

AFRL MIDATLANTIC REGIONAL HUB

Funding Program Overview and Process Detail

1. Introduction and General Information

1.1 Fall 2022 Project Submission Opens

September 8, 2022

1.2 Fall 2022 Proposal Due Date (by 5 p.m. EST):

October 6, 2022

1.3 Program Contacts:

- Proposal Process/Qualifying Match Questions: Patrick Govang <pjg26@cornell.edu>
- Projects relating to Quantifying Performance in Extreme Environments:
 - Hilmar Koerner, Ph.D. (hilmar.koerner.1@us.af.mil)
 - R. Scott Erwin, Ph.D. (richard.erwin@spaceforce.mil)
- Projects relating to Complex Systems Modeling
 - Mark Linderman, Ph.D. (mark.linderman@us.af.mil)
 - Alexander Francis (falexander@bnl.gov)
 - Luke A. Baldwin, Ph.D. (luke.baldwin.1@us.af.mil)
 - Philip R. Buskohl, Ph.D. (philip.buskohl.1@us.af.mil)
- Translation Program Questions: Patrick Govang <pjg26@cornell.edu>

1.4 Proposal Submission Instructions

Proposals may be submitted via Google Forms via the AFRL MidAtlantic Google Workspace.

The link to the proposal application form can be found via the following URL:

https://docs.google.com/forms/d/e/1FAIpQLScIHHDwcm7snLzmaKAflHxmOTJZ6_oZlDvqmdDpCoA8sSfQDg/viewform?pli=1

For issues accessing the AFRL MidAtlantic Google Workspace please contact:

ANTHONY M. NEWTON

Lead, Open Innovation Opportunity

Innovare (Innovate, Integrate, Educate, Elevate): <https://www.innovare.org/>

MOBILE OFFICE: (315) 371-5645

WORK @ HOME: (315) 395-9941

OFFICE: (315) 330-2830

NIPR: anthony.newton.1@us.af.mil

For any issues with the application form itself, please contact:

D. Michael Beeching
Administrative Coordinator
Air Force Research Laboratory (AFRL)
Mid Atlantic Regional Research Hub
dmb55@cornell.edu
607-255-7731

1.5 Budget Distribution

Each proposal to include a budget broken down by month with annual calendar year totals for project periods that extend through multiple calendar years, aligned with proposed project milestones and to include a summary of all costs, including overhead costs.

Example Budget Cost Items: Salaries and Wages; Employee Benefits; Equipment; Fabricated Equipment; Communications; Travel; Repair and Maintenance; Academic and/or User Fees; Consultants; Subcontracts; Supplies and Materials; Conferences and Seminars; Publications; Facilities and Administrative Costs

Cost sharing requirements vary depending on desired funding path. All Cost Sharing information should be included in the proposal budget. Please see full text of this solicitation for specific cost sharing requirements and definition.

1.6 Anticipated Type of Awards

Prototyping Research Innovation Awards:

Subcontract from Cornell University Office of Sponsored Programs to Hub Community Lead.

Accelerating Translation Awards:

Subcontract from Cornell University to Hub Partners for programming awards
SAFE Note or similar to Startup or Licensee Companies for late-phase awards

1.7 Estimated Number of Awards and Anticipated Funding Amounts:

The Hub receives proposals and recommends project awards three times per year. Proposal cycles are nominally in the Spring, Summer, and Fall. Specific dates for each proposal cycle will be communicated to the Hub community prior.

The award selection process is driven foremost by proposal quality followed by the availability of funds. The selection committee may allocate funding recommendations in any cycle to any proposals at any stage in any amount based on project alignment with hub goals and quality of proposal.

Nominal Funding Available per Cycle:

Prototyping Research Innovation Awards:

Phase 1: \$50,000; budget 4 awards per cycle

Phase 2: \$100,000 budget 2 awards per cycle

Phase 3: \$100,000 budget 1 award per cycle

Accelerating Translation Awards:

Phase 1: \$50,000; budget 2 awards per cycle

Phase 2: \$150,000 budget 1 award per cycle

Phase 3: \$250,000 budget 1 award per cycle

1.8. Who May Submit Proposals and Serve as PI:

Proposals may be submitted by lead PI's from the following founding members of the Hub community including:

- Academic Founding Partners:
 - Columbia University
 - Cornell University
 - Johns Hopkins University
 - Princeton University
 - University of Binghamton
 - SUNY Polytechnic Institute
- Other Founding Partners
 - Brookhaven National Laboratory
 - Griffiss Institute / Innovare Center

For Proposals with PI's outside of the Hub founding members, the organization (academic, government, startup, or corporate) must first become members of the Hub community.

All Proposals require a co-PI from the AF/SF. Hub community members preparing proposals without an AF/SF co-PI or AF/SF PI's seeking to align with Hub community members for PI's are encouraged to work with the leads for each theme (as noted in Item 1.3 Program Contacts) to identify (co-)PI's as necessary.

There is a limit of one proposal per PI or co-PI per cycle.

As projects are funded through the various types and phases the PI and/or co-PI may change depending on specific milestones for the desired funding type and phase.

All PI and proposal team members to comply with:

6.010 EXPORT CONTROL (NOV 1999) (TAILORED)

(a) Access to the technology developed under this agreement by foreign firms, institutions or individuals shall be controlled by the recipient under applicable U.S. export control laws.

(b) If required under a Research Project Plan agreed to in writing in advance by the Recipient, the Recipient shall obtain Grants Officer approval before assigning or granting access to any work, equipment, or technical data generated or delivered under this agreement to foreign persons or their representatives. The notification shall include the name and country of origin of the foreign person or representative, the specific work, equipment, or data to which the person will have access. The Grants Officer will not provide approval until a favorable Foreign Disclosure Office determination is received.

2. Proposal Process; Conflict of Interest Management

Proposals will be accepted, reviewed, and recommended for awards in 7-week cycles three times per year, nominally in the Spring, Summer and Fall. Proposals submitted during the current solicitation will follow an approximate timeline:

Week 1: Proposal submissions open;
During this time any projects seeking to align with required Hub resources for proposals are encouraged to contact Hub staff for networking and introductions.

Week 3: All proposals due

Weeks 4-6: Internal proposal alignment review and feedback; Hub personnel will also seek external reviews when possible.

Week 7: Proposal Presentations to Award Committee
Award Committee recommends projects for funding to AFRL POC
AFRL POC subsequently approves funding

A 9-person Award Committee will be identified for each cycle based on appointments to the following roles: Selected by the AFRL Hub Executive Advisory Team

- 3 Members of the Hub Executive Advisory Team
- 2 Ad-Hoc members from the AFRL Hub Community
- 2 AFRL S&T members not affiliated with the Hub
- 2 Investment or Corporate Representatives

The Hub Executive Operating Team is responsible for open communications regarding Award Committee appointments and ensuring any potential conflicts are identified, managed and, when possible, avoided. Should any Hub member have a concern about the process, management of conflicts or lack thereof, an independent arbitrator(s) will be appointed by **Name Forthcoming** who will review all concerns and make recommendations for corrective action.

3. Program Overview

The Hub's funding program will support research-focused innovations on prototyping activity and/or acceleration into the marketplace.

Proposals must be structured around achievable milestones at 6-, 12-, and 18-month (maximum) timelines. Funding for future milestones will be via invitation to propose in subsequent funding cycles based on successful completion of the previous or active milestones.

Prototyping and acceleration projects should align with the Hub's two main research thrusts: quantifying performance in extreme environments and complex systems modeling.

Quantifying Performance in Extreme Environments: Proposals in this domain should focus on technologies that assess structural and functional materials such as metallic alloys and polymer-based composites during the extreme conditions

Complex Systems Modeling: Proposals under this domain should focus on enabling intelligent automation and optimal decision support for complex adaptive systems by

creating novel capabilities for scalable learning of AI and ML models and policies that can achieve the desired operational goals under uncertainty.

In addition to the research themes, proposals are segregated into two types of project funding. Prototyping Research Innovations and Accelerating Translation. Project teams may simultaneously apply for both types of funding (example: Prototyping Phase 2 + Acceleration Phase 1) when the proposal clearly meets the requirements for each.

3.1 Prototyping Research Innovations Project Funding:

As described, this funding primarily revolves around the creation and refinement of commercially viable/validated prototypes or to establish technical capability. It is intended to align with and compliment previously-funded research efforts that have progressed to realize innovations with commercial potential both in the AF/SF and in commercial markets. The identification of Intellectual Property, or near-term plan to protect Intellectual Property is required for Phase 1 consideration. Identified and protected Intellectual Property is required for Phase 2 and 3 awards.

Phase:	Timeframe	Funding (up to)	Match	IP Status	Requirements:
1	3-6 months	\$50K	Preferred; increases odds	Pre-IP path identified /Disclosed/IP Protected	Hub PI AFRL Co-PI
2	6-12 months	\$100K	100% Match	IP Identified and Protected	Hub PI AFRL Co-PI
3	6-12 months	\$100K	100% Match	IP Identified and Protected	Invite only after successful completion of Phase 1 or 2. Hub PI AFRL Co-PI

Project teams who feel they better align with Phase 2 requirements (Identified and protected IP) may apply for Phase 2 funding.

Project teams who have successfully completed a Phase 2 project may be invited by the Hub to apply for Phase 3 funding.

3.2 Accelerating Translation Proposals:

This project funding is intended to leverage and fund participation in hub community partner

Phase	Timeframe	Funding (up to)	Typical Activity	IP Status	Requirements
1	Semester-long	\$50K	I-Corps/ Market Fit Studies	Pre-IP	AFRL Co-PI, Hub Translation Partner
2	6-12 months	\$150K	E-ship Fellow, Supply Chain Dev Incubator Support	IP Protected	AFRL Co-PI, Hub Translation Partner
3	6-12 months	\$250K	Startup : SAFE Note + Match Licensee: SAFE or similar	IP Licensed	AFRL Sponsor, License and 100% match

translation programs designed to help refine, align and launch commercially viable innovations.

PI's are required to identify a translation program/partner within the Hub. Hub community members preparing proposals seeking a translation program/partner are encouraged to contact the resource identified in Item 1.3 for Translation Program Questions who will work to align you with hub resources.

Translation programing that involve AFRL and Hub Community Members, particularly Corporate or Investment Community Members, in oversight, contributory or mentorship roles best align with the goals of the Hub.

Phase 1 and 2 project funding is intended to support the AFRL team's activity via the chosen hub translation program.

Phase 3 project funding is intended to support a licensed Start-up company or licensee seeking to accelerate a licensed innovation into the marketplace. Funding for Phase 3 projects will be provided via a SAFE (Simple Agreement For Equity) or similar instrument which provides a return to the Hub once commercial success is achieved.

4.0 Proposal Preparation Instructions:

Proposals are accepted during the open proposal period identified in Items 1.2 and 1.3 and accepted via the portal described in Item 1.4. All proposal components below are to be submitted via the AFRL portal.

Proposal Components:

4.1 Project Title

4.2 Period of Performance: MM YYYY to MM YYYY

4.3 Identification of PI and Co-PI (AFRL POC):

Project Lead:	Organization Name	AFRL Partner:	AFRL Directorate/Branch
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Principal Investigator: (Technical lead)	AFRL POC:
Name	Name
Title	Title
Organization	Organization
Address	Address
Phone	Phone
Email	Email
DUNS #: (if applicable)	

4.4 Funding Type Requested: (Check All that Apply for Cycle)

chk	Prototyping Research Innovations	chk	Accelerating Translation
	Phase 1: up to \$50k		Phase 1: up to \$50K
	Phase 2: up to \$100K		Phase 2: up to \$150K
	Phase 3: up to \$100K (invite only)		Phase 3: up to \$250K

4.5 Executive Summary (200 Words)

This section should contain a top-level summary of the problem to be solved and potential impact; identify the cohort members; the technical solution, prototype or program to be pursued; the metrics to be tracked; the major deliverable or major milestones; and the total budget for the project. This section should explain the basics of the WHAT, WHY, and HOW for the project.

4.6 Technical Plan/Scope (500 Words)

In this section and the following subsections please describe in detail the Technical Plan for the project, including Objectives, Tasks, Resource Requirements and/or other tasks as appropriate.

OBJECTIVES: Detailed objectives of the research. Identify all cohort members and their expected contributions/activities. Expand on the executive summary.

HUB RESOURCES: Identify any Hub resources required for this activity including estimates of lab space, office space, supplies/materials and any unique equipment/facilities that are a part of the hub.

AFRL RESOURCES: Identify any AFRL resources required for this program including access to AFRL facilities, Government Furnished Property (GFP), etc.

PROJECT METRICS AND MILESTONES: Identify the project metrics and Milestones and briefly explain why they are the important metrics.

RESEARCH PROTECTIONS: Select one of the descriptions below. This Research Project is:

- a) Fundamental Research as defined by ITAR/EAR. Program protection measures may apply, but do not affect this fundamental research determination.
- b) NOT Fundamental Research as defined by ITAR/EAR, and program protection measures will apply. NOTE: Checking this box serves as prior written notice to participating academic institutions by Air Force that the research activities under this Detailed Research Plan are not fundamental research, and execution by the parties serves as their express agreement to the terms of this non-fundamental Research Project.

If any controlled technology, materials, or other information are determined to be part of this Research Project, describe with specificity how such will be protected from unauthorized access or transfer during the term of the Research Project, including the arrangements for physical and network separation from unauthorized persons.

The Parties shall consult one another concerning any planned Publication of Research Project progress and Results with respect to Article RIK-7001 of the Cooperative Agreement and also with respect to Air Forces assessment of national security risk inherent to publication of progress or all or any part of the results. Such risk assessment shall include publication for purposes of prosecuting any Patent under this Award. The Parties shall strive in good faith to find mutually acceptable methods to mitigate any Air Force-identified national security risk, but if mutual agreement cannot be reached, the national security risk determination by Air Force shall control publication.

4.7 Tech Transition Plan:

For Prototyping Research Applications: (100 Words)

Brief targets for tech transition, possibly including but not limited to: AFRL applications, commercial products, startup business, corporate collaborators/customers/licensees, etc.

Identification of potential Hub translation program partner, if possible.

For Translation Acceleration Applications: (500 Words)

Brief Targets for tech transition, possibly including but not limited to: AFRL applications, commercial products, startup business, corporate licensees, etc.

Identification of Hub translation partner and program.

Description of program and expected results.

Identification of any Hub Members who will participate in the program and their respective roles.

4.8 Deliverables/Milestones (Table)

Proposals must be structured around achievable milestones at 6-, 12-, and/or 18-month (maximum) timelines. Milestones outside of the proposal scope will help the award committee understand how potential subsequent funding cycles would progress the effort to realize the overall goals of the Hub.

Please include a table of the project deliverables/milestones described in the Technical Plan, start dates and the expected delivery date for each milestone. Column headers should be in ALL CAPS and **bold**. (Milestones in table are examples, not required)

MILESTONES	START DATE	DELIVERY DATE
Complete Phase 1 Prototype		
Complete Prototype Testing		
Complete comparison report of test results to ultimate market need		

4.9 Budget Distribution (Table/Spreadsheet)

Each proposal to include a budget broken down by month with annual calendar year totals for project periods that extend through multiple calendar years, aligned with proposed project milestones and to include a summary of all costs, including overhead costs.

Example Budget Cost Items: Salaries and Wages; Employee Benefits; Equipment; Fabricated Equipment; Communications; Travel; Repair and Maintenance; Academic and/or User Fees; Consultants; Subcontracts; Supplies and Materials; Conferences and Seminars; Publications; Facilities and Administrative Costs

Cost sharing requirements vary depending on desired funding path. All Cost Sharing information should be included in the proposal budget. Please see Item 6 of this solicitation for specific cost sharing requirements and definition.

4.10 Intellectual Property (200 Words plus Table)

Intellectual Property (IP) developed under this project will be subject to the IP Framework in Item 5 below. Applications should include any relevant information per the descriptions below.

DATA: Please specify a detailed description of the Data to be provided by Air Force or Hub Community Partner, and specifically whether any of the Data is subject to any terms or conditions:

SOFTWARE: Please list any software owned or managed by the Air Force or Hub Community partners.

Include Third Party or Open License (open source or non-commercial research use license) to be used (and applicable licenses): If the principal basis of this Project is Software, please list any Anticipated Open License(s) (open source or non-commercial research use license) for Software developed under the Project:

BACKGROUND IP: Please specify any Background IP of any Party to be used in the performance of the Project.

AIR FORCE patents and patent applications, please complete and upload the following table identifying any AFRL IP used in the performance of the Project:

Case #	Country	App Title	Serial Number	Filing Date

Hub Community Partner patents and patent applications, please provide one Section for each Hub Partner with contributing IP

Case #	Country	App Title	Serial Number	Filing Date

4.11 Proposal Presentation

PI or team member is able to attend proposal cycle presentations to Award Committee:

- a) In person (strongly preferred)
- b) Virtual
- c) Not able to attend

4.12 Special Instructions (up to 200 Words)

Clearly define any ITAR or other restrictions, Program Classification, Place of Performance, Human Research, Special Requirements/Constraints, or other special instructions/requests/questions in this section.

5. Review Process and Criteria

All proposals will be subject to multiple stages of review.

5.1 Initial Application Review: All applications will be evaluated for completeness and alignment to proposal requirements by Hub Staff. Proposal components such as intellectual property, matching, proposal team composition, etc. Noncompliant or incomplete applications will be returned to the submitters to address the deficiencies.

5.2 External Review: Compliant proposals will be referred by the Hub to at least one external expert (unless there is confidential information) who is an experienced technology industrialist, early stage venture investor and/or manager of early stage ventures. The external experts will provide their feedback regarding the proposals to the Review Committee. This feedback will be based on their informed view on the likelihood that investment, third party licensing, strategic partnership and/or broad public utilization will be enhanced by Hub funding.

5.3 Award Committee Review: The composition of the 9-person Award Committee will be addressed per cycle based on appointments to the following roles:

Selected by the Hub Executive Operating Team

- 3 Members of the Hub Executive Operating Team
- 2 Ad-Hoc members from the AFRL Hub Community
- 2 AFRL S&T members not affiliated with the Hub
- 2 Investment or Corporate Representatives

Compliant proposals may be allocated a time slot at the Annual Meeting for a presentation to the Award Committee that will address the following:

- 1: Project Title, Key Team, Funding Type and Amount Requested, Project Period.
- 2: Brief Summary of the Technology Proposed
- 3: Market Needs Addressed for AF and Commercial Applications
- 4: Current Status and Specific Needs to be addressed; Milestones
- 5: Anticipated Impact of Proposed Project on Commercialization/Investment

Based on the submitted proposal, presentation and feedback from external industry experts, the Award Committee will reach the final funding disposition and make the recommendation to the AFRL for approval.

5.4 Review Criteria: The Award Committee will make funding recommendations based on the strength of the application to the specific type of funding being requested. Generally, however, the committee will rank all proposals to the following criteria:

Technology Significance: Does it align with AFRL Needs? Strength of Research Heritage.
Impact / Size of the market for this technology (considering startup or licensing opportunity) a) For AFRL b) For Commercial Applications
Market feedback (afrl interest, company interest, entrepreneur interest, etc.)
How significant is the competitive advantage of this approach
Strength of the IP that has being created or can be improved
Milestones: quality, achievable, meaningful
Commercialization Are there clear next steps to determine commercialization path?
Future Funding Potential: does achieving the milestones successfully position the project for additional funding from the Hub?

6. IP Framework

Project Intellectual Property:

For projects with matching funding participation up to \$100,000 (incl. value of cost share?)

- Non-exclusive, royalty-free (NERF) license for internal research and development purposes
- Option to elect a field-specific NERF for commercial purposes when patent expenses are reimbursed
- Option to negotiate an exclusive commercial license including the right to sublicense for all project intellectual property

For projects with cumulative matching funding participation up to \$500,000 (incl. value of cost share?)

- Above terms plus the ability to pre-determine the following key license terms:
- Favorable royalty rate specific to the industry sector
- Capped license-issue fees via an exclusive option to negotiate an exclusive license, including the right to sublicense

For projects with cumulative matching participation beyond \$500,000 (incl. value of cost share?)

- Non-exclusive, royalty-free (NERF) license for internal research and development purposes
- Option to elect a field-specific NERF for commercial purposes
- Ability to pre-determine licensing terms that are more comprehensive than above

7. Cost Sharing or Matching

7.1 For Phase 1 Prototyping Research proposals and Phase 1 & 2 Accelerating Translation proposals, committed cost sharing is voluntary. It may be used as a factor during the merit review of applications or proposals. Criteria for considering voluntary committed cost sharing must meet the criteria in Item 6.3 below.

7.2 For Phase 2 and Phase 3 Prototyping Research proposals and Phase 3 Accelerating Translation proposals, committed cost share equal to the requested funding amount is required. Cost sharing must meet the criteria in Item 6.3 below.

7.3 Contributions must meet all of the following criteria:

1. Are verifiable from the non-Federal entity's records;
2. Are not included as contributions for any other Hub award;
3. Are necessary and reasonable for accomplishment of project or program objectives;
4. Are not paid by the Federal Government under another Federal award, except where the Federal statute authorizing a program specifically provides that Federal funds made available for such program can be applied to matching or cost sharing requirements of other Federal programs;
5. Are provided for in the approved budget when required by the Federal awarding agency; and
6. Conform to other provisions of this part, as applicable.

7.4 Cost Share Qualifications

Volunteer services furnished by third-party professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for third-party volunteer services must be consistent with those paid for similar work by the non-Federal entity. In those instances in which the required skills are not found in the non-Federal entity, rates must be consistent with those paid for similar work in the labor

market in which the non-Federal entity competes for the kind of services involved. In either case, paid fringe benefits that are reasonable, necessary, allocable, and otherwise allowable may be included in the valuation.

When a third-party organization furnishes the services of an employee, these services must be valued at the employee's regular rate of pay plus an amount of fringe benefits that is reasonable, necessary, allocable, and otherwise allowable, and indirect costs at either the third-party organization's approved federally-negotiated indirect cost rate or, a rate in accordance with [§ 200.414\(d\)](#) provided these services employ the same skill(s) for which the employee is normally paid. Where donated services are treated as indirect costs, indirect cost rates will separate the value of the donated services so that reimbursement for the donated services will not be made.

Donated property from third parties may include such items as equipment, office supplies, laboratory supplies, or workshop and classroom supplies. Value assessed to donated property included in the cost sharing or matching share must not exceed the fair market value of the property at the time of the donation.

The value of donated property must be determined in accordance with the usual accounting policies of the non-Federal entity, with the following qualifications:

1. The value of donated land and buildings must not exceed its fair market value at the time of donation to the non-Federal entity as established by an independent appraiser (*e.g.*, certified real property appraiser or General Services Administration representative) and certified by a responsible official of the non-Federal entity as required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, ([42 U.S.C. 4601-4655](#)) (Uniform Act) except as provided in the implementing regulations at [49 CFR part 24](#), "Uniform Relocation Assistance And Real Property Acquisition For Federal And Federally-Assisted Programs".
2. The value of donated equipment must not exceed the fair market value of equipment of the same age and condition at the time of donation.
3. The value of donated space must not exceed the fair rental value of comparable space as established by an independent appraisal of comparable space and facilities in a privately-owned building in the same locality.
4. The value of loaned equipment must not exceed its fair rental value.

For third-party in-kind contributions, the fair market value of goods and services must be documented and to the extent feasible supported by the same methods used internally by the non-Federal entity.