



Request for Proposals

Kansas NASA EPSCoR Program Seed Research Initiation (SRI) Grant



NASA in Kansas

Proposal Due: Noon, February 21, 2020
Anticipated Grant End Date: May 5, 2021

With support from NASA and the Kansas Board of Regents - the Kansas NASA EPSCoR Program (KNEP) anticipates awarding a Seed Research Initiation (SRI) grant under the KNEP Research Infrastructure Development (RID) program. SRI grants are designed to assist investigators in starting research projects having a high probability for sustained growth and value to NASA and Kansas.

A successful SRI grant leads to productive collaborations, joint publications, and additional grant awards. A direct impact on state economic development is also extremely desirable. Ultimately, the goal is to form long-term self-sustaining nationally competitive capabilities that meet both NASA and Kansas's research infrastructure development goals.

Award Criteria

Awards are competitive, with a strong emphasis on:

- Addressing NASA and Kansas interests (required)
- Developing new, meaningful, and sustained collaborations (in Kansas and with NASA)
- Involving US-students, especially underrepresented and underserved Kansas undergraduate and graduate students, in research (required)
- Strengthening collaboration among industry, government agencies, and academia
- Exploring new and unique R&D opportunities
- Generating publications and future EPSCoR and non-EPSCoR grant submissions
- Contributing to Kansas' economic development

Additional information on NASA and Kansas strategic objectives and other resources can be found in the appendices of this document.

Proposals must detail other important infrastructure development related components, including:

- Investigator experience and long-term research plans
- Investigator specific goals, objectives, and priorities
- Measurable, award related, deliverables or metrics
- Detailed budget information; including all costs, matching funds, and any indirect cost waivers

The KNEP SRI program cannot support proposals augmenting existing funded or well-established research projects. NASA specifically states: "*EPSCoR RID elements should not augment existing funded research projects. RID activities should target unique activities that increase jurisdiction competitiveness.*" Clearly, new and unique activities increasing Kansas' research infrastructure and competitiveness are essential and required.

Funding, Required Match, and Restrictions

KNEP expects to make a single one-year award, of approximately \$127,600.

The following KNEP SRI program restrictions apply:

- Proposers are required to provide matching funds (cash or in-kind) that total to at least \$0.44 for each KNEP dollar requested (from non-federal sources)
- Funds cannot be used for equipment (items under \$5,000 are "supplies")
- Funds cannot be used for foreign travel
- Funds cannot be used for civil-service personnel labor or travel

- Proposals augmenting existing funded or well-established research projects cannot be supported - new and unique activities are essential and required (as noted in a previous section)
- Awarded funds **must** be expended within the award period (no-cost extensions are highly unlikely)

Grant Reporting

Grant recipients must submit progress and final reports addressing KNEP Research Infrastructure Development (RID) program objectives. Reports will include the following:

- Grant related publications, presentations, and theses and dissertations
- Additional proposals, submitted or accepted, owing directly to the KNEP award
- Additional funding secured from industry or other sources
- Detailed information on the faculty and students supported (e.g., number of people involved, demographics, funding amounts, activities, performance, student future plans, etc.)
- New collaborations formed with NASA and industry
- Impact on Kansas' economic development
- Other quantifiable items, as defined by individual investigators (in the original proposal)
- An update on short- and long-term research plans
- Patent applications or awards or technical transfer activities
- Other products (courses developed, websites, software and hardware, models, etc.)

Some specific KNEP SRI target outcomes, per award, include:

- One or more publications per year, with NASA or relevant industry co-authors
- One or more successful EPSCoR or non-EPSCoR grant awards, as a product of the KNEP SRI award
- Significant project involvement by three or more students per year

Increasing Access to the Results of Scientific Research

In keeping with the NASA Plan for Increasing Access to Results of Scientific Research, new terms and conditions consistent with the Rights in Data clause in the award which make manuscripts and data publically accessible may be attached to NASA EPSCoR Research awards. All proposals will be required to provide a Data Management Plan (DMP) or an explanation of why one is not necessary given the nature of the work proposed. See Appendix F for additional information.

Additionally, researchers submitting NASA-funded articles in peer-reviewed journals or papers from conferences now shall make their work accessible to the public through NASA's PubSpace at <https://www.nihms.nih.gov/db/sub.cgi>.

PubSpace provides free access to NASA funded and archived scientific publications. Research papers will be available within one year of publication to download and read. ^[1]_{SEP}

Special Note:

It is critical that investigators assure the proposed work is accurately planned and completed by the noted KNEP grant end date. NASA is under notable budget pressure. Indeed, they recently indicated, *“requests for no-cost extensions (NCEs) will be reviewed with increased scrutiny. It is possible that future NCE requests will be denied, and remaining funds will be returned to the Federal Government.”*

Proposal Submission:

There is a 12-page limit for all SRI proposal content (no exceptions). Use one-inch margins, a 12-pt times new roman font, and single-spaced text. A specific proposal format or style (e.g., NSF) is not expected or required. Proposers simply need to effectively address expectations outlined in this RFP.

The proposal budget must clearly identify the distribution of available KNEP and university matching funds.

Proposals must include the submitting Organization's Authorizing Official signature.

Submit a single proposal document in PDF-format (less than 2-MB in size) to the KNEP director, scott.miller@wichita.edu, by noon on the noted date (see the page-one header).

Contact the KNEP Director (scott.miller@wichita.edu or 316-978-6334) with any RFP related questions.

Availability of Funds and Period of Performance:

KNEP's ability to make awards is obviously contingent upon the availability of NASA and Kansas Board of Regents appropriated funds from which payment can be made. The award period of performance is for approximately 12-months.

Appendices

SRI awards are designed to help you establish sustainable research of significant interest to NASA Mission Directorates and Field Centers, and possibly industry, as appropriate. The efforts must, obviously, also address areas of Kansas interest.

The following material outlines Kansas and NASA strategic interests. Additional NASA specific resources and contact information is also included.

Appendix A

Kansas Strategic Interests

State science and technology strategic interests are outlined in a strategic planning document entitled *Kansas Building an Environment for Science and Technology for Innovation* or “*Kansas B.E.S.T. for Innovation.*”

An approach to meeting Kansas’ strategic objectives is outlined in this document using four goals, listed as follows:

- *“Stimulate discovery and innovation through partnerships by building on current areas of strength in agriculture, transportation, health, and education, and nurturing emerging areas of opportunity in bioscience, energy, and the environment”*
- *“Translate the results of research into meaningful solutions to societal challenges by fabricating new and patentable devices and methodologies, and providing invaluable information for better-informed policies and partnerships with stakeholders”*
- *“Grow the economy by applying new technologies and expanding access to information technology, resulting in vibrant and diverse economic development that brings tangible benefits to the citizens of Kansas and attracts new business to the state”*
- *“Educate a diverse workforce and the next generation of science, technology, and business leaders”*

Kansas’ relevant areas of strength and focus include:

- Health and well-being
- Aviation and transportation
- Bioscience
- Materials
- Energy and environment

The creation of new multidisciplinary groups, industrial collaborations, partnerships, and an appropriately educated workforce leading to new products, jobs, and industry in Kansas is highly desirable.

Appendix B

NASA Strategic Goals

KNEP focuses its program and project elements on NASA's interests. From the Kansas perspective, as outlined in previous sections, the following specific "NASA Strategic Plan 2014" goals and objectives are significant:

- Strategic Goal 1 - *"Expand the frontiers of knowledge, capability, and opportunity in space."*
 - Objective 1.2: *"Conduct research on the International Space Station (ISS) to enable future space exploration, facilitate a commercial space economy, and advance the fundamental biological and physical sciences for the benefit of humanity."*
 - Objective 1.4: *"Understand the Sun and its interactions with Earth and the solar system, including space weather."*
- Strategic Goal 2 - *"Advance understanding of Earth and develop technologies to improve the quality of life on our home planet."*
 - Objective 2.1: *"Enable a revolutionary transformation for safe and sustainable U.S. and global aviation by advancing aeronautics research."*
 - Objective 2.2: *"Advance knowledge of Earth as a system to meet the challenges of environmental change, and to improve life on our planet."*
 - Objective 2.3: *"Optimize Agency technology investments, foster open innovation, and facilitate technology infusion, ensuring the greatest national benefit."*
 - Objective 2.4: *"Advance the Nation's STEM education and workforce pipeline by working collaboratively with other agencies to engage students, teachers, and faculty in NASA's missions and unique assets."*

The underlined portions of NASA's strategic objectives are particularly important to Kansas. Specific state interests intersect strongly with NASA's in the science and aeronautics related areas. Kansas has notable expertise in aviation, advanced materials, biotechnology, energy, and earth sciences. Logically, it's within these common areas Kansas is positioned to do well. KNEP is eager to grow and diversify related research infrastructure to assist NASA and Kansas in meeting its goals.

The 2014 NASA Strategic Plan is accessible at:

http://www.nasa.gov/sites/default/files/files/FY2014_NASA_SP_508c.pdf.

Appendix C

NASA Mission Directorates

NASA's Mission *to pioneer the future in space exploration, scientific discovery, and aeronautics research*, draws support from four Mission Directorates, each with a specific responsibility.

Aeronautics Research Mission Directorate (ARMD) works to solve the challenges that still exist in our nation's air transportation system: air traffic congestion, safety and environmental impacts. Solutions to these problems require innovative technical concepts, and dedicated research and development. NASA's ARMD pursues the development of new flight operation concepts, and new tools and technologies that can transition smoothly to industry to become products. ^[1]^[SEP]Through green aviation, NASA is helping create safer, greener and more effective travel for everyone. Our green aviation goals are to enable fuel-efficient flight planning, and reduce aircraft fuel consumption, emissions and noise. NASA aeronautics' four research programs conduct fundamental, cutting-edge research into new aircraft technologies, as well as systems-level research into the integration of new operations concepts and technologies into the Next Generation Air Transportation System (NextGen). A fifth program manages a portfolio of wind tunnels and other testing facilities (icing, propulsion), flight research and support aircraft, and the evolution of test technologies at NASA centers around the country. Additional information on the Aeronautics Research Mission Directorate (ARMD) can be found at: (<http://www.aeronautics.nasa.gov>)

Human Exploration & Operations Mission Directorate (HEOMD) provides the Agency with leadership and management of NASA space operations related to human exploration in and beyond low-Earth orbit. HEO also oversees low-level requirements development, policy, and programmatic oversight. The International Space Station, currently orbiting the Earth with a crew of six, represents the NASA exploration activities in low-Earth orbit. Exploration activities beyond low Earth orbit include the management of Commercial Space Transportation, Exploration Systems Development, Human Space Flight Capabilities, Advanced Exploration Systems, and Space Life Sciences Research & Applications. The directorate is similarly responsible for Agency leadership and management of NASA space operations related to Launch Services, Space Transportation, and Space Communications in support of both human and robotic exploration programs. Additional information on the Human Exploration & Operations Mission Directorate (HEOMD) can be found at: (<http://www.nasa.gov/directorates/heo/home/index.html>)

Science Mission Directorate (SMD) leads the Agency in four areas of research: Earth Science, Heliophysics, Planetary Science, and Astrophysics. SMD, using the vantage point of space to achieve with the science community and our partners a deep scientific understanding of our planet, other planets and solar system bodies, the interplanetary environment, the Sun and its effects on the solar system, and the universe beyond. In so doing, we lay the intellectual foundation for the robotic and human expeditions of the future while meeting today's needs for scientific information to address national concerns, such as climate change and space weather. At every step we share the journey of scientific exploration with the public and partner with others to substantially improve science, technology, engineering and mathematics (STEM) education nationwide. Additional information on the Science Mission Directorate (SMD) can be found at: (<http://nasascience.nasa.gov>)

The Space Technology Mission Directorate (STMD) is responsible for developing the crosscutting, pioneering, new technologies and capabilities needed by the agency to achieve its current and future missions. ^[1]^[SEP]STMD rapidly develops, demonstrates, and infuses revolutionary, high-payoff technologies through transparent, collaborative partnerships, expanding the boundaries of the aerospace enterprise. STMD employs a merit-based competition model with a portfolio approach, spanning a range of discipline

areas and technology readiness levels. By investing in bold, broadly applicable, disruptive technology that industry cannot tackle today, STMD seeks to mature the technology required for NASA's future missions in science and exploration while proving the capabilities and lowering the cost for other government agencies and commercial space activities. [SEP] Research and technology development takes place within NASA Centers, in academia and industry, and leverages partnerships with other government agencies and international partners. STMD engages and inspires thousands of technologists and innovators creating a community of our best and brightest working on the nation's toughest challenges. By pushing the boundaries of technology and innovation, STMD allows NASA and our nation to remain at the cutting edge. Additional information on the Space Technology Mission Directorate (STMD) can be found at: (http://www.nasa.gov/directorates/spacetech/about_us/index.html)

Appendix D

NASA Points of Contact

There is a NASA EPSCoR Research Liaison within each Mission Directorate and at each Center. These liaisons can assist with activities ranging from site visits for establishing collaborations to resolving issues after the award. Technical and scientific questions about research opportunities in this announcement may be directed to the appropriate contact below. Discussions of research with the appropriate NASA EPSCoR Research Liaison (MD, Center, or JPL) personnel are strongly encouraged.

Aeronautics Research Mission Directorate

Karen Rugg

Lead, Communications and Education NASA Headquarters^[1]_[SEP]

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Science Mission Directorate

Kristen Erickson

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Human Exploration & Operations Mission Directorate^[1]_[SEP]

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Glenn Research Center^[SEP]
Mark David Kankam, Ph.D.
University Affairs Officer^[SEP]
Dir. of NASA Space & Aeronautics Academy at Glenn^[SEP]
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Jet Propulsion Laboratory^[SEP]
Linda Rodgers^[SEP]
University Programs Administrator
Phone: (818) 354-3274
Linda.Rodgers@jpl.nasa.gov

Marshall Space Flight Center
Norman (Frank) Six,
University Affairs Officer^[SEP] Office of Academic Affairs (HS30)
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Johnson Space Center^[SEP]
Kamlesh Lulla^[SEP]
Director, University Research Collaborations and Partnership Office^[SEP]
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Stennis Space Center
Mitch Krell
University Affairs Officer
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mitch.krell@nasa.gov

Appendix E

Useful Reference Web Sites

NASA:

<http://www.nasa.gov>

NASA Office of Education:

<http://STEMEngagement.nasa.gov>

NASA Education Strategic Coordination Framework:

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Strategic_Coordination_Framework.html

NASA Strategic Plan:

http://www.nasa.gov/sites/default/files/files/FY2014_NASA_SP_508c.pdf

Vision for Space Exploration:

http://www.nasa.gov/missions/solarsystem/explore_main.html

2 CFR Part 1800, NASA Uniform Administration Requirements, Cost Principles, and Audit Requirements for Federal Awards of grants and cooperative agreements:

<https://www.ecfr.gov/cgi-bin/text-idx?SID=97cf3e395c43128cdbf6f3de586ff048&mc=true&node=pt2.1.1800&rgn=div5>

NASA Centers & Facilities:

<http://www.nasa.gov/offices/education/centers/index.html>

Guidebook for Proposers Responding to a NASA Research Announcement:

<http://www.hq.nasa.gov/office/procurement/nraguidebook>

NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES):

<http://nspires.nasaprs.com>

Most Recent Eligibility Table:

https://www.nsf.gov/od/oia/programs/epscor/Eligibility_Tables/FY2018_Eligibility.pdf

Appendix F

Data Management Plan - Increasing Access to the Results of Scientific Research

In keeping with the NASA Plan for Increasing Access to Results of Scientific Research, new terms and conditions consistent with the Rights in Data clause in the award which make manuscripts and data publically accessible may be attached to NASA EPSCoR Research awards. All proposals will be required to provide a Data Management Plan (DMP) or an explanation of why one is not necessary given the nature of the work proposed (limited to 4000 characters). Any research project in which a DMP is not necessary shall provide an explanation in the DMP block. Example explanations:

- This is a development effort for flight technology that will not generate any data that I can release, so a DMP is not applicable. [SEP]
- The data that we will generate will be ITAR. [SEP]
- Or, you may simply explain why your project is not going to generate data. [SEP]

The type of proposal that requires a DMP is described in the NASA Plan for increasing access to results of federally funded research. Visit the following link:

https://www.nasa.gov/sites/default/files/atoms/files/206985_2015_nasa_plan-for-web.pdf

The DMP shall contain the following elements, as appropriate to the project: [SEP]

- A description of data types, volume, formats, and (where relevant) standards; [SEP]
- A description of the schedule for data archiving and sharing; [SEP]
- A description of the intended repositories for archived data, including mechanisms for [SEP]public access and distribution; [SEP]
- A discussion of how the plan enables long-term preservation of data; and [SEP]
- A discussion of roles and responsibilities of team members in accomplishing the DMP. (If [SEP]funds are required for data management activities, these shall be covered in the normal budget and budget justification sections of the proposal). [SEP]

Proposers that include a plan to archive data shall allocate suitable time for this task. Unless otherwise stated, this requirement supersedes the data sharing plan mentioned in the NASA Guidebook for Proposers. [SEP]

In addition, researchers submitting NASA-funded articles in peer-reviewed journals or papers from conferences now shall make their work accessible to the public through NASA's PubSpace at <https://www.nihms.nih.gov/db/sub.cgi>. PubSpace provides free access to NASA funded and archived scientific publications. Research papers will be available within one year of publication to download and read. [SEP]