.** This will give us time to ensure that the budget is correct, all solicitation requirements are met, provide time for revision and time needed for NV NASA EPSCoR staff to upload all proposals. NOTE: there has always been a need for budget corrections and narrative revision, so the March 1 cut-off for delivering a complete draft of all proposals is firm.

R3 CAN SOLICITATION INFORMATION AND INSTRUCTIONS

A. Eligibility

Faculty at NSHE institutions, particularly junior faculty, women, and members of other underrepresented populations are encouraged to apply. Faculty who have a current National NASA EPSCoR Research CAN or R3 project are not eligible to apply while their project is on-going. There is no requirement that Science PIs be U.S. citizens, however, foreign nationals (i.e., non-U.S. citizens who do not have a green card) will likely not be permitted access to NASA Centers. This may or may not be important to the research being proposed. Proposals involving bilateral participation, collaboration, or coordination in any way with China or any Chinese-owned

company, whether funded or performed under a no exchange-of-funds arrangement, will be ineligible for award.

B. Award: Funding Information

The NASA EPSCoR R3 CAN will provide an award of $100,000 total for a one-year project period with no match requirement. The federally negotiated indirect cost recovery (ICR) rate for each NSHE institution must be included in the budget as well as the NSHE EPSCoR/SPO ICR rate.

C. Award Obligations (If selected for Full proposal submission and receive a National award)

Award recipients are required to prepare final reports and respond to any other reporting requirements provided by the National NASA EPSCoR Office. It is anticipated that this will include quantitative information on participant demographics, project role, number/type of products and a research highlight. The final report must be made publicly available through NASA's *PubSpace*. The final report includes, but is not limited to: a summary of project goals and accomplishments; a discussion on advancement of the jurisdiction's research infrastructure; a list of project participants from academia, NASA centers and industry; grant proposals submitted; grant proposals funded; papers submitted and/or published in refereed journals; presentations or abstracts at professional meetings, and technology advancement (patents, licenses, etc.). Data must be archived and adhere to a data management plan.

D. Letter of Interest Preparation

Complete the online form (URL listed below) to provide the following information by 5:00 pm PT on January 10, 2022. You must communicate with the appropriate NASA Topic Area Point of Contact prior to submission of the LOI.

- Lead PI name, email address and institution
- Working title for the pre-proposal
- Science office division and research topic from the NASA solicitation provided list
- Research abstract / brief explanation of your research idea, how it will address NASA research topic and a sentence on anticipated outcomes (500 words max)

Go to: https://nasa.epscorspo.nevada.edu/funding/2022-r3-can/

LOI Review

LOIs will be reviewed as quickly as possible and PIs will be informed whether they may proceed with proposal development. In instances where a common NASA science office is stated in two or more LOIs, the PIs will be asked if they would be willing to collaborate. If collaboration is not possible, the LOIs will be reviewed by the NV NASA EPSCoR Technical Advisory Committee and the most relevant and well-written LOI will be selected for proposal development. LOI teams will be notified of LOI review results by Monday, January 24, 2022.

E. Full Proposal Preparation

Proposals must be typed, single-spaced, standard one-inch margins and use a Times Roman 12 pt or comparable font with numbered pages. The proposals should be written such that researchers from other scientific disciplines would be able to understand the proposal goals, importance of the project for the specific NASA science office research topic and how the anticipated outcomes will benefit NASA, NV and NSHE. Please submit the proposal as a word file that will enable a more efficient review and revision.

1. Cover Page (form provided as "paperclip" attachment to this solicitation)

- Signature of Applicant
- Signature of Office of Sponsored Projects/Programs
- Project title that includes the Solicitation Appendix which the proposal is responsive to.

2. Project Description (limited to 2-3 pages maximum unless otherwise stated in a specific research topic appendix) Note: the summary and data management plan are not included in the 2-3 page proposal limit.

Provide a concise description of the proposed research or research-building activities, including the following:

a. Summary of Project (limited to 4000 characters)
b. Data Management Plan (limited to 4000 characters)
c. Table of Contents
d. The Scientific/Technical Management Plan (2-3 pages) should include:
    i. Project goals and research objectives; intrinsic merit of the proposed research
    ii. Brief statement on how the proposed research meets the topic area need identified in the solicitation
    iii. Tasks and methods
    iv. SMART objectives with measurable outcomes (see PDF "paperclip" attachment)
    v. An approximate timetable for project completion
    vi. List of collaborators and expertise they will contribute (including any NASA scientists)
    vii. Brief discussion of likely outcomes (i.e., publications, patents/licenses, technology transfer, new hardware/software, new or revised courses, new proposals with potential program you will apply to, etc.)

3. Appendices

a. References Cited (the number of pages for citations is not limited)
b. Biographical Sketch or Curriculum Vitae: limited to two pages for the Admin and Science PIs, and one page for Co-PI(s).
c. Current and Pending Support
d. Statements of commitment and letters of support: any NASA collaborators must provide letters of support that specifically state the contribution they will make. (Note: Letters must be recent and dated within 45 days prior to the proposal submission.)
e. Budget and Budget Justification (form provided as "paperclip" attachment)
    Provide a budget and a detailed budget justification by each institution involved in the project. PIs are encouraged to work with their Sponsored

Programs Office and/or Business Managers well in advance to develop the budget.
- Follow NASA budget guidelines as well as the OMB Uniform Guidance when developing the budget.
- Include appropriate fringe, ICR, tuition and other costs.
- Budget must be signed by Sponsored Projects Office or Business Manager.

f. Facilities and Equipment: list any existing facilities and major equipment that will be used for the proposed project.
g. Table of personnel and work effort.

F. Submission Guidelines:
Letters of Interest must be submitted no later than **5:00 pm PT on January 10, 2022**. Use the online form at: https://nasa.epscorspo.nevada.edu/funding/2022-r3-can/

LOIs should be submitted only after communication with the NASA point-of-contact for the topic area of interest. If you are selected to proceed to full proposal, the final date to submit a full proposal to the NSHE SPO/EPSCoR Office is **March 1, 2022.** To submit a proposal please submit word and excel documents using the naming convention: **PI Last Name_First Name_NASA_R3. Do not submit a PDF file.** Submissions that are incomplete (see requirements 1-4 above) will not be submitted to the National solicitation. Use the online form at: https://nasa.epscorspo.nevada.edu/funding/2022-r3-can/

PROPOSAL REVIEW AND SELECTION
All full proposals submitted will be reviewed by the National NASA EPSCoR Program Office. As stated in the National NASA EPSCoR R3 CAN:

Review of proposals submitted in response to this CAN shall be consistent with the general policies and provisions contained in the NASA Guidebook for Proposers, Appendix D. Selection procedures will be consistent with the provisions of the NASA Guidebook for Proposers, Section 5. However, the evaluation criteria described in this CAN under Section 4.0, Proposal Evaluation, takes precedence over the evaluation criteria described in Section 5 of the NASA Guidebook for Proposers.

Successful R3 proposals shall provide sound contributions to both immediate and long-term scientific and technical needs of NASA as explicitly expressed in current NASA documents and communications. Proposals will be evaluated based on the following criteria: Intrinsic Merit, Management, and Budget Justification. The bulleted lists after each criterion below should not be construed as any indication of priority or relative weighting. Rather, the bullets are provided for clarity and facilitation of proposal development.

Proposals will be evaluated based on the proposed research approach (intrinsic merit, 65% of score), project management (20%) and budget justification (15%).

NASA's stated goal is to announce selections as soon as possible. However, NASA does not usually announce new selections until the funds needed for those awards are approved through the Federal budget process. Therefore, a delay in NASA's budget process may result in a delay of the selection date(s).

A proposer has the right to be informed of the major factor(s) that led to the acceptance or rejection of the proposal. Debriefings will be available upon request. Again, it is emphasized that non-selected proposals should be aware that proposals of nominally high intrinsic and programmatic merits may be declined for reasons entirely unrelated to any scientific or technical weaknesses.

Contact Information

NV NASA EPSCoR Project Director
Dr. Lynn Fenstermaker
lynn.fenstermaker@dri.edu
702-862-5412

NV NASA EPSCoR Project Administrator
Gibran Chavez-Gudino
gibran@nshe.nevada.edu
702-522-7081

NV NASA Program Coordinator
Michael Lujan
mlujan@nshe.nevada.edu
702-522-7072

ADDITIONAL LINK:

A PDF copy of the current NASA Guidebook for Proposers may be found at:
https://www.nasa.gov/sites/default/files/atoms/files/2021_ed._nasa_guidebook_for_proposers.pdf