EPSCoR Current and Future

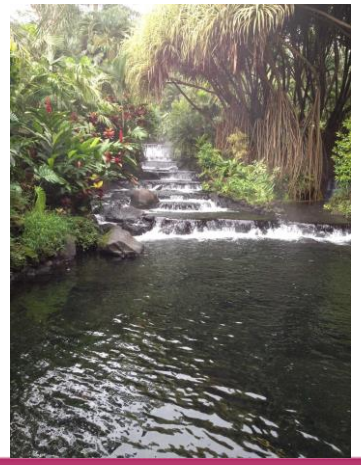
Kathleen B. Loftin, Ph.D.

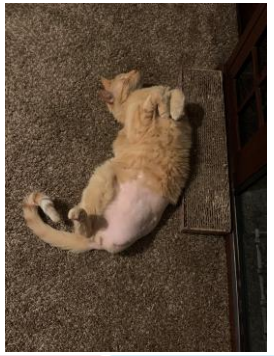
Introduction- My professional background

- Education B.S. Chemistry, M.S. Industrial Chemistry, Ph.D Chemistry (Environmental and Materials track)
- Prior to NASA (15 years)
  - Environmental Laboratory Management
- NASA
  - Principal Investigator- Environmental, Materials, Mass Spectrometry
  - LASSO (Laboratory and Research Support Contract) COR
  - Center Chief Technologist (Deputy 2 years then Chief 3 years)

Introduction-About me as a person

The purpose of life is not to be happy. It is to be useful, to be honorable, to be compassionate, to have it make some difference that you have lived and lived well."
— **Ralph Waldo Emerson**





New PM EPSCoR Goals

Initial Goals

1. Understand the current state
2. Keep the ship running
3. Look for areas of Improvement
4. Maximize research funding to jurisdictions
    1. Internal streamlining
    2. Leveraging funding from MD and other agencies

NASA OSTEM

NASA relies on a steady pipeline of STEM talent that possesses robust STEM content knowledge, as well as technical and professional skills. To address this concern, NASA provides a portfolio of opportunities for students to engage in authentic experiences with NASA content, missions, and people

OSTEM Pipeline for Next Generation Explorers

01

Next Gen Stem
Focus on K-12 STEM activities that stimulate interest in Space Careers

02

MUREP
Awards assist faculty and students in research and provide authentic STEM engagement related to NASA missions

03

Space Grant
Opportunities for higher education students that support and enhance science and engineering education and research

04

EPSCoR
NASA Research opportunities supported by faculty, undergraduate, and graduate students

05

New Generation of Aerospace Engineers and Scientists

NASA EPSCoR Components

01

Research Infrastructure Development (RID)

02

NSF RII – Track 4 @NASA *

03

Research

04

Rapid Response Research (R3)

05

International Space Station

Increasing Technology Readiness Levels (TRLs)

Current NASA Solicitations

RESEARCH INFRASTRUCTURE & DEVELOPMENT

Builds a Foundation for Success in Becoming more Competitive in Research Capabilities

STANDARD RESEARCH AWARDS

Focus on NASA Research Needs

Mainly Early-Stage Innovations

RAPID RESPONSE RESEARCH AWARDS

Opportunities to Solve Urgent NASA Research Needs

Focuses on Mid to High Technical Readiness Levels

ISS FLIGHT/ SFO OPPORTUNITIES

Provides a Platform to Advance Technology Readiness by Simulating Microgravity Environment

Verifies Remote Operations and Communications

TARGETED OUTCOMES

- Strengthen the Competitive Research Capacity of Jurisdictions
- Provide Research Solutions Aligned with NASAs missions
- Supports the Training and Expertise of Future Generations of Scientists and Engineers in Aerospace Careers

Increasing Technology Readiness Levels (TRL)

Accomplishments 2023

- **During FY 2023 EPSCoR awarded:**
  - **28 RID Awards**
  - **15 Research Awards**
  - **5 ISS Flight Opportunity Awards**
  - **40 Rapid Response Research (R3) Awards**
  - **10 FY 23 NSF-NASA R2 Track 4 (FAST) ***

Preparing for upcoming solicitations

1. **Schedule planning with all Stakeholders**
2. **Setting realistic recurring schedules**
3. **Getting updated Research focus areas ad POC's across all mission directorate stakeholder highest priorities**

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

Faculties from MSI/PUI institutions are eligible to participate in Track-4:@NASA

MSIs (Institutions with high enrollments of students from underrepresented populations):

- Historically Black Colleges and Universities (HBCUs)
- Hispanic-serving institutions (HSIs)
- Tribal colleges or universities (TCUs)
- Alaska Native-serving institutions
- Native Hawaiian-serving institutions
- Predominantly Black Institutions (PBI)
- Asian American and Native American Pacific Islander-serving institutions
- and Native American-serving nontribal institutions.

PUI:
PUIs are accredited colleges and universities (including two-year community colleges) that have awarded 20 or fewer Ph.D./D.Sci. degrees in all NSF-supported fields during the combined previous two academic years.

Please see the U.S. Department of Education's definitions and lists of eligible postsecondary institutions (MSI definitions and eligibility information)

NSF Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

Research Infrastructure Improvement Track-4 (RII Track-4) aims to:

- **provide awards to build research capacity in institutions**
- **transform the career trajectories of research investigators**
- **further develop individual research potential**
- **broaden direct participation of demographically diverse individuals, institutions**
- **impact and potentially transform the recipient's research career trajectory**
- **catalyze the development of research capabilities and the creation of new knowledge**

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

RII Track-4 research investigators:

- Focus on research of important priority to NASA
- Shift their research toward potentially transformative new directions in NASA-related topic
- Benefit from collaborating with NASA Scientists/Engineers and access NASA's unique facilities

*Period of Performance: **24** months*

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

RII Track-4 offers two sub-tracks:

RII Track-4:NSF

- Research Investigators may choose to collaborate with any Government Agency (including NASA)/Private Industry or Research Universities
- Faculties from institutions within EPSCoR Jurisdictions are eligible to participate

RII Track-4:@NASA

- Research Investigators may choose to collaborate with NASA Scientists only
- Faculties from MSI/PUI institutions within EPSCoR Jurisdictions are eligible to participate

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

National Science Foundation (NSF)
RII Track-4

Track-4:NSF ($9,000,000)

30 Awards

Research Collaborations with private, governmental (including NASA), academic institutions

Track-4:@NASA → MSI/PUI

Track-4:@NASA ($3,600,000)

10 Awards

Research Collaborations with NASA Scientists/Engineers

$12,600,000 Research Investments to potentially benefit our Nation's Space Program

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

National Science Foundation (NSF)

RII Track-4

RII Track-4:NSF ($9,000,000)

30 Awards

Matched with NASA RFAs: 60 faculties

20 Proposals submitted to NSF

Number of awards granted: xx

MSI/PUI →RII Track-4:@NASA

RII Track-4:@NASA ($3,600,000)

10 Awards

Matched with NASA RFAs:34 faculties

27 Proposals submitted to NSF

Number of awards granted: 10+ ← 100% success

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

Connecting with faculties (outreach approach)

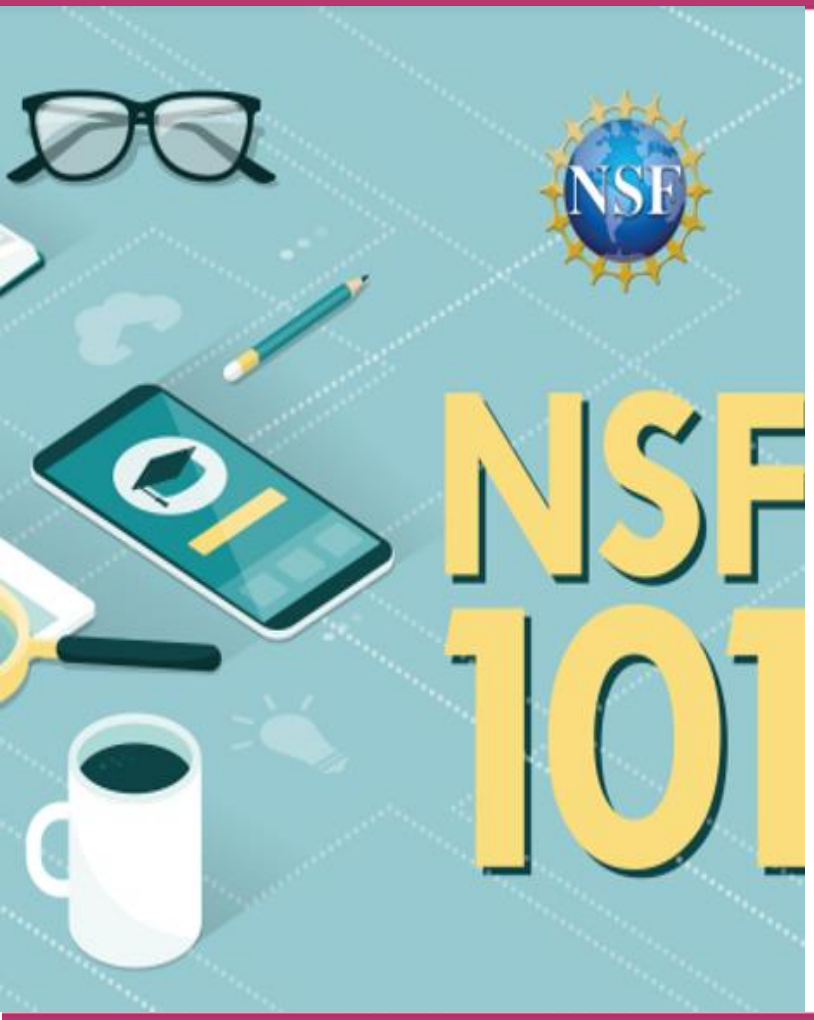
- Jurisdictions' Directors played a pivotal role in disseminating information regarding RII Track-4 project
- NSF provided several Webinars/Office Hours to encourage faculties to submit proposals in response to its solicitation
- NASA EPSCoR and NSF attended in few conferences to promote RII Track-4 solicitation
- Emails was sent to a small number of faculties (~1000)

Teamwork between NSF and NASA EPSCoR was amazing!

Matching Process (our approach)

- Faculties were invited to review NASA's RFAs list and communicate their interests with EPSCoR office
- NASA EPSCoR office:
    1. Reviewed the faculties' eligibility requirements
    2. Communicate faculty's interest with the RFA's POC
    3. NASA Scientists/Engineers determined to meet faculty
    4. Serves as a go-to between Research Investigators and NASA researchers
    5. Arrange an introductory meeting with the NASA Scientists/Engineers (a virtual meeting)
- If match (horary!); thereafter NASA Scientists/Engineers and the faulty worked together
- Continue with 1-4, until all faculties are matched

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow



NSF 101:

NSF conducts Webinar/Office hours

NSF Manges the Review Process

NSF Manages the Panel Discussions

NSF Determines which proposal to award

NSF manages funds transfer to PIs' institutions

NASA EPSCoR participates in Panel Review (observer role)

Period of Performance: ***24*** *months*

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

What comes after?

- NASA Scientists/Engineers are expected to server as Mentor, Collaborator or Technical Monitor
- Jointly publish papers (journal publications) as applicable
- Present research findings at conferences
- Faculties may propose to bring along a student (undergraduate/graduate) or a post-doc
- Faculties are required to spend one-six months (over two years) at a NASA facility, working with NASA Scientists/Engineers
- Time spent at a NASA site may be continuous or sporadic

Research Investigators (and students) working with NASA must be U.S. Citizens/Lawful Permanent Residents

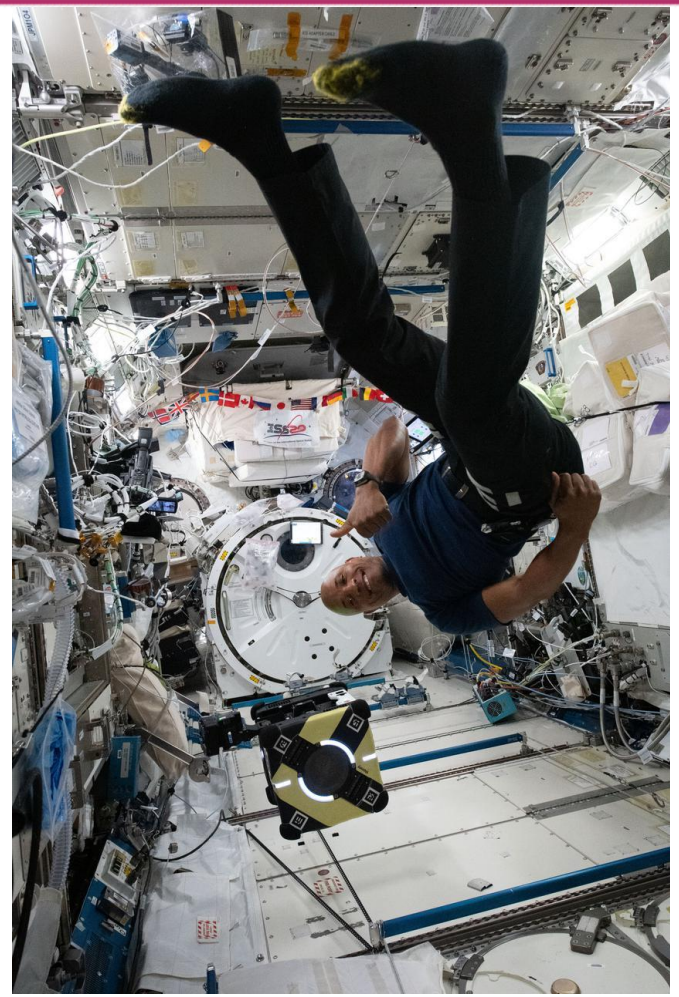
Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow

Timeline!

Solicitation Release Date: December

Awards announcement: September-October

Research Infrastructure Improvement RII Track-4: EPSCoR Research Fellow



Encourage faculties (lessons learned!) to:

- **Start Early**: Preparing a strong proposal and matching it with suitable NASA opportunities takes time.
- **Contact University's Sponsor Research**: Faculties should reach out to their university's Sponsor Research office early. Which proposal to submit to NSF is determined by the University!
- **Know the Solicitation Requirements**: Reviewers and panel members evaluate RII Track-4 proposals based on specific criteria outlined in the NSF's solicitation. It is crucial to thoroughly understand and adhere to these requirements.

Future Focus

Initial Concerns

- ✓EPSCoR's focus areas not matching all of NASA research priorities
- ✓EPSCoR- OSTEM Relations need work
- ✓Internal processes improvement needed
- ➢Research results not easily accessible inside and outside of NASA
- ➢Funding drawdown from Awardees is behind

Other Future Opportunites

- Exploring flight opportunity options for FY 25+
- Working with other Agency EPSCoR PMs to leverage funds for NASA research (sing NSF R2 Track 4 collaboration as a model

Introduction

Technology is developed by thousands of people in diverse organizations with challenging goals.

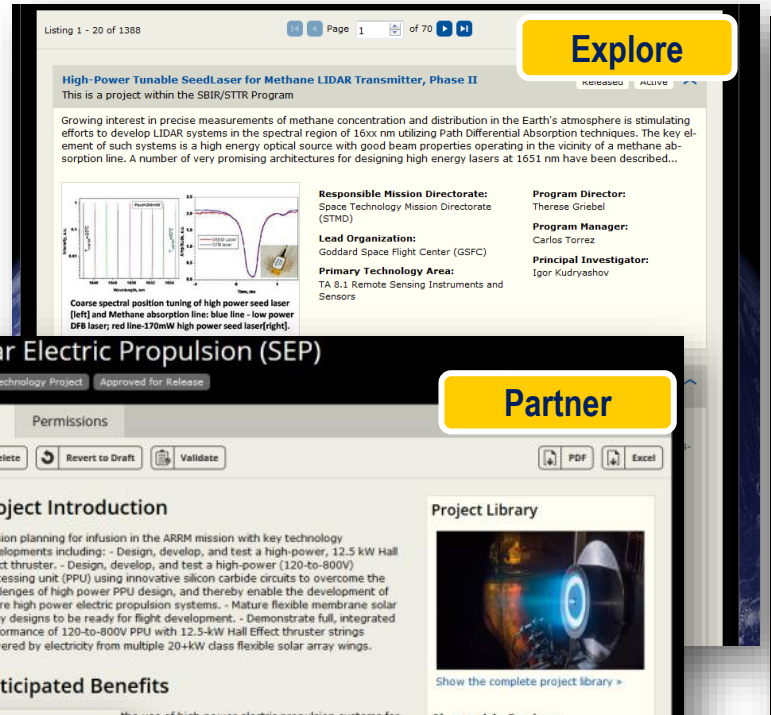
TechPort is a web-based information system that brings these technologies together, providing key insights on NASA's investments.

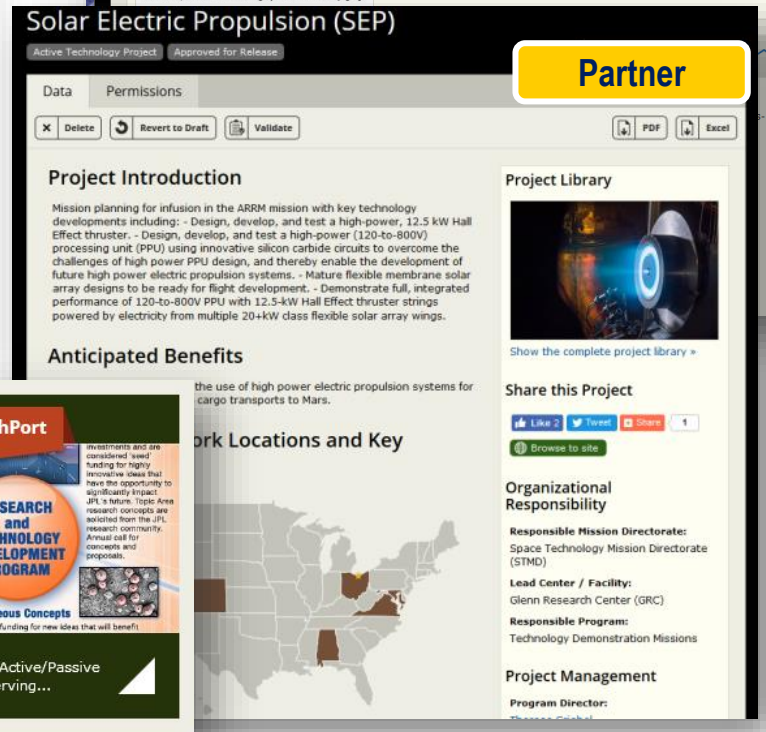
TechPort Overview

TechPort is a comprehensive resource for information about technology development activities.

FIND IT. BUILD IT. SHARE IT.

- **Contains over 16,700 active and completed NASA technology projects.**
- **This represents over $12.9B in technology investments.**
- **Roughly 2,000 projects / $1.3B are added to TechPort each year.**





TechPort Users and Key Benefits

➢ NASA Leadership

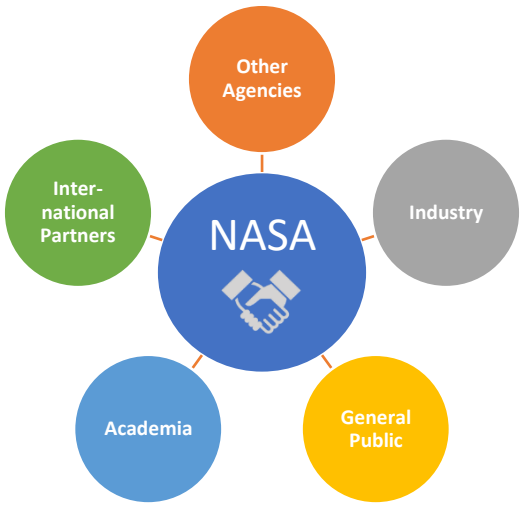
- Discover insights about NASA's technology portfolio across fiscal years.
- Quickly assess technology investments by mission destination, technology area, organization, and more.
- Create specialized analyses and understand trends.
- Quickly respond to inquiries and data requests (e.g. OMB, Congress).

➢ Technology Innovators and Collaborators

- Discover the technologies being developed at NASA.
- Create new technologies and evolve existing technologies by building off prior work.
- Build partnerships between NASA, industry, academia, other agencies, and international partners.
- Identify and contact potential partners with common challenges and complementary expertise.
- Identify similar efforts during proposal preparation and review cycles.

➢ General Public

- Engage on "what's new" with NASA technology.
- Visualize the results from the use of public funds.
- Realize the benefits of the Open Data policy for Federal Agencies.



PubSpace– for publications

- https://sti.nasa.gov/submit-to-pubspace/

What is PubSpace?

- PubSpace launch is NASA's designated public access repository. It is a collection of NASA-funded scholarly publications within the STI Repository launch , aiming to increase access to federally funded research in accordance with NASA Public Access Policy launch . The collection enables free public access to NASA's peer-reviewed scholarly publications, including accepted manuscripts and publisher version of record, after the designated publisher embargo period.
- This collection currently features over 27,000 metadata records with links to publisher websites and 9,800 full-text journal articles. Formerly housed in NIH's PubMed Central, PubSpace within the STI Repository was officially launched as of November 17th, 2022.
- For more information on Public Access, please visit our About Public Access launch page or contact the Public Access Help Desk launch .

OSTEM EPSCoR Staffing updates

- Torry Johnson former MUREP project manager replacing Elaine Ho as Deputy AA for STEM Engagement
- Frank MacDonald Integration Manager supporting SG and EPSCoR
- Mitch Krell no longer Deputy Project manager- moving to supporting role

Conclusions

- EPSCoR Ship still staying the course!
- We are actively working on improvements in processes
- Look forward to One-on One conversations to hear stress points and suggestions

Thank you for your attention