Request for a 4-page Pre-Proposal

EPSCoR Cooperative Agreement Notice (CAN)

International Space Station (ISS) Flight Opportunity Announcement Number: NNH21ZHA001C

Due to NM NASA EPSCoR by December 7, 2020

New Mexico is eligible to submit one proposal under the NASA Established Program to Stimulate Competitive Research (EPSCoR) Research Announcement, International Space Station (ISS) Flight Opportunity.

Email your 4-page Pre-Proposal to cmesquiv@ad.nmsu.edu Your pre-proposals should be prepared with the intention of submitting a full proposal. Your pre-proposal is due by 12:00 p.m. MST on December 7, 2020. We have provided a link to the NASA Established Program to Stimulate Competitive Research (EPSCoR), International Space Station (ISS) Flight Opportunity Announcement URL for your use in pre-proposal preparation.

https://nspires.nasaprs.com/external/solicitations/summary!init.do?solId={A1D6A4D2-237B-BA31-ECB1-FE41AF185D57}&path=open

Utilization of the ISS will further strengthen the relationships between NASA and the EPSCoR jurisdictions in the pursuit of national priorities for the advancement of STEM. This utilization of the ISS will also open new paths for the jurisdictions to compete for and win much larger spaceflight research projects.

Through this solicitation, the ISS will provide the integration and flight opportunity. There are a variety of laboratory facilities and capabilities designed to support a range of scientific disciplines on the ISS. A general overview of the research facilities and capabilities may found at:
https://www.nasa.gov/mission_pages/station/overview/index.html
For additional information, see:
https://www.nasa.gov/mission_pages/station/research/research_information.html

ISS experts will evaluate each proposal's potential for integration and flight based on:

Criterion	Strong	Average	Weak
Feasibility	No impediment	Minor impediment	Major impediment
Time to hardware readiness	Less than 1 year	Less than 2 years	More than 2 years
Crew time requirements	No crew involvement beyond installation and removal	Requires less than 1 hour of crew intervention per increment period (6 months)	Requires more than 1 hour of crew intervention per increment period (6 months)
Power requirements	None	Less than 500w	More than 500w
Physical Space Requirements	Fits in 3U CubeSat (100mm X 100mm X 340.5mm)	Fits in a single Express Rack Locker	Larger than a single Express Rack Locker

PRE-PROPOSAL ELEMENTS SHOULD INCLUDE (4 PAGES):

Cover sheet not contained in page count

- Research title
- Project Description/Intrinsic merit – 1 page
- Approach to flight and ground safety review process – 1 page
- Identify a Safety Representative (**Page 9 of CAN solicitation**)
- Budget justification/narrative – ½ page.
- Budget – 1 page
    - Preparation guidelines for the budget can be found on **Appendix C on Page 35** in the NASA Guidebook for Proposers.
    - The maximum funding that can be requested from NASA by a jurisdiction is $100,000 per proposal. This amount is to be expended over three years in accordance with the budget details and budget narrative in the approved proposal.
- Cost sharing is not required. However, the proposer must be aware of costs such as hardware and/or software development, documentation development support (data to the ISS) that is not covered by this award.
- Management and Evaluation – ½ page.
    - A brief explanation of how the will be managed and what metrics will be used to monitor project progress.

Once we receive the Pre-Proposals, the NASA New Mexico EPSCoR Technical Advisory Committee (TAC) will select the project determined to have the best competitive chance of being funded by NASA. Selected teams will be notified by December 18, 2020.

Each funded NASA EPSCoR proposal is expected to establish research activities that will make significant contributions to the strategic research and technology development priorities of one or more of the Mission Directorates, and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction receiving funding. Prior EPSCoR awards are posted on the NASA New Mexico EPSCoR jurisdiction website for your review at: http://nmnasaepscor.com/

NASA Guidebook for Proposers (2020 Edition) can be reviewed at:

https://prod.nais.nasa.gov/pub/pub_library/srba/documents/2020_edition_Proposers_Guidebook.pdf

The members of the TAC are chosen by NMSU, UNM, and NM Tech. They are members of a statewide body of collaborators and include external evaluators. As this is a statewide program, NASA requires the lead institution to involve research universities statewide. The full proposal is submitted to NASA where they are competitively reviewed. The role of the NM EPSCoR TAC is to assure the proposal most likely to be awarded is well written, feasible, and that the project is mature enough to be flown and well structured before it is sent forward to NASA.

PRE-PROPOSAL EVALUATION:
This section is meant to help you understand the big items that will make your proposal successful not only in the Pre-Proposal process, but also in help you prepare for and to write the full proposal should your proposal be selected by the TAC. **Pre-proposal evaluation will be based on intrinsic merit of microgravity requirement; approach to flight and ground safety review process; and budget.**

Evaluation Criterion
All proposals will be peer reviewed via NSPIRES and by representatives of the ISS Program Office in consultation with the NASA HQ Mission Directorates. The EPSCoR Program Office will ensure that all proposals are evaluated based on:

- Intrinsic merit of microgravity requirement (i.e., what is the added value of flying on the ISS?)
- Approach to flight safety process; and utilization requirements of available ISS resources; and
- Budget (shall be adequate, appropriate, reasonable, and realistic, and demonstrate the effective use of funds that align to the proposed project)

ISS Program Office:
Proposals will be evaluated by ISS Program personnel based on the following:

- Feasibility
- Time to flight
- Crew time requirements
- Power requirements
- Physical Space requirements

Intrinsic merit of microgravity requirement (40% of score) – Page 13 of CAN

- Existing Research - If relevant, the narrative shall include a very brief history of the NASA EPSCoR Research project (include the grant number assigned by the NSSC; and
- Benefit of a microgravity environment to the research **–** Each proposal shall provide a detailed technical narrative of the proposed research activity and the potential impact of a microgravity environment on the proposed research (i.e. Project Description, Microgravity Goals and Objectives, Anticipated Results, and Timeline).

Approach to flight and ground safety review process (40% of score) – Page 13 of CAN
The ISS Payload Safety Review Panel (PSRP) is an ISS Safety Review Panel (SRP) located at the JSC. The purpose of the PSRP is to ensure that the Payload Developer (PD) complies with technical and process safety requirements. Specifically, the PSRP performs the following functions:

- Assists the PD in the interpretation of safety requirements
- Conducts safety reviews during appropriate phases of the payload development to assess the payload compliance to the relevant program safety and process requirements
- Evaluates hazard assessment revisions resulting from modifications to payloads that may affect a safety critical subsystem or create a potential hazard to the crew, ISS, or other ISS/International Partner visiting vehicles
- Evaluates the safety analyses, safety reports, and waiver/deviation requests prepared by the PD and elevates to Program Management (for approval) those non-compliances that are above the delegated authority of the PSRP

- Ensures the resolution of payload safety issues, including (as required) the formation of splinter groups, subpanels, and/or coordination with other organizations to perform technical activities required to accomplish assigned responsibilities

The PD will be required to work with the PSRP to produce a Safety Data Package (SDP) as a part of the payload integration process. The SDP usually contains the following two parts:

- Part one of the SDP is descriptive text that contains information (usually drawings) to describe the payload, its systems, sub-systems, and interfaces, as well as flight and ground operations. It also summarizes hazard analyses used in the identification and control of payload hazards
- Part two of the SDP is typically a hazard report. The hazard report is used to summarize controls and verifications to ensure compliance to safety requirements. Elements of hazard report include technical requirement references, description of hazard, hazard category, hazard cause, hazard controls, and safety verification methods

More information can be found in the "Payload Developers and Principal Investigators Payload Planning, Integration and Operations Primer" at:
https://www.nasa.gov/pdf/501115main_ISS_Payload_Integration_Process_Primer_final_submission_baseline.pdf

Budget (20% of score) – Page 14 of CAN

A detailed budget is required for the entire three (3) year period of performance. A suggested format to use in preparing the proposed budget is contained in the NASA Guidebook for Proposers, Appendix C. The budget will be evaluated based upon the clarity and reasonableness of the funding request. A budget narrative shall be included in the proposal.

The proposed budget shall: be adequate, appropriate, reasonable, and realistic, and demonstrate the effective use of funds; reflect clear alignment with the content and text of the proposal; and contain sufficient cost detail and supporting information to facilitate evaluation.

ISS Program vetting of select proposals.

Proposals that the EPSCoR Project Office recommends for acceptance will be evaluated by ISS Program personnel based on the following; a maximum of ten (10) points will be awarded. Please see page 14 of the CAN for more information on how these points will be awarded.