LET'S TALK RESEARCH

Beyond NSF:
A workshop about proposing to NIH, DOE, NASA, USDA, & EPA

OFFICE OF THE VICE CHANCELLOR FOR RESEARCH &
DEAN OF THE GRADUATE SCHOOL

Time: 10 am -12 pm, March 3, 2023
Location: Student Center Auditorium, SIUC
Total R&D = $171.3B (billion) estimated budget authority

- DOD, $62.8B
- HHS (NIH), $51.2B
- DOE, $21.5B
- NASA, $14.6B
- NSF, $8.2B
- DOI, $1.2B
- USDA, $3.6B
- Commerce, $2.7B
- Homeland Security, $627M
- Smithsonian Institution, $585M
- EPA, $473M
- ED, $346M
- Other, $597M
- Veterans Affairs, $1.5B
- Transportation, $1.3B
Panelists

- **Dr. Ryan M. Campbell** (Associate Director, Center for Archaeological Investigations; Adjunct Assistant Professor, Anthropology)
- **Dr. Farhan H. Chowdhury** (Associate Professor, School of Mechanical, Aerospace, and Materials Engineering)
- **Dr. Satya Harpalani** (Associate Dean and Professor, College of Engineering, Computing, Technology and Mathematics)
- **Dr. Liliana Lefticariu** (Professor, School of Earth Systems and Sustainability)
- **Dr. Jia Liu** (Associate Professor, School of Civil, Environmental and Infrastructure Engineering)
LET'S TALK RESEARCH

Beyond NSF: National Institutes of Health (NIH)

PRESENTED BY: DR. FARHAN H. CHOWDHURY
ASSOCIATE PROFESSOR, SCHOOL OF MECHANICAL, AEROSPACE, AND MATERIALS ENGINEERING, SIUC
NIH’s mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.
List of Institutes and Center at NIH

Budget- FY 20

<table>
<thead>
<tr>
<th>NCI</th>
<th>NEI</th>
<th>NHLBI</th>
<th>NCIAD</th>
<th>NIAMS</th>
<th>NIBIB</th>
<th>NICHDB</th>
<th>NIDCD</th>
<th>NIDCR</th>
<th>NIDDK</th>
<th>NIDA</th>
<th>NIEHS</th>
<th>NIGMS</th>
<th>NIMH</th>
<th>NIMHD</th>
<th>Total Budget</th>
</tr>
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<tbody>
<tr>
<td>FY 2020</td>
<td>6,440,442</td>
<td>3,624,258</td>
<td>477,429</td>
<td>2,210,889</td>
<td>2,444,687</td>
<td>5,885,470</td>
<td>2,937,218</td>
<td>1,556,879</td>
<td>824,090</td>
<td>883,398</td>
<td>3,543,673</td>
<td>624,889</td>
<td>490,692</td>
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</table>

Total Budget- $ 45.178 billion

https://www.nih.gov/institutes-nih/list-institutes-centers
https://www.nih.gov/about-nih/what-we-do/nih-almanac/appropriations-section-1
CSR is Organized into Review Branches

### Review Branches

<table>
<thead>
<tr>
<th>Branch</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aging and Neurodegeneration</td>
<td>AN</td>
</tr>
<tr>
<td>Bioengineering, Biodes, and Biomodeling Technologies</td>
<td>BBBT</td>
</tr>
<tr>
<td>Basic Neuroscience</td>
<td>BN</td>
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<tr>
<td>Biobehavioral Processes</td>
<td>BP</td>
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<tr>
<td>Basic and Translational Cancer</td>
<td>BTC</td>
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<tr>
<td>Clinical Care and Health Interventions</td>
<td>CCHI</td>
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<tr>
<td>Cell and Developmental Biology</td>
<td>CDB</td>
</tr>
<tr>
<td>Cancer Diagnostics, Prevention &amp; Therapeutics</td>
<td>CDPT</td>
</tr>
<tr>
<td>Clinical Neuroscience</td>
<td>CN</td>
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<tr>
<td>Cancer Therapeutics</td>
<td>CTH</td>
</tr>
<tr>
<td>Disease Control and Applied Immunology</td>
<td>DCAI</td>
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<tr>
<td>Endocrine and Metabolic Systems</td>
<td>EMS</td>
</tr>
<tr>
<td>Epidemiology and Population Health</td>
<td>EPH</td>
</tr>
<tr>
<td>Health Services and Systems</td>
<td>HSS</td>
</tr>
<tr>
<td>Integrative and Cognitive Neuroscience</td>
<td>ICN</td>
</tr>
<tr>
<td>Immunology and Infectious Diseases A</td>
<td>IIDA</td>
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<tr>
<td>Immunology and Infectious Diseases B</td>
<td>IIDB</td>
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<tr>
<td>Imaging, Surgery, and Bioengineering</td>
<td>ISB</td>
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<tr>
<td>Integrative Vascular Biology and Hematology</td>
<td>IVBH</td>
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<tr>
<td>Kidney, Urology, and Digestive Systems</td>
<td>KUDS</td>
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<tr>
<td>Macromolecular Biophysics and Biological Chemistry</td>
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<tr>
<td>Molecular and Cellular Sciences and Technologies</td>
<td>MCST</td>
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<tr>
<td>Molecular Genetics and Genomics</td>
<td>MGG</td>
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<tr>
<td>Musculoskeletal, Skin, and Oral Sciences</td>
<td>MSOS</td>
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<tr>
<td>Neurotechnology and Vision</td>
<td>NV</td>
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<tr>
<td>Respiratory, Cardiac, and Circulatory Sciences</td>
<td>RCCS</td>
</tr>
<tr>
<td>Social and Community Influences Across the Lifecourse</td>
<td>SCIL</td>
</tr>
</tbody>
</table>

### Study Sections

**Development - 2 Study Section – DEV2**

- Dr. Bass Shybiq, Scientific Review Officer
  - Email: bshybiq@nih.gov
  - Phone: 301-496-3939

- Membership Panel
  - View Membership Panel

- Development 2 Study Section
  - Title: "Reversing the Aging Process" (555 words)
  - Description: "The development of a 501(c)(3) study section review is focused on the potential for reversing the aging process in humans. This may include new treatments or interventions that can slow down or reverse the signs of aging."
NIH RePORTER provides details about reporting Expenditure and Outcomes

https://report.nih.gov/
Congressional District: IL-12

FY Year: 2022
Projects: 12
Budget: $4,035,130
Congressional District: IL-13
FY Year: 2022
Projects: 231
Budget: $101,981,023

<table>
<thead>
<tr>
<th>Organization</th>
<th>City</th>
<th>State</th>
<th>Country</th>
<th>Awards</th>
<th>Funding</th>
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<tbody>
<tr>
<td>ACOUSTIC MEDSYSTEMS, INC.</td>
<td>Savoy</td>
<td>IL</td>
<td>UNITED STATES</td>
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<td>$1,065,361</td>
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<tr>
<td>CARLE FOUNDATION</td>
<td>URBANA</td>
<td>IL</td>
<td>UNITED STATES</td>
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<td>$1,938,046</td>
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<tr>
<td>CHESTNUT HEALTH SYSTEMS, INC.</td>
<td>BLOOMINGTON</td>
<td>IL</td>
<td>UNITED STATES</td>
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<tr>
<td>DECATUR MEMORIAL HOSPITAL</td>
<td>DECATUR</td>
<td>IL</td>
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<td>NEUROLUX, INC.</td>
<td>CHAMPAIGN</td>
<td>IL</td>
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<tr>
<td>PHI OPTICS, INC.</td>
<td>CHAMPAIGN</td>
<td>IL</td>
<td>UNITED STATES</td>
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<tr>
<td>SIMBIOSYS, INC.</td>
<td>CHAMPAIGN</td>
<td>IL</td>
<td>UNITED STATES</td>
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<tr>
<td>SOUTHERN ILLINOIS UNIVERSITY SCH OF MED</td>
<td>SPRINGFIELD</td>
<td>IL</td>
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<tr>
<td>UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN</td>
<td>CHAMPAIGN</td>
<td>IL</td>
<td>UNITED STATES</td>
<td>211</td>
<td>$85,043,301</td>
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</tbody>
</table>
Comparing IL to CA for funded NIH Grants

State: CA  
FY Year: 2022  
Projects: 7507  
Budget: $4,696,133,120

State: IL  
FY Year: 2022  
Projects: 1940  
Budget: $1,043,366,403
How to apply- Video Tutorials

Type of Grants

The following groupings represent the main types of grant funding we provide:

- Research Grants (R series)
- Career Development Awards (K series)
- Research Training and Fellowships (T & F series)
- Program Project/Center Grants (P series)
- Resource Grants (various series)
- Trans-NIH Programs
- Inactive Programs (Archive)

https://grants.nih.gov/grants/funding/funding_program.htm
https://grants.nih.gov/grants/funding/ac_search_results.htm
## Type of Grants (Cont.)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R01</strong></td>
<td><strong>NIH Research Project Grant Program (R01)</strong></td>
</tr>
<tr>
<td></td>
<td>- Used to support a discrete, specified, circumscribed research project</td>
</tr>
<tr>
<td></td>
<td>- NIH’s most commonly used grant program</td>
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<tr>
<td></td>
<td>- No specific dollar limit unless specified in FOA</td>
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<tr>
<td></td>
<td>- Advance permission required for $500K or more (direct costs) in any year</td>
</tr>
<tr>
<td></td>
<td>- Generally awarded for 3-5 years</td>
</tr>
<tr>
<td></td>
<td>- Utilized by all ICs</td>
</tr>
<tr>
<td></td>
<td>- See parent FOAs: <a href="https://example.com">PA-20-183</a> (Clinical Trial Required), <a href="https://example.com">PA-20-184</a> (Basic Experimental Studies with Humans Required), and <a href="https://example.com">PA-20-185</a> (Clinical Trial Not Allowed)</td>
</tr>
<tr>
<td><strong>R03</strong></td>
<td><strong>NIH Small Grant Program (R03):</strong></td>
</tr>
<tr>
<td></td>
<td>- Provides limited funding for a short period of time to support a variety of types of projects, including: pilot or feasibility studies, collection of preliminary data, secondary analysis of existing data, small, self-contained research projects, development of new research technology, etc.</td>
</tr>
<tr>
<td></td>
<td>- Limited to two years of funding</td>
</tr>
<tr>
<td></td>
<td>- Direct costs generally up to $50,000 per year</td>
</tr>
<tr>
<td></td>
<td>- Not renewable</td>
</tr>
<tr>
<td></td>
<td>- Utilized by more than half of the NIH ICs</td>
</tr>
<tr>
<td></td>
<td>- See parent FOA: <a href="https://example.com">PA-20-200</a></td>
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</table>
### Type of Grants (Cont.)

<table>
<thead>
<tr>
<th>Type of Grant</th>
<th>Description</th>
</tr>
</thead>
</table>
| **NIH Academic Research Enhancement Award (AREA)** | - Support small research projects in the biomedical and behavioral sciences conducted by undergraduate and/or graduate students and faculty in institutions of higher education that have not been major recipients of NIH research grant funds  
  - Eligibility limited (see R15)  
  - Direct cost limited to $300,000 over entire project period  
  - Project period limited to up to 3 years  
  - All NIH ICs utilize except FIC and NCATS |
| **NIH Exploratory/Developmental Research Grant Award (R21)** | - Encourages new, exploratory and developmental research projects by providing support for the early stages of project development. Sometimes used for pilot and feasibility studies.  
  - Limited to up to two years of funding  
  - Combined budget for direct costs for the two year project period usually may not exceed $275,000.  
  - No preliminary data is generally required  
  - Most ICs utilize  
  - See parent FOAs: PA-20-194 (Clinical Trial Required), PA-20-195 (Clinical Trial Not Allowed), and PA-20-196 (Basic Experimental Studies with Humans Required) |
Funding Opportunity Announcement (FOA) Number: PA-20-185

# Standard Dates

<table>
<thead>
<tr>
<th>Activity Codes</th>
<th>Program Description</th>
<th>Cycle I Due Date</th>
<th>Cycle II Due Date</th>
<th>Cycle III Due Date</th>
</tr>
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<tbody>
<tr>
<td>R01 new</td>
<td>Research Grants</td>
<td>February 5</td>
<td>June 5</td>
<td>October 5</td>
</tr>
<tr>
<td>R01 renewal, resubmission, revision</td>
<td>Research Grants</td>
<td>March 5</td>
<td>July 5</td>
<td>November 5</td>
</tr>
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</table>

## Review and Award Cycles

<table>
<thead>
<tr>
<th></th>
<th>Cycle I</th>
<th>Cycle II</th>
<th>Cycle III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Due Dates</td>
<td>January 25 - May 7</td>
<td>May 25 - September 7</td>
<td>September 25 - January 7</td>
</tr>
<tr>
<td>Scientific Merit Review</td>
<td>June - July</td>
<td>October - November</td>
<td>February - March</td>
</tr>
<tr>
<td>Advisory Council Round</td>
<td>August or October *</td>
<td>January</td>
<td>May</td>
</tr>
<tr>
<td>Earliest Project Start Date</td>
<td>September or December *</td>
<td>April</td>
<td>July</td>
</tr>
</tbody>
</table>

Sample Applications and Summary Statements

• Research grants: R01, R03, R21, R15
• Small Business grants: R41, R42, R43, R44
• Training and Career grants: K01, K08, F31
• U01
• Data Sharing Plan
• Genomic Data Sharing Plan
• Rigor and Reproducibility

https://www.niaid.nih.gov/grants-contracts/sample-applications
Matchmaker

You can submit scientific texts to determine which similar projects that have been funded by the NIH.

Example:
Open MIKE Blog
(Connecting the Investigator to the NIH Perspective)

https://nexus.od.nih.gov/all/category/open-mike/
## Proposed Changes in Review Criteria

### Current

**Main Review Criteria (will affect Overall Impact Score)**

- Individually scored:
  1. Significance
  2. Investigator(s)
  3. Innovation
  4. Approach
  5. Environment

**Additional Review Criteria (can affect Overall Impact Score)**

- Human Subject Protections; Inclusion of Women; Minorities, and Children; Vertebrate Animal; Biohazards; Resubmission/Renewal/Revisions - some modifications expected for review of clinical trials RPPs

**Additional Review Considerations (no effect on Overall Impact Score)**

- Application from Foreign Organizations
- Select Agent Research
- Resource Sharing Plans
- Authentication of Key Biological and/or Chemical Resources
- Budget and Period of Support

### Proposed

**Main Review Criteria (will affect Overall Impact Score)**

- Factor 1: Importance of the Research (individually scored)
  - Significance
  - Innovation

- Factor 2: Rigor and Feasibility (individually scored)
  - Approach

- Factor 3: Expertise and Resources (not individually scored; affects Overall Impact Score)
  - Investigators, Environment

**Additional Review Considerations (no effect on Overall Impact Score)**

- Authentication of Key Biological and/or Chemical Resources
- Budget and Period of Support

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https://nexus.od.nih.gov/all/2022/12/08/update-on-simplifying-review-criteria-a-request-for-information/
Thank You
LET'S TALK RESEARCH

Beyond NSF:
United States Department of Energy (USDOE)

PRESENTED BY: DR. SATYA HARPALANI
ASSOCIATE DEAN AND PROFESSOR, COLLEGE OF ENGINEERING, COMPUTING, TECHNOLOGY AND MATHEMATICS
Let us talk US DOE

a bit about my experience with US DOE (since joining SIU in 2002)

- Served as PI for 10 DOE projects (one grant and nine contracts)
- Responsible for total funding from DOE to SIU: $2.27M
- Two of ten awarded directly to SIU
- Eight where SIU was a sub-contractor (total of contracts: ~$81M)

- Most DOE contracts require matching funds . . . secured ~$600K in State funding, $320K from energy industry (BP and ConocoPhillips) and generosity of SIU
Focus on Topic of Research

- OK to expand into areas that are related but not diversify into completely different and unrelated areas – dilution of knowledge.

  *B�ically, depth helps*

- The thrust of my research has always been flow in deep rocks, but many and varied applications.
1981-85: Gas Migration in Coal and Sandstone (mine safety)
1987-99: 4,000 Natural Gas Wells in Colorado/New Mexico Coal
2000-05: 11,000 wells in Wyoming
2005-15: 28,000 Shale Gas Wells
2002-12: CO$_2$ Storage in Coal
taking gas out versus putting in (6 DOE Projects)
virgin coal looks something like this
virgin coal looks something like this . . . .

after taking the gas out, ends up looking like this. . .
Post-Gas Production: Re-charging Coal with Natural Gas: Microbial *in-place* CTG Conversion (*2 DOE Projects*)
Current Effort: Potential of *in place* Conversion of Coal to Hydrogen

(-2 DOE Projects)
suggestions . . . contd.

- OK to expand into areas that are related but not diversify into completely different and unrelated areas – dilution of knowledge.

  *basically, depth helps*

- I am a believer of *evolution*. The thrust of my research has always been flow in deep rocks.

- Appropriate partnerships – colleagues within SIU and outside. Industry is looking for assistance as long as you speak the industry language – not terribly easy for professors . . . but doable.

- OK to start small – DOE awards for junior faculty. Once you prove yourself, follow-up funding is significantly easier.

- OK to start as a subcontractor in a large pool of players, including some big names – get to know who is who and who is doing what.
Start with soul searching

➢ Where are your current strengths? is there scope of growth?

➢ Do you wish to develop new strengths?

➢ Or, find partners who complement your strengths – team formation?

  find your comfort zone

coupled with opportunities
Start with soul searching

➢ Where are your current strengths? is there scope of growth?

➢ Do you wish to develop new strengths?

➢ Or, find partners who complement your strengths – team formation?

  find your comfort zone

  coupled with opportunities

follow politics – commitment to research and directions!!
President Biden signed a $1 trillion infrastructure bill into law Monday, enacting a key piece of his domestic spending agenda that will fund billions to states and local governments to upgrade outdated roads, bridges, transit systems and more.

Inflation Reduction Act of 2022

The CHIPS Act of 2022 has a total cost of $77.2 billion over 10 years.

Investment in clean energy sources

The CHIPS Act of 2022 would provide $52 billion over 10 years to semiconductor manufacturing incentives and research.
Trends in R&D Funding (billions, 2020 dollars)
Quote from DOE Team:

- These are **unprecedented** times for all federal agencies
- Funding **difficult to access**, but keep at it; dividends are big
- Build **partnerships**, implement and grow
- Include **community** building/restoring – lot of funding
- $100M for **workforce/manpower** development
- $750M for **clean energy** manufacturing, recycling
- $250B for **repurposing and redeveloping energy**
- Funds set aside for southern Illinois – **12th** out of 25 in the nation
$9B is only down payment at this time.

Anticipated total - $62B over ten years.

Hydrogen research kickoff – synchronizing production and demand, October 8, 10:08 am. Attend such political meetings, if possible.
Up and Coming Areas

- Clean Energy
- Renewable Energy
- Hydrogen Economy: Current goal is $111$, that is, one kg of hydrogen for one dollar in one decade
- Clean energy materials
- Rare earth elements and critical minerals
- Energy efficiency
- Electrification of America
Required Components

➢ Economic Revitalization

➢ Community Building/Involvement

➢ Environmental Justice

➢ DEI Statement
Concluding Remarks

➢ Be prepared
  ✓ Monument of patience at SIU to submit a DOE *contract* proposal
  ✓ Lot of hard work
  ✓ Lot of supporting material
  ✓ Plan to be on your own – VCR promising more assistance, which is good news although the level and quality of assistance remains to be seen/felt
  ✓ Some say, DOE is overly specific. I say, fairly general and inclusive

  *example*: a recent solicitation had 16 Areas of Interest (AOI) and some with subset areas. Theme is specific but, within the theme, a lot is included

  ✓ DOE likes to see industrial participation, multi-institutional and multi-disciplinary teams, and more recently, ML/DS component

  ✓ Strong economic revitalization and environmental justice plan
concluding remarks . . . contd.

➢ OK to fail initially

➢ Most do not give enough credit to DOE but they do remember – when considering repeat and improved proposals

➢ Start early – identify team members, every member’s role, have virtual meetings every two weeks initially and every week during last three/four weeks

➢ Matching $$ required – typically 20% of total, translating to 25% of DOE share. Some funny money ok but some real $$ help. Start with Director, Dean and VCR. Industry match, even in-kind, a big plus
thank you and good luck

happy to help in any way

satya@siu.edu
LET'S TALK RESEARCH

Beyond NSF: National Aeronautics and Space Administration (NASA)

PRESENTED BY: DR. LILIANA LEFTICARIU
PROFESSOR, SCHOOL OF EARTH SYSTEMS AND SUSTAINABILITY, SIUC
“It’s important to remind ourselves that we have the most glorious jobs in the world. We are all paid to figure out how the universe began and how it evolves. We’re paid to try to figure out how the night sky, full of galaxies and stars and planets, came to be. And we’re paid to try to find life elsewhere in the universe. What could be better than that?”

- Paul Hertz, Director of Astrophysics Division
Introduction

NASA VISION
- Exploring the secrets of the universe for the benefit of all, including the origin and evolution of the universe and seeking to understand the Earth as an interconnected system.

NASA MISSION
- NASA explores the unknown in air and space, innovates for the benefit of humanity, and inspires the world through discovery.

SMD VISION
- To lead a globally interconnected program of scientific discovery that encourages innovation, positively impacts people’s lives, and is a source of inspiration.

SMD MISSION
- Discover the secrets of the universe. Search for life elsewhere. Protect and improve life on Earth and in space.
SCIENCE MISSION DIRECTORATE
Core Values

- LEADERSHIP
- EXCELLENCE
- INTEGRITY
- TEAMWORK
- SAFETY
- INCLUSION
Astrophysics

Earth Science

Biological and Physical Sciences

Heliophysics

Planetary Science
PRIORITY 1
EXPLORATION AND SCIENTIFIC DISCOVERY

STRATEGY 1.1: Execute a balanced science program based on discipline-specific guidance from the National Academies of Sciences, Engineering, and Medicine, Administration priorities, and direction from Congress.

STRATEGY 1.2: Participate as a key partner and enabler in the agency’s exploration initiative, focusing on scientific research of, on, and from the Moon, lunar orbit, Mars, and beyond.

STRATEGY 1.3: Advance discovery in emerging fields by identifying and exploiting cross-disciplinary opportunities between traditional science disciplines

STRATEGY 1.4: Develop a Directorate-wide, target-user focused approach to applied programs, including Earth Science Applications, Space Weather, Planetary Defense, and Space Situational Awareness.
STRATEGY 2.1: Foster a culture that encourages innovation and entrepreneurship across all elements of the SMD portfolio.

STRATEGY 2.2: Foster a culture that encourages collaboration in pursuit of common goals.

STRATEGY 2.3: Enhance our focus on high intellectual risk/high impact research investments.

STRATEGY 2.4: Drive innovation in focused technology areas to capitalize on the rapid evolution of commercial capabilities.

STRATEGY 2.5: Ensure NASA’s science data are accessible to all and produce practical benefits to society.
STRATEGY 3.1: Actively engage with the NASA Centers to make more informed strategic decisions that further NASA’s scientific goals and are aligned with each Center’s unique capabilities.

STRATEGY 3.2: Actively seek collaborations with international partners based on their unique capabilities and mutual scientific goals.

STRATEGY 3.3: Actively engage with other federal agencies to make more informed decisions, cooperate in scientific research, and pursue partnerships that further national interests.

STRATEGY 3.4: Provide increasing opportunities for research institutions, including academia and non-profits, to contribute to SMD’s mission.

STRATEGY 3.5: Pursue public-private partnerships in support of shared interests with industry.
SMD Principles for Commercial Partnerships

1. Develop strategic partnerships that leverage the unique strengths of each contributor to drive scientific progress.

2. Actively pursue partnerships that innovate both in what we do with commercial partners as well as in how we do it.

3. Continually assess and evolve partnership models, recognizing that experimentation is key and that some experiments may fail.

4. Evaluate the success of traditional and nontraditional partnerships by determining if these result in “enabling new science” and in “more science per dollar.”

5. Encourage and assess potential obstacles to Principal Investigator adoption of commercial solutions to illustrate market demand from the science community.

6. Leverage existing commercial capacity, demand, and expertise, while exploring emerging business areas where early adoption can support domestic growth and competitiveness.


8. Accept some additional risk responsibly in the interest of establishing affordable, high-value domestic capabilities.
**STRATEGY 4.1:** Increase the diversity of thought and backgrounds represented across the entire SMD portfolio through a more inclusive environment.

**STRATEGY 4.2:** Advance equity in the scientific competition process to develop a scientific community that reflects the diversity of the Nation.

**STRATEGY 4.3:** Purposefully and actively engage with audiences and learners of all ages to share the story of NASA’s integrated science program.
Example: NASA Earth Science Division

- NASA's Earth Science Division (ESD) missions help us **to understand** our planet's interconnected systems, from a global scale down to minute processes.

- ESD delivers the **technology, expertise, global observations**, and **applications** that help us map the myriad connections between our planet’s vital processes and the climate effects of ongoing natural and human-caused changes.

- Using observations from satellites, instruments on the International Space Station, airplanes, balloons, ships and on land, ESD researchers **collect data** about the science of our planet’s atmospheric motion and composition; land cover, land use and vegetation; ocean currents, temperatures and upper-ocean life; and ice on land and sea. These data sets, which cover even the most remote areas of Earth, are freely and openly available to anyone.

- ESD offers **end-to-end development, launch, data collection, analysis**, and **application of its missions**, including those with partners in U.S. and international government, and the private sector. ESD also sponsors research and extends science and technology education to learners of all ages, inspiring the next generation of explorers.
## NASA Solicitation and Proposal Integrated Review and Evaluation System

Welcome to NASA Solicitation and Proposal Integrated Review and Evaluation System

### NASA Research Opportunities

#### Member Login

- **Username:**
- **Password:**
- **Login**

- **Forgot Password?**
- **Create an Account**

### Site News

#### CASI Code News Item

In order to submit a proposal, an organisation must have a valid CASI registration. This process can take several days, please begin within advance of the proposal due date. Organisations that do not have a valid CASI Code must contact the NASA Help Desk immediately in order to obtain registration.

### Sollicitations

NSPIRES now allows users to **SEARCH** for and view Proposals and NOIs due in 30 days, **FILTER**, and **OPEN/CLOSED/PAST** NASA research announcements. The full list of the Solicitation Announcements and Information about selected proposals, if available, can be viewed and downloaded.

### Proposals/NOI Due in the Next 30 Days

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<th>Title</th>
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Solicitations and selected proposals for years prior to NSPIRES implementation, January 1, 2005, were posted manually, therefore, some postings for years 2005-2007 may not be as complete as those posted through the NSPIRES system from 2003 to the present.

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[Link: https://nspires.nasaprs.com/external/]
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## Dates

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## Documents

### Announcement Documents

- [SpaceTech-REDDI-2023 Solicitation (as amended on December 13, 2022)](#)
- [REDDI-2023 Appendix B1 - ECF23](#)

### Other Documents

- [ECF23 Frequently Asked Questions (Final)](#)
- [ECF23 Technical FAQ - Topic 1 (as of February 16, 2023)](#)
- [ECF23 Technical FAQ - Topic 2 (as of February 16, 2023)](#)
- [ECF23 Technical FAQ - Topic 3 (as of February 16, 2023)](#)

### Omnibus Information

- [Space Technology, Research, Development, Demonstrations, and Infusion 2023 (SpaceTech-REDDI-2023)](#)

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No notices available.
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Young investigators

NASA Postdoctoral Fellowship

The Space Science and Astrobiology Division has a long and successful history of stewarding promising young scientists through their postdoctoral experience. A post-doctoral fellowship at NASA Ames provides not only a creative and stimulating research environment but also the opportunity to interact with ongoing and future missions, and to interface with the diverse scientific and technological expertise at Ames. The high standing of Ames scientists in their fields has allowed them to serve as valuable mentors and to provide contacts leading Fellows to productive careers as next-generation leaders in Space and Earth science disciplines, both within NASA and in the academic community.

The NASA Postdoctoral Program (NPP) supports NASA’s goal to expand scientific understanding of the Earth, the Solar System, and the universe in which we live. Selected by a competitive peer-review process, NASA Postdoctoral Program Fellows complete one- to three-year Fellowship appointments that advance NASA’s missions in many fields of research.

The NPP fellowship (and the National Research Council (NRC) fellowship before that) offers an opportunity for NASA to lure in the "best of the best." This is exemplified by the myriad past graduates from these post-doctoral programs at Ames who have since become NASA civil servant space scientists, both at NASA Ames and at other Centers. Such Ames alumni include Chris McKay, Louis Allamandola, Scott Sandford, Farid Salama, Jeff Cuzzi, Dave Des Marais, Robert Haberle, Kevin Zahnle, Tom Greene, Tony Colaprete, Jeff Hollingsworth, Andy Mattioda, Melinda Kahre, Ella Sciama-O’Brien, Naseem Rangwala, Amanda Brecht, and many more.

In addition, past Ames postdocs have become eminent academic community leaders in institutions such as USRA, Stanford, Penn State, Carnegie, Univ. Colorado, Cornell, Princeton and UCSC, to name a few. Several past Ames postdocs have also been awarded prestigious awards. Our connections with nearby universities (Stanford, UC Santa Cruz, UC Berkeley, San Jose State, and Santa Clara University) will continue to provide an important additional benefit to Ames NPP Fellows.

The Space Science and Astrobiology Division at NASA Ames will continue its tradition of using the Fellowships as an important educational experience and a training ground to provide future leaders for NASA and the academic community.
Internships & Fellowships

NASA Internships and Fellowships for students

Students (high school to graduate level) interested in working at NASA Ames can explore the different internship and fellowship opportunities and apply to different NASA programs (and also centers) with only one application at intern.nasa.gov.

Resources for students and postdocs

The "Learn Science" webpage contains a selection of opportunities for students (high school to graduate level), post-doctoral fellows, early career researchers, and their mentors. The list includes summer programs and scholarships for undergraduates and graduate students, post-doctoral fellowships, special programs for early career researchers, faculty members, and senior scientists. Some of these programs occur only at NASA centers, but others support students or scientists at universities. Some are funded through NASA's Science Mission Directorate, but many are sponsored either by other directorates within NASA, the NASA Office of Education, or non-NASA organizations. Programs that cater to more than one group are listed in both relevant sections.

https://www.nasa.gov/ames/spacescience-and-astrobiology/student-postdoc-opportunities
INTERNS, FELLOWSHIPS, AND SCHOLARSHIPS AT NASA

**NASA'S INTERNSHIP PROGRAMS**
NASA Office of STEM Engagement

**INTERN**
NASA Office of STEM Engagement (OSTEM) paid internships allow high school and college-level students to contribute to agency projects under the guidance of a NASA mentor.

**FELLOW**
NASA Fellowships allow graduate-level students to pursue research projects in response to the agency's current research priorities.

**PATHWAYS INTERN**
The Pathways program offers current students and recent graduates paid internships that are direct pipelines to full-time employment at NASA upon graduation. Launch your career with a Pathways internship.

**INTERNATIONAL INTERN**
University students from participating countries may intern through the agency's International Internships Project. Students work with other interns under the guidance of a NASA mentor.
Internships, Fellowships, and Scholarships at NASA

Nearly 18,000 of the nation's top scientists, engineers, and business professionals work across the United States at our 10 center locations, our Shared Services Center, or one of our smaller test and research facilities.
For Researchers

Volunteer to be a Reviewer

Welcome to the volunteer reviewer page!

To increase the pool of un-conflicted reviewers we are seeking subject matter experts (SMEs) to engage in discussions at a virtual panel meeting or provide external reviews. While a significant time commitment, serving as a reviewer allows one to learn what’s new in the field, get first-hand experience with our review process, and network with colleagues. New reviewers including post-doctoral fellows and sometimes upper level graduate students are welcome. Just follow the links below to the volunteer review forms and indicate the fields in which you consider yourself to be a subject matter expert and click the boxes. If your expertise matches our program needs NASA will contact you to discuss potential review assignments. Qualified SMEs may, and are encouraged, to volunteer to one or more program reviewer cells. If you volunteered in a prior year and were not invited or were invited but not available, please complete a new form(s).

Use the following links to current program-specific volunteer review forms. NASA periodically updates this page to remove or add volunteer links.

Please direct questions or corrections on this page to SARAs@nasa.gov.

We are currently seeking reviewers for:

- Modeling Analysis and Prediction (ROSES A.6)
- Planet, Aerosol, Cloud, ocean Ecosystem (PACE) Mission Validation (ROSES A.56)
- Artemis III Geology Team (ROSES C.2)
- Heliophysics Supporting Research (ROSES A.6)
- Heliophysics Theory, Modeling, and Simulations (ROSES B.9)
- Emerging Worlds (ROSES C.2)
- Solar System Workings (ROSES C.3)
- Planetary Data Archiving, Restoration, and Taxis (ROSES C.4)
- Exobiology (ROSES C.9)
- Solar System Observations (ROSES C.6)
- Lunar Data Analysis (ROSES C.8)
- Planetary Instrument Concepts for the Advancement of Solar System Observations (PICA/XRS-ROSES C.6)
- M2RISE and C.5 DAU High-TRL planetary instrument program
- Astrophysics Data Analysis Program (Appendix D.2 of the NRA) ROSES NRA
- Astrophysics Research and Analysis ROSES program element D.3
- Astrophysics Research (ROSES D.4)
- Exploratory Research Program (ROSES F.3)
- Habitable Worlds (ROSES F.3)
- Astrophysics Decadal Survey Precursor Science
- Earth Surface and Interior and Space Geodesy Programs
- Ecological Conservation Impact Assessment
- Future Investigations in NASA Earth and Space Science and Technology (FNEIST) --Earth Science
- Future Investigations in NASA Earth and Space Science and Technology (FNEIST) --Space Science
- Modeling Analysis and Prediction
- Yearly Opportunities for Research in Planetary Defense

Please direct questions or corrections on this page to SARAs@nasa.gov.
How To Guide

This page should lower your blood pressure if we do it right. Tell us what would be most useful. Contact SARA.

NSPIRES guides and hints

How to Keep up With Changes to ROSES & NSPIRES

ROSES, our omnibus solicitation for proposals, is constantly being amended, clarified, and updated. To learn of new program elements that are added and keep up with amendments to existing ones, proposers are strongly encouraged to subscribe to:

1. The SMD mailing lists (by logging in at http://nspires.nasaprs.com/ and checking the appropriate boxes under “Account Management” and “Email Subscriptions”).
2. The ROSES-2022 blog for amendments, clarifications, and corrections at http://science.nasa.gov/researchers/sara/grant-solicitations/ROSES-2022/ and
3. The ROSES due date Google calendar. Instructions are at https://science.nasa.gov/researchers/sara/library-and-useful-links (link from the words due date calendar).

Finally, please review the frequently asked questions about ROSES at http://science.nasa.gov/researchers/sara/faqs/.

For Researchers

► Advisory Committees
► Announcement of Opportunity
► Community Town Hall Meetings
► Dual-Anonymous Peer Review
► Grant Stats
► How To Guide
► Library and Useful Links
► NASA Workforce Study
► New PI Resources
► No Due Date Programs
► OSDMP FAQ (ROSES-2023)
► Old (ROSES-2022) DMP FAQ
Library (and useful links)

Documents

- PSD Technology Plan
- ISFM Implementation Plan
- Astrophysics Division Inclusion Plan Pilot Program – February 2022
- NASA Guidelines for Promoting Scientific and Research Integrity
- NSPIRES team member commitment guide
- SMD Policy on Peer Review Conflicts of Interest (SPD-01A)
- SMD Policy on Late Proposals (SPD-02A)
- SMD Policy on Reconsideration (SPD-09C)
- SPD 15 Center Community Service Policy
- SPD-16 Civil Servant Peer Review Conflict of Interest
- SMD Policy on Peer Review (SPD-22)
- SPD-26B Communications for Missions (updated and signed)
- SPD-29 External Websites, Original with Erratum
- SPD-31 Student Collaboration
- SPD-33 Citizen Science
- How to Submit a Step-1 Proposal
- How to Submit a Step-2 Proposal
- How to Subscribe to the ROSES-2023 Due Date Calendars
- ROSES Peer Review plenary example slides 2021
- Example ROSES Panel evaluation
- SMD Codes of Conduct for Review Panels

For Researchers

- Advisory Committees
- Announcement of Opportunity
- Community Town Hall Meetings
- Dual-Anonymous Peer Review
- Grant Stats
- How To Guide
- Library and Useful Links
- NASA Workforce Study
- New PI Resources
- No Due Date Programs
- OSDFP FAQ (ROSES-2023)
- Old (ROSES-2022) DMP FAQ
- Program Officers List
- ROSES Blog
- ROSES Budget Redaction
- ROSES FAQ
- Scientific Information Policy
- Solicitations and Announcements
- Volunteer to Review Proposals
- Work-Life Balance
-
LET'S TALK RESEARCH

Beyond NSF:
United States Department of Agriculture (USDA)

PRESENTED BY: DR. RYAN CAMPBELL
ASSOCIATE DIRECTOR & INTERIM CURATOR
CENTER FOR ARCHAEOLOGICAL INVESTIGATIONS, SIUC
The Center for Archaeological Investigations (CAI) is the premiere archaeological research center in southern Illinois. Our research staff are focused on developing research projects that provide students with experiential learning opportunities to help prepare them for careers in archaeology and related fields. Since 1978, the CAI's research agenda has been recognized internationally for the contributions that our staff have made within the field of archaeology.

The CAI is committed to protecting and understanding the cultural patrimony of the Americas and to facilitating national and international archaeological research. To fulfill these goals, we have a **C.O.R.E. Mission**, which includes Curation, Outreach, Research, and Education. [read more]
The mission of the Forest Service is to sustain the health, diversity, and productivity of the nation’s forests and grasslands to meet the needs of present and future generations.

Motto: Caring for the Land and Serving People
NEPA – National Environmental Policy Act

NEPA requirements provide agencies with funding source for research

Environmental Assessment (EA) – a comprehensive study that identifies environmental impacts of land development. Each Agency has their own procedures for EAs.
The NEPA umbrella

- Clean Air Act
- Clean Water Act
- Environmental Justice Executive Order
- Noise ordinances
- U.S. Department of Transportation Act of 1966; Section 4(f)
- Section 106 of the National Historic Preservation Act
- Contaminated materials and substances
- Endangered Species Act
- Coastal Zone Management Act
- Migratory Bird Treaty Act
- Protection of Wetlands Executive Order
- Patuxent Research Refuge Executive Order
- Floodplain Management Executive Order
- Federal Flood Risk Management Executive Order
- Limited English Proficiency Executive Order
- Military Construction and Appropriations Act
- State Environmental Laws
- Local Environmental Laws
USDAFS Projects Requiring NEPA review

Prescribed fire

Logging

Trail maintenance

Campground and recreation areas
NEPA Review – Areas (Opportunities)

- Botany
- Wildlife
- Fisheries
- Soils
- Hydrology
- Archaeology (Heritage)
- Timber
- Lands
- Recreation
- Visual Impacts
KNOW YOUR PROGRAM MANAGER

- Heritage Program – Archaeology
- Natural Resource Program – Botany, Wildlife, Fisheries, Soils, Hydrology
- Recreation Program
- Lands Program – Realty
- Engineering Program
- Timber Program – Forestry
Master Participating Agreement

- Outlines the framework for each project conducted
- Work with Program Manager and OSPA to develop.
- Challenge Cost-Share Agreements
  - Require 20% matching funds – i.e. matching salary and overhead
- Public Land Corps Act – allows students who work on these projects to receive PLC noncompetitive hiring status after 640 hours of work on Forest Service project.
Supplemental Project Agreement (SPA)

- Includes a list of specific goals (tasks) to be completed under the grant
- Financial Plan (Budget)
- Proposals for each SPA should be brief and include enough information to justify the project goals.
- Submitted through OSPA with
Tips:

- Get to know the Program Manager for your research area
- Learn the Agency's Lingo - Acronyms
- Be Flexible and Adjust Your Research Design to Meet the Needs of the Agency
- Be of Service – Consider your knowledge and research skills to be a service that you are providing to the agency
- Coordinate with other researchers at SIU to more effectively assist the Forest Service
LET'S TALK RESEARCH

Beyond NSF: United States Environmental Protection Agency (USEPA)

PRESENTED BY: DR. JIA LIU
ASSOCIATE PROFESSOR, SCHOOL OF CIVIL, ENVIRONMENTAL AND INFRASTRUCTURE ENGINEERING, SIUC
Outline

- How grants help EPA achieve its mission
- Types of grants awarded by EPA
- Examples of EPA grant programs and applications
Grants Support EPA’s Mission

- EPA partners with state, tribal, and local governments; institutions of higher education; non-profit organizations; and other eligible entities to protect human health and the environment. EPA’s systematic process of awarding federal grants helps EPA leverage local expertise that is critical to helping the Agency achieve its mission. Every year, EPA awards a significant portion of its budget in grants to its state, tribal, local, educational, non-profit, and other partners.
Generally, EPA’s authority to award grants is described in environmental program statutes, including, but not limited to the:

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or commonly known as Superfund)
- Clean Air Act
- Clean Water Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Safe Drinking Water Act
- Toxic Substances Control Act
Types of Grants

EPA awards different types of grants under its numerous grant programs:

- **Discretionary Grants**
  In a discretionary grant, EPA retains considerable authority in selecting the recipient, determining the amount of the award, and/or negotiating and approving the grant work plan.

- **Non-Discretionary Grants**
  Also known as formula grants, awarded primarily to state, tribal, and local governments.

- **Continuing Environmental Program (CEP) Grants**
  Most CEP grants are awarded non-competitively to governmental units each year to support ongoing state, tribal, and local environmental programs.
Examples of EPA grant programs and applications

- Research Funding Opportunities: Science to Achieve Results (STAR) Program
- Great Lakes Funding
- P3 Program

Specific EPA Grant Programs

https://www.epa.gov/grants/specific-epa-grant-programs
Research Funding Opportunities

Science to Achieve Results (STAR) Program (0.4 – 2 M)
National Priorities (1-3.5 M)
Innovative Water Technology Grant Program (1 M)
Small Business Innovative Research (SBIR) Program

Research Grant Areas
- Air Research Grants
- Climate Change Research Grants
- Ecosystems Research Grants
- Health Research Grants
- Safer Chemicals Research Grants
- Sustainability Research Grants
- Water Research Grants
Science to Achieve Results (STAR) Program

- A competitive, peer-reviewed research program that provides access to the nation’s best scientists and engineers in academic and other nonprofit research institutions.

- The STAR program funds research on the environmental and public health effects of air quality, environmental changes, water quality and quantity, hazardous waste, toxic substances, and pesticides.

- Since its inception in 1995, EPA’s STAR program has awarded more than 7,600 research grants nationwide. The program funds individual research projects and establishes large research centers (2-10 M) in specific areas of national concern.

- Additionally, the STAR program supports the development of researchers and young scientists across their careers through regular and early career research opportunities.
Great Lakes Funding

Includes competitive grant funding for planning, research, monitoring, outreach and implementation projects in furtherance of the Great Lakes Restoration Initiative and the Great Lakes Water Quality Agreement (e.g., 0.5 - 6 M)

Focus areas

- Toxic Substances and Areas of Concern
- Invasive Species
- Nonpoint Source Pollution Impacts on Nearshore Health
- Habitats and Species
- Foundations for Future Restoration Actions
P3 Program

- P3 stands for *People, Prosperity and the Planet*
- P3 is a competitive grants program that provides opportunities to teams of undergraduate and graduate students.
- P3 has transitioned to a single phased program, with awards of individual grants of $75,000 for two years.
- These projects promote a shift towards more environmentally benign products, processes, and systems with the aim of improving quality of life, promoting economic prosperity, and protecting the planet.
- Since 2004, The P3 program has involved thousands of students and provided more than $18 M in funding for over 800 projects, at more than 330 institutions in all 50 states and Puerto Rico.
20th Annual P3 Awards: A National Student Design Competition Focusing on People, Prosperity and the Planet Request for Applications (RFA)

Solicitation Opening Date: October 4, 2022
Solicitation Closing Date: February 1, 2023: 11:59:59 pm Eastern Time
PFASs Removal by Photocatalysis for Water Reuse

EPA Grant Number: SU839460 (Phase I), SV840022 (Phase II)

Phase I: $14,959, Phase II: $75,000

15th Annual P3 Grant

Awarded to: Jia Liu, Michael J. Lydy, Boyd Goodson, Jane Geisler-Lee

Student Investigators: Chunjie Xia, Md Hadiuzzaman, Andrew Derby, Max E. Gemeinhardt, Tristin Eckert, Kierstin Lipe, Fengtian Gu
HAB Early Mitigation by Magnetic Photocatalysts

EPA Grant Number: SU840174 (Phase I), SV840420 (Phase II)

Phase I: $24,991, Phase II: $100,000

17th Annual P3 Grant

Awarded to: Jia Liu, Ruopu Li, Ning Yang (previously: Kang Chen), Boyd Goodson

Student Investigators: Chunjie Xia, Pratima Adhikari, Sudip Baral, Ishani M. Senanayake, Margaret D. Pugh, Luis Prado, Bader A. Alshammari, Nafeesa Khan, Sushmita Regmi, Di Wu, Emily O’Brien, Elle E. Lanier
Funding Opportunity Announcement

15th: Solicitation Opening Date: December 21, 2017
Solicitation Closing Date: February 7, 2018

17th: Solicitation Opening Date: October 1, 2019
Solicitation Closing Date: November 19, 2019

P3-Q1 - Air Quality
P3-Q2 - Safe and Sustainable Water Resources
P3-Q3 - Sustainable and Healthy Communities
P3-Q4 - Chemical Safety
Proposal Preparation

e.g., 56 Pages for Phase I; 84 Pages for Phase II

- Application for Federal Assistance SF-424 Form
- Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance
- EPA Key Contacts Form (only Phase II)
- Budget Information Form (only Phase II)
- Project Narrative Files
  - Table of Contents
  - Abstract (2 pages) (only Phase I)
Phase I

Research Plan (12 pages)

Section 1: Proposed Research
Section 2: Relationship of Challenge to Sustainability (P3)
Section 3: Educational and Interdisciplinary Aspects of Research
Section 4: Project Management

Partnership
Phase II

EXECUTIVE SUMMARY (5 pages)

A. Description and Objective of Research
B. Summary of Results (Outputs/Outcomes)
C. Conclusions
D. Proposed Phase II Objectives and Strategies
E. Publications/Presentations
F. Supplemental Keywords
G. Relevant Websites
Phase II

BODY OF THE PROJECT REPORT

A. Summary of Phase I Results (6 pages)

B. Proposal for Phase II - P3 Phase II Project Description (9 pages)

- Proposal Quality (Innovation; scientific soundness, feasibility, appropriateness, and trade-offs; goals and objectives; end users; partnerships)
- Relationship of Challenge to the P3 Approach (Embodiment of the P3 approach; Benefit from environmental and economic outcomes; Implementation, adoption, transferability, and viability)
- Educational and Interdisciplinary Aspects of Research (Educational benefits; Plan, audiences, teaching methods and materials; Demonstration of appropriateness for an interdisciplinary team)
- Budget and Project Management
Quality Assurance Statement (2 pages)
Scientific Data Management Plan (2 pages)
References
SUPPORTING DOCUMENTATION
  Letters of Intent/Support (e.g., 6 letters)
BUDGET
BUDGET JUSTIFICATION
RELEVANCE (1 page, only Phase II)
RESUMES (2 page/person)
CURRENT AND PENDING SUPPORT
Timeline

Submission (Feb 07, 2018)

1) A favorable peer review rating
2) Past performance related to previous agreement of similar federal support.

Past performance history review (April 25, 2018), within one week

Considering for funding (any PI on EPA Federal Advisory Committee) (June 26, 2018) ASAP

Recommended for funding (reviewer comments, abstract, budget/budget justification, quality assurance, forms/paper works, software/modeling/website) (June 29, 2018; Mar 3, 2020; Sept 8, 2020; Jan 3, 2022) ASAP

Equally weighted (strength, weakness):
1) Proposal Quality
2) Robustness of Sustainability Approach
3) Education and Teamwork
4) Budget and Project Management

Grant No. given (July 13, 2018)

Modification of budget/budget justification, proposal (Aug 2, 2018)

Change SF-424 form/other forms (Nov. 28, 2018)

Grant Management Specialist

Notice of EPA Award (Dec. 12, 2018; June 24, 2020; Nov. 18, 2021; Mar ?, 2023)

Quality Assurance Project Plan (15 pages)
P3 Expo (Poster presentation)
Annual Report
Final Report
**P3 Program Contact**

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Sign up for the Research Grants Listserv at
https://www.epa.gov/research-grants/research-grants-listserv
Thank you for your attention.

QUESTIONS?