Solicitation: NNH19ZEA001N-ULI

University Leadership Initiative (ULI) Applicants Workshop

AUDIO - For home internet users with bandwidth issues, please mute your computer speakers and dial into the telecon line: 1-844-467-6272 Passcode: 592382#.

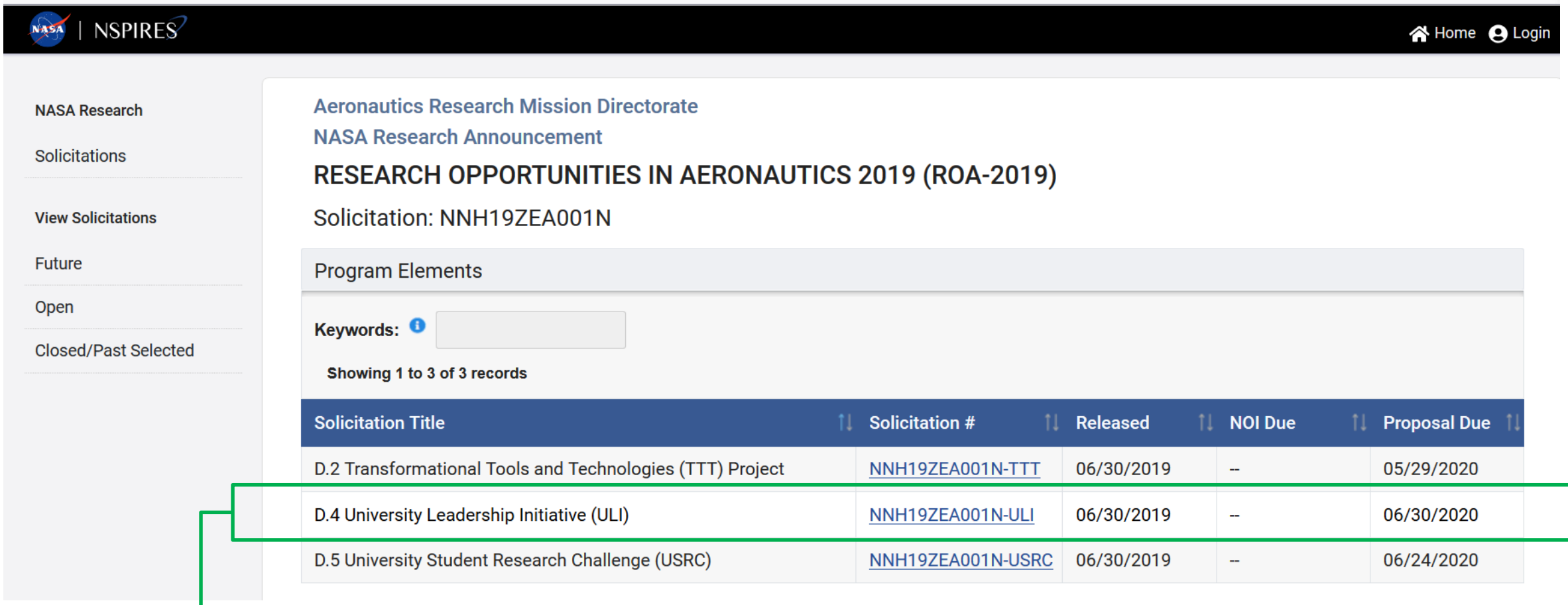
April 30, 2020

Koushik Datta
ULI Technical POC

Applicants Workshop Overview

- **Purpose:** Provide information on NASA Aeronautics Research Mission Directorate's (ARMD) University Leadership Initiative (ULI)
- **Agenda:**
  - ULI Solicitation Overview
  - Topic 7
  - Questions and Answers (Q&A)
- **Materials available:**
  - Solicitation and ULI-specific Q&A currently available from NSPIRES at https://bit.ly/2XibWCA
  - Slides, video recording, written Q&A will be available at ULI site https://nari.arc.nasa.gov/applicantsworkshop4
  - NRA *Guidebook for Proposers* available at https://www.hq.nasa.gov/office/procurement/nraguidebook/
- **Notice:**
  - Material presented at this workshop reflects best known information
  - This session, including all questions and answers will be recorded and posted
  - In case there are any differences between the solicitation and material presented at this workshop, the solicitation will take precedence

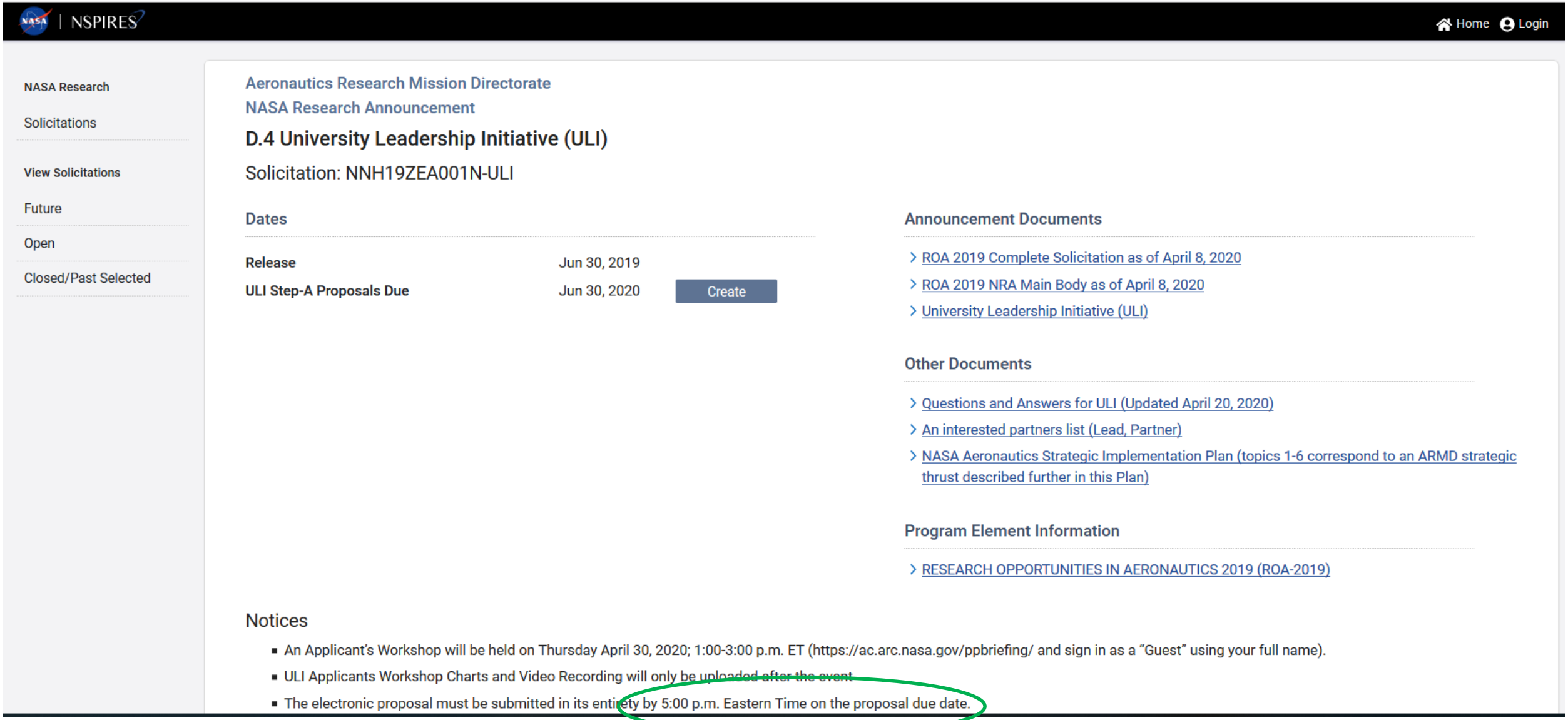
Three separate NASA solicitations are open under ROA-2019



This is the University Leadership Initiative (ULI) solicitation

- Step-A proposal due date of June 30, 2020
- Applicants Workshop is about this solicitation

ULI on NSPIRES



University Leadership Initiative

https://www.nasa.gov/aeroresearch/strategy

What: Introduce NASA-complementary, system-level, multi-disciplinary ideas from the university community and transition the research to non-NASA stakeholders for implementation or continuation of research

Why (Goals):

1. Achieve aviation outcomes in the ARMD Strategic Implementation Plan through NASA-complementary research
2. Transition research to stakeholders for implementation or continuation of research
3. Provide opportunities for undergraduate and graduate students to participate in aeronautics research
4. Promote diversity in aeronautics with inclusion of minority-serving institutions and underrepresented university faculties

How:

- University teams propose their own aeronautics technical challenges and innovative ideas that complement the ARMD portfolio and supports the U.S. aviation community
- Teams define multi-disciplinary solutions, establish own peer review mechanisms, and apply innovative teaming strategies to strengthen the research impact
- Principal Investigators actively explore transition opportunities
- Funding $1-2M/year for 3-5 years

Leadership Aspects of ULI

- Technical
  - Define unique technical challenges to accomplish strategic thrust outcomes, and plan multi-disciplinary research activities to address those challenges
  - Maintain primary responsibility for assessing research progress and quality by establishing peer review mechanisms
- Organizational
  - Apply innovative teaming strategies to strengthen potential impact
  - Build teams that leverage expertise in multiple disciplines
  - Ensure meaningful roles and effective integration across all contributors
  - Promote education of the next generation of engineers
- Entrepreneurial
  - Maintain connections with key stakeholders, understand their needs, and propose necessary course corrections to meet those needs
  - Actively explore technology transition opportunities to U.S. aviation industry and NASA ARMD

ULI Transition Goals

Transition can occur in a number of ways, including the following:

- Creates a new product line in U.S. industry or a new ARMD project
- Whole ULI concept is transitioned to U.S. industry/ARMD project
- Part of the ULI concept is transitioned to U.S. industry/ARMD project
- ULI findings impact direction of U.S. industry/ARMD

Proposals Solicited in 7 Topics

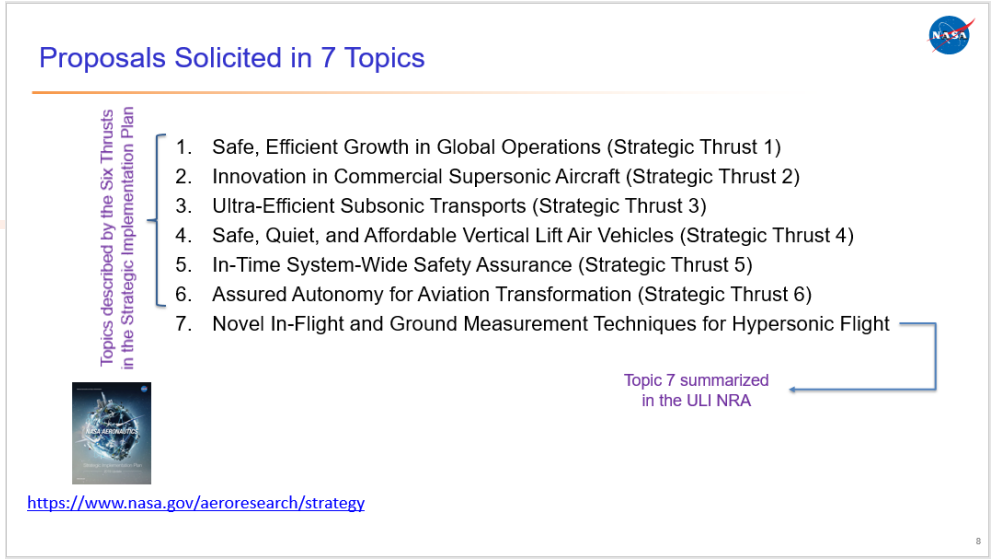
Topics described by the Six Thrusts in the Strategic Implementation Plan

1. Safe, Efficient Growth in Global Operations (Strategic Thrust 1)
2. Innovation in Commercial Supersonic Aircraft (Strategic Thrust 2)
3. Ultra-Efficient Subsonic Transports (Strategic Thrust 3)
4. Safe, Quiet, and Affordable Vertical Lift Air Vehicles (Strategic Thrust 4)
5. In-Time System-Wide Safety Assurance (Strategic Thrust 5)
6. Assured Autonomy for Aviation Transformation (Strategic Thrust 6)
7. Novel In-Flight and Ground Measurement Techniques for Hypersonic Flight

Topic 7 described in the ULI NRA

https://www.nasa.gov/aeroresearch/strategy

Projected Distribution of Awards



NASA anticipates investing in five awards, nominally three awards with three-year duration and two awards with four-year duration

- Proposals are invited for 3-4 year range
- Nominal budgets in the $1-2M range per award per year
  - Actual budget usage by year by the awardees is important to NASA and so proposed budgets must take into account ramp ups within the team
- To promote ULI portfolio balance, NASA anticipates:
  - Four awards in any of the topics 1-6
    - Strong interest in Topics 1 and 4
  - One award in Topic 7 ($1M/year for three years)
- ***AFOSR anticipates one award in Topic 7 basic research ($1M/year for three years)***
- No guarantee that the awards will be allocated as described. Depends on the quality of the proposals received, the scope of the proposed work, funding availability, and program needs
- Selecting Official has the option to consider program portfolio priorities, cost sharing and budget constraints when making the final selection

Technical Challenges and Research

- Identify the most critical technical challenges that must be solved to achieve the desired outcomes in the topic area
  - Technical challenges represent distinct barriers that must be overcome
  - Success and progress should be measurable
  - Different from technical challenges developed by NASA-internal teams and other ULI awardees
    - Summaries of these Internal NASA technical challenges are provided in solicitation
    - Should be based on what proposer believes are important barriers to overcome (not compatibility with existing NASA technical challenges)
- Propose independent, innovative research activities to solve the technical challenges, including developing the success criteria, progress indicators, and technical approach
  - Bring forward system-level, revolutionary concepts
  - Incorporate multi-disciplinary integration, including those outside of traditional aeronautics disciplines (technology convergence)
  - Offer novel, high technical risk approaches that open avenues for accelerated progress
  - Research products could include technologies, operational concepts, methods, design tools, models, or other technical advancements
- Understand the global context surrounding the proposed work, including policy and economic challenges that complement the technical work

University Leadership – Remove critical barriers in aviation

Teaming Requirements

- Lead organization for ULI proposal must be an accredited, degree-granting U.S. college or university
- Team members may include:
  - Other U.S. colleges or universities
  - U.S. industry members
  - Other departments at the principal investigator's institution
  - Non-profit organizations in the U.S.
  - Federally-Funded Research and Development Centers (FFRDCs)
  - Other U.S.-based entities
- Historically Black Colleges and Universities (HBCU) and other Minority-Serving Institutions (MSI) strongly encouraged to apply
- No foreign-owned U.S. subsidiaries and foreign organizations – not as partners, collaborators, peer reviewers, technology recipients, etc.
- No NASA partners, collaborators, peer reviewers
- AFRL collaborators are welcome, but they can't receive funding from this solicitation

Desired Attributes of a ULI Team

- Universities are asked to build a talented, diverse, and cross-disciplinary team to explore innovative, integrated solutions toward the technical challenges
  - Ensure meaningful roles and effective integration across all contributors
- Inclusive teaming methods that promote diversity and mentoring of faculty from HBCU and/or other Minority-Serving Institutions
  - Encouraged to include team members that are less-established or have less prior experience working on NASA Aeronautics projects
  - Effective integration and mentoring of these team members represents an important part of university leadership role
- Principal investigators will actively explore transition opportunities and pursue follow-on funding from stakeholders and industrial partners during the course of the award
  - Inclusion of relevant stakeholders and industrial partners either as team members or collaborators

University Leadership - Reach broadly across educational community

Interested Partners List - https://nari.arc.nasa.gov/uli_partners

UNIVERSITY LEADERSHIP INITIATIVE INTERESTED PARTNER LIST

NASA Aeronautics Research Mission Directorate
University Leadership Initiative
Interested Partner List

For ULI, the lead (proposing) organization must be an accredited, degree-granting U.S. college or university. Partners may include other U.S. colleges and universities, U.S. companies, U.S. non-profit organizations, U.S. federally funded research and development centers (FFRDC).

To be listed as an interested lead or partner, please send electronic mail to hq-univpartnerships@mail.nasa.gov with "ULI Partnerships" in the subject line and include the information below.

NASA will host a ULI Applicant's Workshop on April 30, 2020. To join, go to https://ac.arc.nasa.gov/ppbriefing/ and sign in as a "Guest" using your full name.

Note: Currently, this Partners List webpage is averaging 94 unique hits per day (counting returning users, approximately 142 hits per day). *Last Updated: 4/21/20*

Organization Name	Organization POC	POC E-mail	Area of Research Interest	Lead/Partner

https://nari.arc.nasa.gov/uli_partners

Peer Review and Education

- Establish a strong, non-advocate, peer review process for assessing relevance, technical quality, and performance
  - Teams choose their own peer review process to maximize its effectiveness
  - Identify reviewers from academia, industry, and government. Engage them throughout the year and in annual meetings. In many cases they choose peer reviewers with an eye towards research transition.
  - No NASA peer reviewers

- Promote next generation of engineers, undergraduates and graduates, with the skills to lead U.S. aviation into the future
  - ULI is looking to engage undergraduate students and stimulate them with meaningful research work
  - Innovative training of student team members to become future leaders

University Leadership – Develop the next generation of engineers

NASA Role in ULI

- Enable and provide support rather than technical oversight
- Support ULI team in following areas:
  - Provide additional insight on market trends and offer suggestions to support continued alignment with stakeholder needs
  - Work with PI to explore opportunities for technology transition to other ARMD programs and external community
  - Facilitate contacts with NASA subject matter experts and facility owners
- Provide oversight that relies primarily on input from team's peer review process
- Host ULI technical interchanges and networking opportunities

Proposal Process

- Step-A proposal due June 30, 2020
  - 5 pages for Scientific/Technical/Management section
  - Focusing on objectives, partially-defined technical challenges, overall approach, teaming and education strategy, etc. (see NRA for full details)

- NASA will review and make selections of Step-A proposals in Topics 1-6 which will be invited to submit a Step-B proposal. NASA + AFRL will jointly review Topic 7 proposals
  - All proposers will be notified

- NASA will hold an optional, virtual Industry Networking Opportunity (November timeframe)
  - Industry may offer insight into connections between the proposed concepts and the needs of the aviation community
  - Facilitate contacts between Step-B proposal teams and U.S. aviation industry for the purposes of exploring potential partnerships
  - Information exchange for technology transition

- Step-B proposal due 60 days from notification
  - 25 pages for Scientific/Technical/Management section
  - Full proposal with completed technical challenges, research activities, and detailed approach, etc. (see NRA for full details)

Proposal Evaluation Criteria

- Step-A Proposal
  - Relevance to ARMD Objectives (weight 40%)
  - Technical Merit (weight 40%)
  - Innovative Teaming and Education (weight 20%)

- Step-B Proposal
  - Relevance to ARMD Objectives (weight 25%)
  - Technical Merit (weight 25%)
  - Innovative Teaming and Education (weight 20%)
  - Effectiveness of the Proposed Work Plan (weight 15%)
  - Cost (weight 15%)

The ULI solicitation provides more details for each evaluation criteria

Topic 7: Novel In-Flight and Ground Measurement Techniques for Hypersonic Flight

- This topic seeks to significantly advance the state-of-the-art in diagnostics and sensors, in order to create the scientific basis upon which flight sensing and control systems can be developed.
  - Focus on the complete suite of aerodynamic surfaces
  - Relevant characterization of the off-surface and on-surface aerodynamic parameters that are necessary and sufficient for input for controlled hypersonic flight
  - Acquisition of the knowledge and data that underpin development of technologies and their application to controlled hypersonic flight

- Desired research outcomes:
  - Demonstrated advances in the state-of-the-art in diagnostics and sensors, which can then be improved upon to be applicable to realistic flight-control systems
  - Fundamental and basic hypersonic aerodynamic research outcomes, which demonstrate the ability to accurately measure, supported by quantified uncertainty estimates, both off-surface and on-surface flow-field parameters in environments of interest

Topic 7 Proposal Submissions

- Applied research proposals should be submitted to NASA
- Basic research proposals should be submitted to both NASA and AFOSR
- AFOSR proposal submissions
  - Grants.gov (https://www.grants.gov/web/grants/view-opportunity.html?oppId=314753)
  - Should conform to all the eligibility requirements and evaluation criteria in AFRL's BAA, FA9550-19-S-0003, Research Interests of the Air Force Office of Scientific Research, Department of Defense
- NASA and AFRL/AFOSR will jointly review Topic 7 proposals

Initial Questions and Answers for Topic 7

Q4. Topic 7 specified two outcomes. Do we have to address both outcomes or can we just address one of them?

– There is no requirement to address both outcomes. See also Answer to Q12.

Q6. For Topic 7, can my team propose an applied research proposal to NASA and a basic research proposal to both NASA and AFOSR?

– Yes, your team can propose separately for both basic and applied research in Topic 7. No limitations.

Q7. Can my team propose one research proposal for both basic and applied research to NASA and AFOSR?

– No, there has to be two separate proposals as per the solicitation.

Q12. Can we propose coordinated proposals for Topic 7 that will address both outcomes? One proposal will be submitted for NASA funding and the other for AFOSR funding. Is this allowed?

– Yes, coordinated proposals are allowed in the ULI solicitation. Provided the teams adhere to the terms of the solicitation. In each proposal, make sure you reference the other proposal.

Some Notes for Step-B Proposals

- Industry Networking Opportunity (Optional for Proposers)
  - The decision to participate or to incorporate ideas obtained from the industry networking opportunity into the Step-B proposal is entirely at the proposer's discretion
  - NASA will evaluate Step-B proposals based on their own merit
  - No consideration as to whether Step-B proposal was adjusted because of the industry networking opportunity
- Proposed Budget
  - Emphasis on accurate cost estimates, based on what is needed
- Cost Sharing
  - Proposers may include cost sharing in their proposals at their own discretion
  - Cost sharing is not an evaluation criteria
  - If cost sharing allows teams to increase the technical merit and impact of their work, then will affect those evaluation criteria and the Value-Cost scoring metric
  - Cost sharing may also be considered by the Selecting Official in the final selection of awards

Previous ULI Awardees

ULI Website: https://nari.arc.nasa.gov/uli

- Round 1: https://nari.arc.nasa.gov/ULIround1
- Round 2: https://nari.arc.nasa.gov/ULIround2
- Round 3: https://nari.arc.nasa.gov/ULIround3

General Tips

- Read the ULI NRA (https://bit.ly/2XmBy14) carefully
  - Do read the ARMD Strategic Implementation Plan
- Questions not answered in ULI NRA may be answered in the ROA-2019
- Web site for submission of proposal:
  - NASA: https://nspires.nasaprs.com/external
  - AFOSR: https://www.grants.gov/web/grants/view-opportunity.html?oppId=314753
- NASA proposal preparation and submission instructions:
  - General instructions are in the *Guidebook for Proposers* available at https://www.hq.nasa.gov/office/procurement/nraguidebook/
  - ULI-specific instructions are in the ULI NRA
- Have a question
  - Check ULI NRA, ROA-2019, and the ULI Q&A document
    - ULI Q&A document: https://bit.ly/34SegCb
    - Q&A document will be updated as questions are answered. Check regularly
  - Email questions to: HQ-UnivPartnerships@mail.nasa.gov or aerothermodynamics@us.af.mil

Questions and Answers

Quickest way to resolve Technical and Procurement questions about this NRA is to e-mail questions to: <HQ-UnivPartnerships@mail.nasa.gov>

NASA points of contact (POC)

- Procurement POC: Ken Albright <kenneth.e.albright@nasa.gov>, (228) 813-6127
- Technical POC: Koushik Datta <koushik.datta@nasa.gov>, (650) 604-2195
- NSPIRES help: <nspires-help@nasaprs.com>, (202) 479-9376

AFOSR point of contact (POC)

- Technical POC: Dr. Ivett A. Leyva <aerothermodynamics@us.af.mil>, (703) 696-8478
- Grants.gov help: <support@grants.gov>, 1-800-518-4726

Questions and Answers

1. **Can the same institution be the lead institution for separate proposals responding to different ULI topics?**
   - Yes

2. **Are researchers allowed to be members of multiple teams with different lead institutions?**
   - Yes. The researchers must be identified as team members in each proposal they participate in.

3. **Can a non-US citizen, studying/working at a university, be included on the team?**
   - Generally yes, the eligibility requirements of the ROA-2019 apply to the proposing organization and not the individual. However, it is possible that export control requirements must be taken into account for members of a proposing organization who are not U.S. citizens or do not have permanent resident status.

Additional Questions?

Taken in the following order

- Questions from the Adobe Connect chat window
- Questions over the telecom line

Thanks for participating!

NASA points of contact (POC)

- Procurement POC: Ken Albright <kenneth.e.albright@nasa.gov>, (228) 813-6127
- Technical POC: Koushik Datta <koushik.datta@nasa.gov>, (650) 604-2195
- NSPIRES help: <nspires-help@nasaprs.com>, (202) 479-9376

AFOSR point of contact (POC)

- Technical POC: Dr. Ivett A. Leyva <aerothermodynamics@us.af.mil>, (703) 696-8478
- Grants.gov help: <support@grants.gov>, 1-800-518-4726