AFRL Regional Network – Mid-Atlantic (AFRL-RNMA)

Spring Cycle 2024 - Funding Program Overview and Process Detail

1. Introduction and General Information

1.1 Spring 2024 Project Submission Opens
April 22, 2024

1.2 Spring 2024 Proposal Due Date (by 5 p.m. EST):
May 24, 2024

1.3 Spring Proposal Presentations to Selection Committee:
June 26, 2024

1.4 Program Contacts:
Patrick Govang, Co-Director, AFRL-RNMA
 pjg26@cornell.edu (607) 279-5232

John Luginsland, Collaboration Director, AFRL-RNMA
john.luginsland@us.af.mil (607) 351-0612

David Jung, Network and Programs Director, AFRL-RNMA
dj59@cornell.edu (607) 255-8805

1.5 Proposal Submission Instructions

Proposals may be submitted via Google Forms
The link to the proposal application form can be found here:

https://docs.google.com/forms/d/e/1FAIpQLSefwbbmGyxofHhzu5NnsKQBptNGwAp0lx7w_2I
0DbP-WkKwMg/viewform

For any issues with the application form, please contact:
D. Michael Beeching
Administrative Coordinator
AFRL Mid-Atlantic Regional Research Network
dmb55@cornell.edu
607-255-7731

1.6 Budget Distribution

Each proposal to utilize the required budget template 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 lead proposing member organizational and any subcontractor overhead costs.

Translating technologies into market applications typically requires funds beyond the capabilities of this funding program. Noting all previous and current funding will benefit your proposal. Please see item 6 for further information.

The required budget template can be requested from the AFRL-RNMA by contacting:

D. Michael Beeching
Administrative Coordinator
AFRL Mid-Atlantic Regional Research Network
dmb55@cornell.edu
607-255-7731

1.7 Award Types and Project Timing

Prototyping Research Innovation Awards: Awards facilitated via subcontract from Cornell University Office of Sponsored Programs to PI organization and, if applicable, sub-contracts for funding to member collaborators.

Funding stages:
Stage 1: up to $100K for up to a 6 month project
Stage 2: up to $200K for up to a 12 month project
Stage 3: up to $200K for up to a 12 month project

Project start dates should allow for subcontracting negotiation/completion and should be no sooner than August 1, 2024

1.8 Estimated Number of Awards and Anticipated Funding Amounts:

The Network plans three proposal cycles per year, nominally in the Spring, Summer, and Fall. Specific dates for each proposal cycle will be communicated to the Network community prior.

The award selection process is prioritized first by proposal quality and Network mission alignment 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 Network goals and quality of proposal.

Typical Funding Available per Cycle:

Stage 1: $100,000; budget 4 awards per cycle
Stage 2: $200,000 budget 2 awards per cycle
Stage 3: $200,000 budget 1 award per cycle

1.9 Who May Submit Proposals and Serve as PI:

Proposals are to be submitted by members of the Mid-Atlantic Regional Network; however, only members within the Mid-Atlantic region may serve as PIs/proposal leads. See section 1.9 for specific membership options and location criteria.

All Proposals require a co-PI from the AF/SF. Network community members preparing proposals without an AF/SF co-PI are encouraged to leverage the Tech Connect function on the Mid-Atlantic Regional Network website to identify (co-)PIs as necessary:
https://www.midatlantichub.afresearchlab.com/find-an-afrl-collaborator

The program contacts identified in item 1.4 above are also available to assist in identifying collaborators once a request through Tech Connect has been made.

There is a limit of one proposal per PI per cycle. As projects are competitively and progressively funded through the partnering types and Stages, the PI and/or co-PI may change from Stage to Stage.

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.

1.10 Regional Network Membership

The Mid-Atlantic Regional Network membership program offers multiple membership options to accommodate corporations (modest fee based on sales), startups (modest fee based on amount raised), investment groups (modest fee), academia, not-for-profits and government organizations. There is no fee for academia, not-for-profits, and government organizations; however, they agree to serve as Regional Network communication nodes throughout the region. The Network's region extends from Maine to Virginia, with the western boundary extending along New York, Pennsylvania, West Virginia, and Virginia.

Interested parties from outside of the Network region are welcome to join; however, they are not eligible to lead proposals and cannot sit on Mid-Atlantic Regional Network committees.

Membership benefits:
- Propose (lead, in-region members only) and/or participate in Network partnership project calls
- Concierge support for networking with AFRL and Regional Network members
- Access to Network-funded translation projects, AFRL S&T staff
- 3 entries to Network-wide meetings
- No Intellectual Property terms or conditions associated with membership; such to be addressed via individual project agreements

Membership Fees:

Regional Corporate Member: Membership fee based on annual sales:
- $250 for sales <$10M
- $1,000 for sales between $10M - $50M
- $2,500 for sales between $50M - $100M
- $5,000 for sales greater than $100M

Regional Startup Companies & Investors

For Startups fee based on all funding raised or awarded:
- $0 raised or awarded less than $1M
- $250 raised or awarded between $1M - $5M
- $1,000 raised or awarded between $5M - $50M
- $2,500 raised or awarded greater than $50M

For all investor groups (angel, seed, VC):
- $1,000 Investor Groups

<u>Academic Membership:</u>

> No fee, however, signature of Network MOU detailing:
>> o Marketing obligations to external and internal communities
>> o Alignment of entrepreneurship, commercialization, and related programs with
>> o Support Network events and attend meetings

<u>Government Partners and Not-for-Profits (includes DoD procurement agencies)</u>

- Signature of government member MOU in addition to:
  - o Marketing to internal community
  - o Support Network events and meetings

The link to the membership application form for all membership types can be found here: https://www.midatlantichub.afresearchlab.com/hub-network-membership

2. **Proposal Process; Conflict of Interest Management**

Proposals will be accepted, reviewed, and recommended for awards in nominal 8-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 Network resources for proposals are encouraged to contact Network staff for networking and introductions.

Week 4:   All proposals due

Weeks 5-7: Internal proposal alignment review and feedback; Network personnel will also seek external reviews when possible.

Week 8:   Proposal Presentations to Award Committee
            Award Committee recommends projects for funding to AFRL POC
            AFRL POC subsequently approves projects and funding

A 9-person Award Committee, selected by the AFRL Mid-Atlantic Regional Network Executive Advisory Team, will be formed for each cycle based on appointments to the following roles:
- 3 Members of the Network Executive Advisory Team
- 2 Ad-Hoc members from the AFRL Network Community
- 2 AFRL S&T members not affiliated with the Network

- 2 Investment or Corporate Representatives

The Network 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 Network member have a concern about the process, management of conflicts or lack thereof, an independent arbitrator(s) will be appointed by the AFRL who will review all concerns and make recommendations for corrective action.

3. <u>Program Overview</u>

The Network's funding program supports prototyping and validating **research innovations** with potential utility in defense applications and commercial market applications**,** otherwise known as **Translation**.

Proposals must be structured around achievable milestones at 6- or 12-month (maximum) timelines. Stage funding for future milestones will be via subsequent funding cycle applications and based on successful completion of the previous or active milestones.

You may choose your project focus or select a suggested sub-topic; however, your chosen topic should align with the Network's main research thrusts. Proposals focused on AFRL suggested sub-topics of interest (below) may align with future funding opportunities from the AFRL.

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.

AFRL Sub-Topics of Interest:
- Development of New Oxidation Resistant Refractory Alloys for Additively Manufactured (AM) Components
- Advanced Nano-Composite Radiation Shielding Manufacturing
- Materials for High-Temperature Performance Electronics: Memory and Packaging

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.

AFRL Sub-Topics of Interest:

- Precision Eye Tracking for Remote Pilots and Training Optimization

Edge Computing: Proposals under this domain should focus on edge computing.

AFRL Sub-Topics of Interest:

- Low-Loss Magnetless Optical Isolators for Quantum Integrated Photonics Applications

3.1 Prototyping Research Innovations Project Funding:

This funding applies to the creation and refinement of commercially viable/validated prototypes or to establish technical capability for a market application. It is intended to compliment previously funded research efforts that have progressed to realize innovations with commercial potential and application in the AF/SF. The identification of Intellectual Property, or near-term plan to protect Intellectual Property is required for Stage 1 consideration.   Identified and protected Intellectual Property is required for Stage 2 and 3 awards.

Stage:	Timeframe	Funding (up to)	Match	IP Status	Requirements:
1	3-6 months	$100K	Preferred; increases odds	Pre-IP path identified /Disclosed/IP Protected and available	Network PI AFRL Co-PI
2	6-12 months	$200K	100% Match	IP Identified, Protected and available	Network PI AFRL Co-PI
3	6-12 months	$200K	100% Match	IP Identified, Protected and available	Successful completion of Stage 1 or 2. Network PI AFRL Co-PI

Project teams who feel they better align with Stage 2 requirements (Identified and protected IP) as opposed to Stage 1 may start with Stage 2 funding.

Project teams who have successfully completed a Stage 2 project may apply for Stage 3 funding.

4.0   Proposal Preparation Instructions:

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

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
	Stage 1: up to $100k
	Stage 2: up to $200K
	Stage 3: up to $200K (requires completion of Stage 2)

Please check relevant subtopic, if applicable:

Chk	Subtopic:
	Development of New Oxidation Resistant Refractory Alloys for Additively Manufactured (AM) Components

	Advanced Nano-Composite Radiation Shielding Manufacturing
	Materials for High-Temperature Performance Electronics: Memory and Packaging
	Precision Eye Tracking for Remote Pilots and Training Optimization
	Low-Loss Magnetless Optical Isolators for Quantum Integrated Photonics Applications

4.6 Project Team

Cross regional collaborations are encouraged. Please list any proposal collaborators and their requested funding/subcontract amount:

Name	Title	Organization	Email	Subcontract Required?	Subcontract Amount

4.5 Executive Summary (200 Words)

This section should contain a top-level summary that includes the proposal's goals, market problem to be solved, and potential impacts; the cohort members; the technical solution, prototype or program to be pursued; the metrics to be tracked; the major milestones or deliverables; and the total budget for the project. This section should explain the basics of the WHAT, WHY, and HOW for the project. If you are completing an existing award and applying for follow-on funding, please include a description of progress towards previously defined milestones.

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.

NETWORK RESOURCES: Identify any Network 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 Network.

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. Project metrics should clearly reflect the status of project activities as they contribute to the milestones.

If you are completing an existing award and applying for follow-on funding, please reference your previously funded project objectives, metrics and milestones including progress towards each and how they correlate with your new, proposed objectives, metrics and milestones.

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 (200 Words)

Briefly describe market targets for tech transition, possibly including but not limited to: AFRL applications, commercial products, startup business, corporate collaborators/customers/licensees, etc. Provide any feedback from the market targets that could indicate future potential.

Identification of Network member translation, entrepreneurial or commercialization programs utilized or planned.

If you are completing an existing award and applying for follow-on funding, please reference your previously funded tech transition plan and how it correlates with your new, proposed tech transition plan.

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 Network.

If you are completing an existing award and applying for follow-on funding, please reference your previously funded project milestones including progress towards each and how they correlate with your new, proposed milestones.

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 Stage 1 Prototype		
Complete Prototype Testing		
Complete comparison report of test results to ultimate market need		

4.9 Budget Distribution (Network Template)

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.

All proposals are required to use the Network budget template. Please request a copy of the Network's budget template from Mike Beeching at dmb55@cornell.edu

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

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 Network 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 Network 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

Network Community Partner patents and patent applications, please <u>provide one Section for each Network Partner with contributing IP]</u>

Case #	Country	App Title	Serial Number	Filing Date

4.11 Proposal Presentation

PI or team member is required to present their project to the Award Committee:
The Award Committee meets Friday, June 26 from 12:00 – 5:00 pm

- a) I plan to attend in person if such is available
- b) I plan to present virtually
- c) Myself or a team member is not able to attend

4.12 Additional Items

RESEARCH PROTECTIONS: When completing the application form you will need to elect 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.

    Note: Per this definition, Fundamental Research includes both basic and applied research. Should not be confused as being limited to basic research only.

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.

5.0 Review Process and Criteria

5.1 Initial Application Review

All applications will be evaluated for completeness and alignment to proposal requirements by Network Staff. Proposal components such as intellectual property, matching, proposal team composition, etc. Noncompliant or incomplete applications will be returned to the submitters.

5.2 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 Regional Network Executive Advisory team
- 3 Members of the Network Executive Operating Team
- 2 Ad-Hoc members from the AFRL Network Community
- 2 AFRL S&T members not affiliated with the Network
- 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, the Award Committee will determine and recommend funding candidates to the AFRL for final approval.

5.3 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 Network?

6.0 Leverage

Translating technologies into market applications typically requires funds beyond the capabilities of this funding program. We refer to these funds as leverage. Identifying all leveraged funds will benefit your proposal.

6.1 For Stage 1 Prototyping Research proposal, identification of leveraged funds is voluntary and encouraged. It can be expected to to positively factor into the proposal review process.

6.2 For Stage 2 and Stage 3 Prototyping Research proposals, please provide a description of leveraged funds equal or greater to the requested funding amount.

7.0 Post Award

Successful PI's will be notified by the Network once proposals recommended by the selection committee for funding are approved by the AFRL. For awards outside of Cornell, Network staff or representatives will initiate the subcontracting process. For awards inside of Cornell, PI's will execute the internal Memorandum of Agreement within 30 days of notification of Award. Memberships of all project participants are required to be current prior to receiving project funding.

PI's are obligated to provide project status updates upon request from the AFRL Network and participate and present, when invited, in open Network meetings while their project active.

A Final Technical Report to be submitted to the Program Manager within 30 days of completion of the project.

A Final Financial Report to be submitted to the Program Manager within 30 days of completion of the project.