



**The White House Initiative on  
Historically Black Colleges and Universities (WHIHBCU) webinar**

**Federal Funding Opportunities at the Department of Defense**

**May 26, 2016 | 1:00 PM-3:00 PM EST**



# Agenda



Webinar & DOD Presenters Overview

***Evelyn Kent, Office of the Assistant Secretary of Defense for Research and Engineering***

Departmental offices present on opportunities, programs, grants available and best practices

Army Science & Technology Overview

*Mr. Jeff Singleton Office of the Deputy Assistant Secretary of the Army for Research and Technology*

ARL-ARO Funding Opportunities for HBCU/MI Faculty and Students

*Ms. Patricia Huff, Army Research Office*

Department of the Navy's (DON)

Historically Black Colleges Universities and Minority Institutions (HBCU/MI) Programs

*Mr. Antony Smith, Office of Naval Research*

Air Force Research Laboratory

*Mr. Ed Lee, Air Force Office of Scientific Research*

Defense Threat Reduction Agency: Basic Research Broad Agency Announcement

*Mr. Robert Kehlet, Defense Threat Reduction Agency*

Missile Defense Agency Advanced Research Overview

*Mr. Matt Whitworth, Missile Defense Agency*

NGA Research

*Mr. Dennis Walker, National Geospatial-Intelligence Agency*

Grants.gov and DoD Grant Awards Website Overview

*Mr. Jerry Kelley, Logistics Management Institute*

Audience questions to the DOD panel

Rules of Engagement:

- Raise the virtual hand
- You will be acknowledged as your audio is unmuted
- Or you can chat questions for all participants (note everyone online will see your post)

Closing Remarks

*Elyse Jones, Operations and Program Specialist, WHIHBCU Office*

# Army Science & Technology



## Army Science and Technology Overview



**Jeffrey D. Singleton**  
**Director for Basic Research**

**Office of the Deputy Assistant Secretary of the Army  
for Research and Technology**

**26 May 2016**

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SOLDIERS AS THE DECISIVE EDGE



# The Army's Greatest Asset!

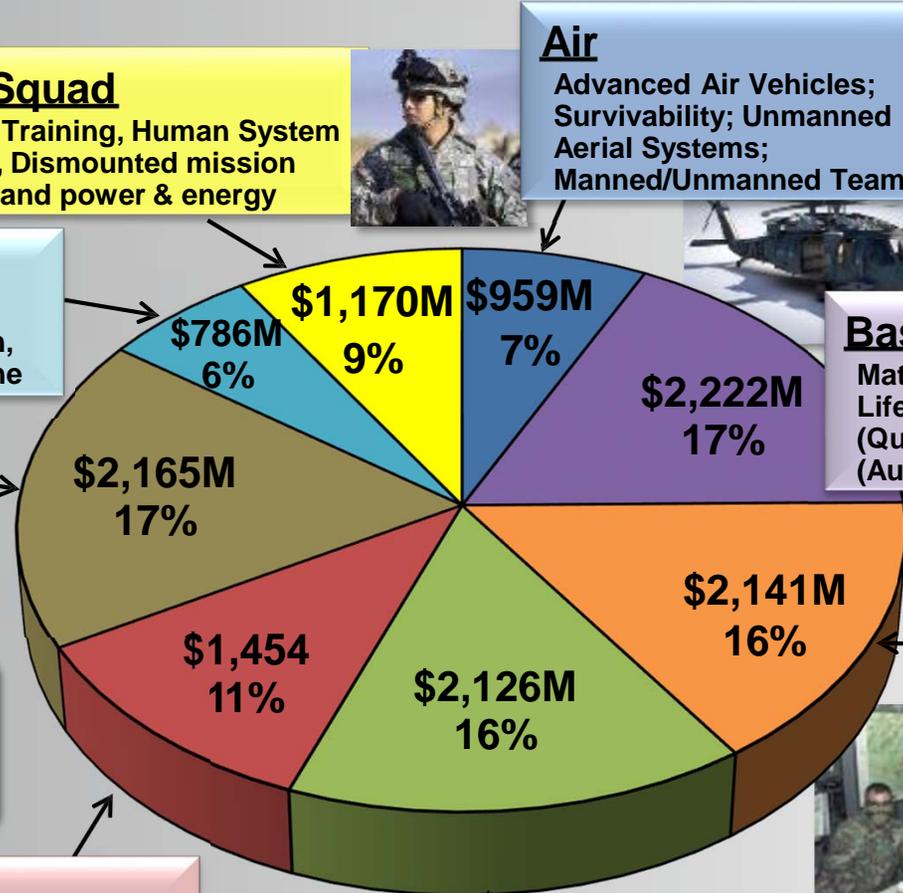


# Army Investments by Portfolio

PB17 - \$13.0B (FY17-21)



As of PB17



**Soldier/Squad**  
 Personnel, Training, Human System Integration, Dismounted mission equipment and power & energy

**Air**  
 Advanced Air Vehicles; Survivability; Unmanned Aerial Systems; Manned/Unmanned Teaming

**Medical**  
 Combat Casualty Care, Infectious Disease mitigation, clinical/rehabilitative medicine

**Basic Research**  
 Materials Science; Human (Medical, Life) Sciences; Info Sciences (Quantum, Cyber); Platforms (Autonomy, HPC)

**Innovation Enablers**  
 High Performance Computing; Environmental Protection; Base Protection; Studies; Technical Maturation Initiatives; Procurement

**C3I**  
 Assured Communications; Cyber/EW; Sensor Protection; Aircraft Survivability Equipment (ASE); Geospatial Research; Assured PNT

**Lethality**  
 Offensive/Defensive kinetic (guns, missiles), Soldier Weapons, Directed Energy (HEL) weapons

**Ground Maneuver**  
 Combat/tactical ground platforms survivability; unmanned ground systems; austere entry; power & energy; assured mobility/countermobility

Army Investments	FY17-21
BA1	\$2,222M
BA2	\$4,660M
BA3	\$4,977M
BA4	\$340M
BA7	\$309M

BA6 \$186M, Procurement \$330M



# ARL Open Campus

## Adelphi Laboratory Center

- Construct collaborative space for network and modeling research
- Expand ALC Open Campus to 3rd & 4th floors & open quantum research wing
- Enhance autonomous systems facility
- Construct Research Park (EUL)
- Integrate ALC into White Oak Science Gateway

## Aberdeen Proving Grounds

- Open admin spaces in B4600 & implement layered security measures
- Acquire buildings in close proximity to B4600
- Leverage available existing EUL facilities
- New construction of S&T Collaboration Center

- Active personnel "flow" between government, academia, small-business and industry
- New relationships producing employees, collaborators, and infusion of new ideas

Infrastructure

Expanding & Developing Partnerships

500-1000  
Academic, Other  
Government  
Agency,  
and Industry  
Partners

Attract & Retain the Best and Brightest

Innovative Practices

- Develop umbrella agreements with new partners
  - U of CA System, Princeton, Northeastern MD Tech Council, Chesapeake Science Community Corridor, and more
- Continue to leverage existing agreements
  - U of MD, MIT, CalTech, 3M, UDEL
- Establish international research centers in Tokyo, London, and Santiago to advance outreach to foreign universities
- Explore feasibility of establishing consortium wide agreements such as with DoD Ordnance Technology Consortium

- Expand participation with competitive entrepreneur programs
- Increase incubator opportunities
- Increase transition to small businesses

<http://www.arl.army.mil/opencampus/>



# Army HBCU / MI Partnership Strategy

**Congressional push for basic research entities to support the development of the STEM capabilities of covered educational institutions in carrying out section 2362 of Title 10, United States Code**

**Aligns with the Army's interest to support a high quality STEM ecosystem which includes our ability to provide products that meet the needs of our diverse workforce and is a product of diversity of thought**

**Priority 1: Target covered schools, faculty and students for inclusion in research mentoring opportunities and internships.** Promotion of mentoring opportunities between covered educational institutions and other research institutions.

*Targeting of undergraduate, graduate, and postgraduate students at covered educational institutions for inclusion into research or internship opportunities within the military department.*

**Priority 2: Develop mutually beneficial research relationships with our HBCU/MI partners** for the purposes of developing highly qualified STEM talent from diverse backgrounds.

*Inclusion of faculty of covered educational institutions into program reviews, peer reviews, and other similar activities.*

**Priority 3: Sustainable infrastructure Metrics** to enhance scientific, technical, engineering, and mathematics capabilities at covered educational institutions, including with respect to measuring progress toward increasing the success of such institutions to compete for broader research funding sources other than set-aside funds.

*Regular assessment of activities that are used to develop, maintain, and grow scientific, technical, engineering, and mathematics capabilities.*

**These are the Army's overarching priorities for our HBCU/MI investments which are geared towards improved the quality of STEM capabilities for these covered institutions that serve our nations underserved workforce talent. Each command will be responsible for developing an execution strategy with goals and objectives that collectively work to meet the Army's overall priorities for HBCU/MI investments**

**This task concentrates on contributing to the quality of research from our HBCU/MI's**



# Targeted Diversity Engagements

## Broadening the STEM Talent Pool The Army Educational Outreach Program (AEOP)

*Offer students and teachers a collaborative, cohesive, portfolio of Army-sponsored STEM programs that effectively engage, inspire, and attract the next generation of STEM talent through K-through college programs and expose them to DoD STEM careers*

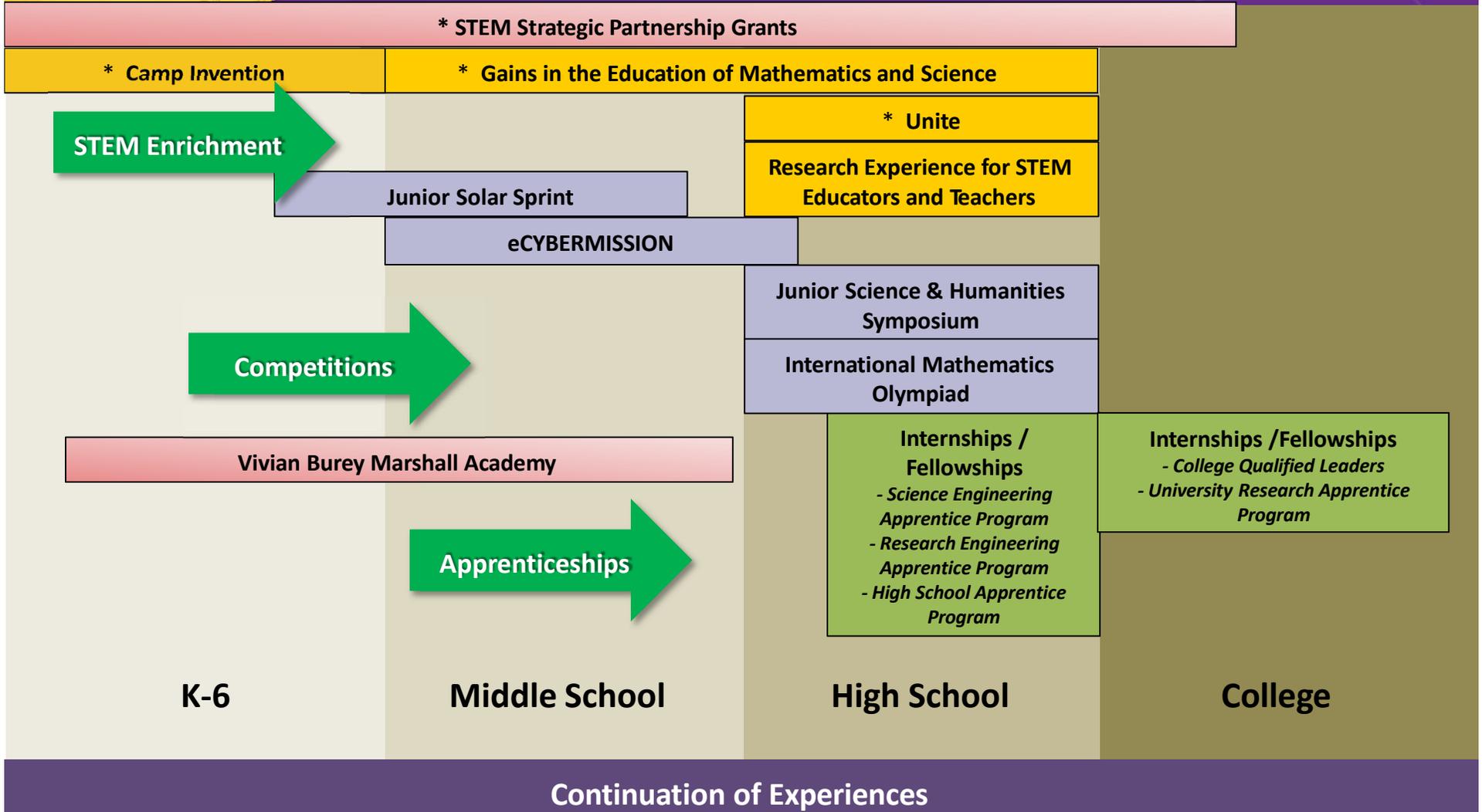


***The Army's STEM education program success is critically dependent on a strong academic and industry partnership – just as the Army's research is critically dependent on a strong relationship with the Defense Industrial Base***



# Army Educational Outreach Program Pipeline

## Mentor Centered Programs



Targeted Outreach	Unique hands-on experiences	Competitions	Internships/Fellowship	Other
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\* Identifies programs that either completely, or have a component, that specifically targets under-served populations



# Broadening the STEM Talent Pool

***“If you think about the world by jumping to conclusions, you’re going to be left behind, but if you think about the world by making observations, and then trying to figure out what that means, then you are going to be ahead of the game; you’re going to be successful because you are always going to be thinking about what something means and not listening to what other people tell you it means. That’s what science is about, that’s where discoveries come from”.***

-COL Steven Edward Braverman, M.D., Commander for the Walter Reed Army Institute of Research, Silver Spring, MD, speaks to GEMS students in a week long STEM experience at WRAIR



Immerging innovators with their Near-Peer mentors at the WRAIR. From left to right: Morganne Kelliebrew, Malik Kbrue, Michael Melton, Myles Thomas-Bangor, Dr. Debra Yourick, Director Science Education; Patricia Story, Medical Illustrator; and Jason Carey.

## STEM Strategic Partnership Grants

AEOP offers strategic partnership grants to engage and support like minded partners serving diverse communities. These grants, uniquely based on community needs and capabilities, provides funding, support, and mentorship, to engage students from underserved populations in existing AOEP initiatives.

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**ARL**

# ARL-ARO

## Funding Opportunities for HBCU/MI Faculty and Students

26 May 2016  
Information Webinar

**Ms. Patricia Huff**

HBCU/MI Program Manager, Tech Integration & Outreach  
Army Research Laboratory - Army Research Office  
Patricia.A.Huff26.civ@mail.mil, 919-549-4283



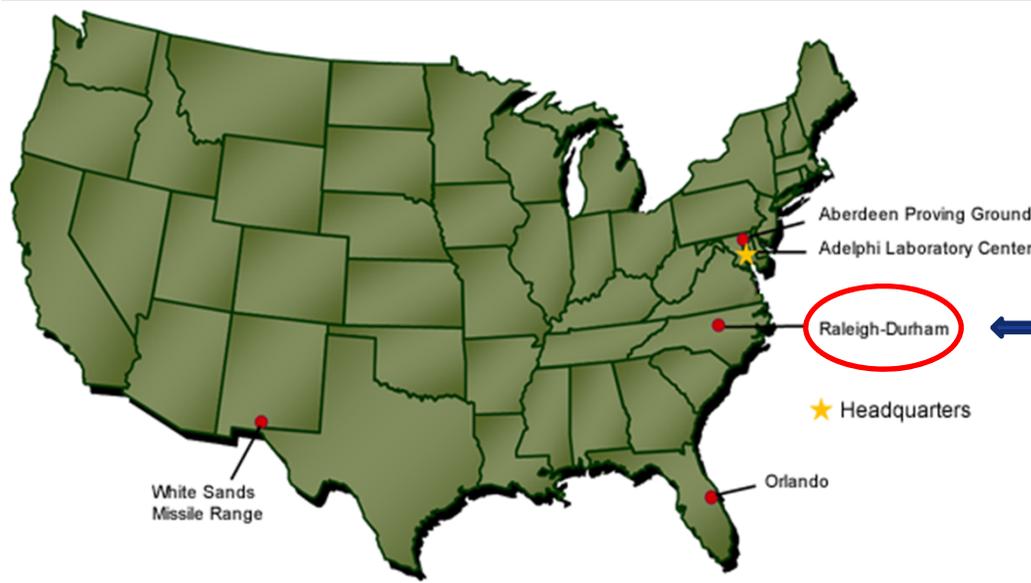
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ARL's Army Research Office



***The U.S. Army Research Laboratory (ARL) provides the underpinning Science, Technology, and Analysis to the Army; The Army Research Office (ARO) is ARL's Principal Conduit to Engage the University Research Community***

***ARO's Mission:*** To serve as the Army's premier extramural **basic research** agency in the engineering, physical, information and life sciences; developing and exploiting innovative advances to insure the Nation's technological superiority.



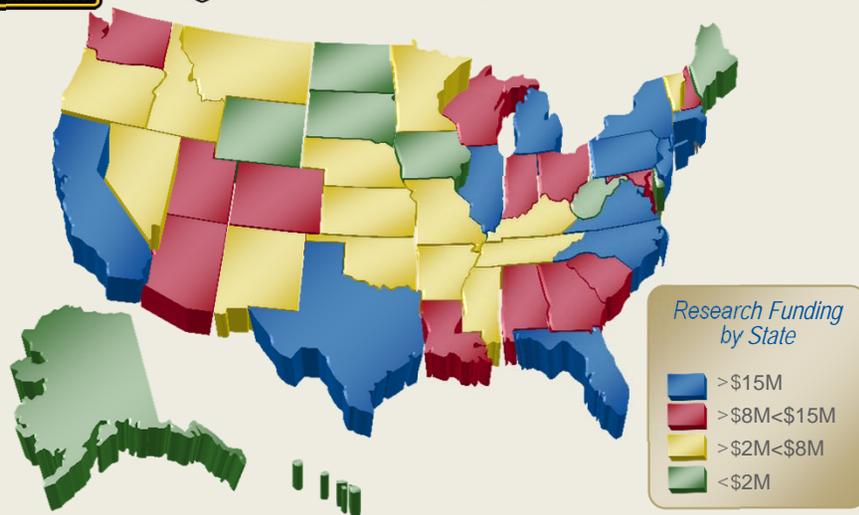
**Non-medically oriented high-risk, high-payoff, basic research with 10+ year outlook to potential applications**

**~100 employees at RTP, NC  
40 PhD Program Managers**



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# ARO Strategy



- 270+ Institutes of Higher Learning
- 1121 Individual Investigators
- 47 Research Centers



Utilize the vast intellectual capital of the world's universities to:

- Conceive of and exploit scientific opportunities for **unimagined** Army capabilities
- **Drive science** to develop solutions to existing Army technology needs
- Accelerate the transition of basic research
- Leverage S&T
- Create and strengthen university, industry, and government partnerships
- Prevent technological surprise
- **Provide unbiased expert assessments**
- **Educate and train the future S&E workforce for the Army and DoD**



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# University Basic Research Instruments



## MURI

The Multidisciplinary University Research Initiative (MURI) Program supports university teams whose research efforts intersect more than one traditional science and engineering discipline.

- ~\$1.25M per year
- 3-5 year period
- 8 new initiatives annually
- Separate Annual BAA ~June

## CTA/CRA

The Collaborative Technology Alliances (CTAs) and Collaborative Research Alliances (CRAs) are partnerships established between consortia of academic and industrial concerns working collaboratively with ARL in an alliance.

- \$5 – 8M range
- 8 – 10 years in duration
- Consortia of academic and industrial concerns

## DURIP

The Defense University Research Instrumentation Program (DURIP) funds instrumentation/equipment to support research in areas relevant to Army, Navy or Air Force.

- \$50K - \$1.5M
- One-time award; 1 year in duration
- Separate Annual BAA ~June

## OSD / DoD REP

The OSD / DoD Research and Educational Program for HBCU/MIs supports research, STEM students, and instrumentation in basic research areas relevant to interests of ARO, ONR, and AFOSR. Scope of program varies year to year.

- Award values based on scope of BAA
- BAA issued annually in the Fall
- Funded & managed by OASD(R&E); administered by ARO

## SI

The ARL Single Investigator (SI) Program entails grants with one or two faculty and graduate students and / or postdocs.

- ~\$125K/yr for 3-5 yr periods
- ARO Core BAA Solicitation
- ~120 new grants / year
- All States, >240 Universities

## SBIR / STTR

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs were established by Congress to provide small businesses and research institutions with opportunities to participate in government-sponsored research and development.

- Periodic Solicitations Throughout Year
- Phase I and Phase II efforts
- [www.armysbir.com](http://www.armysbir.com) for more information

## UARC

University Affiliated Research Centers (UARCs) are large centers associated with the U.S. Army

- 3 centers
- 5 year efforts
- ~\$5 – 10M per year
- No new UARCs anticipated

## HBCU/MI ARO Core Grants

This program supports STEM initiatives at HBCU/MIs through building infrastructure, instrumentation, scholarships, fellowships, and technical assistance programs.

- Topics from ARO BAA
- ~\$120K/yr for 3 year periods

## Partnered Research Initiative (PRI)

Follow-on of the Partnership in Research Transition Program (PIRT) that ends in 2016.

- New Program in FY17. Currently open & accepting whitepapers; closes June 8, 2016
- ~\$500K per year; 3 yr base/1 yr option
- Whitepapers submitted to ARL Cooperative Alliance Managers (CAM) identified for 6 ARL CRAs
- PRI will fund HBCU/MIs via collaboration through the ARL CTA/CRAs
- Posted on FedBizOpps.gov & ARL CTA website

## STIR

The objectives of the Short Term Innovative Research (STIR) program are to provide rapid, short-term investigations to assess the merit of innovative concepts in basic research.

- \$50K Limit
- Short-term, proof-of-principle research
- Part of ARO
- Core BAA Solicitation





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# Resources



## For Army Research Office and Army Research Lab HBCU/MI and Core funding grant opportunities:

- <http://www.arl.army.mil/www/default.cfm?page=8>

## For Information on the Partnered Research Initiative (PRI) Program:

- Open: April 12, 2016 / Close: June 8, 2016 (4 p.m. Eastern)
- Announcement seeks whitepapers expressing an interest in participating in highly collaborative research opportunities w/major ARL collaborative research program.
- There are six ARL collaborative research programs identified as part of this opportunity: Robotics; Cognition & Neuroergonomics; Network Science; Cyber Security; Multiscale Modeling of Electronic Materials; and Materials in Extreme Dynamic Environments
- <http://www.arl.army.mil/www/default.cfm?page=2888>

## For information on the Army Educational Outreach Program (AEOP):

- The AEOP is comprised of Army-sponsored research, education, competitions, internships and practical experiences designed to engage and guide students/teachers in technology, engineering and Mathematics (STEM)
- <http://www.usaeop.com>





## Helpful Websites

- [FedBizOpps.gov](https://www.fedbizopps.gov)
- PRI announcement:  
<https://www.arl.army.mil/www/default.cfm?page=2888>
- Open ARL/ARO BAAs:  
<https://www.arl.army.mil/www/default.cfm?page=8>
- <http://www.arl.army.mil/>
- [www.sbir.gov/about/about-sttr](http://www.sbir.gov/about/about-sttr)
- [www.grants.gov](http://www.grants.gov)





Department of the Navy's (DON)  
Historically Black Colleges  
Universities and Minority  
Institutions (HBCU/MI) Program

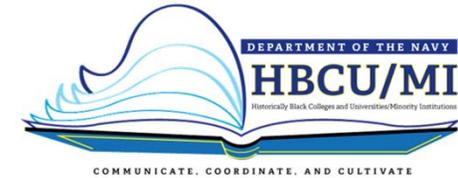
Mr. Anthony C. Smith, Sr.  
Director/Program Manager

Distribution Statement A: Approved for public release

O F F I C E O F N A V A L R E S E A R C H



# SUMMER FACULTY RESEARCH PROGRAM



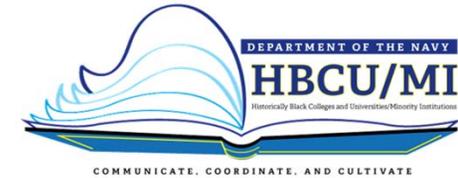
- Provides science and engineering faculty members from institutions of higher education the opportunity to participate in research of mutual interest to the faculty member and peers at U.S. Navy Laboratories for a 10-week period.
- Three levels of appointment are Summer Faculty Fellow, Senior Summer Faculty Fellow and Distinguished Summer Faculty Fellow.
- Stipends range from \$1,400 to \$1,900 per week for the summer program.





# SABBATICAL LEAVE PROGRAM

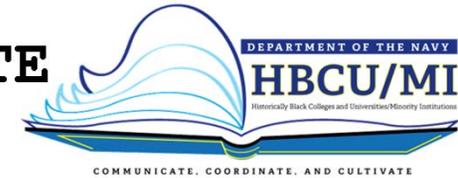
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- Provides fellowship appointments to science and engineering faculty members from institutions of higher education to participate in research of mutual interest to the faculty member and peers at U.S. Navy Laboratories for a minimum of one semester to a maximum of one year.
- Receive a monthly stipend making up the difference between salary and sabbatical leave pay from their home institution. Relocation and travel assistance are provided to qualifying participants.



# NRL HBCU/MI UNDERGRADUATE INTERNSHIP PROGRAM



- This 10-week intern program is designed to provide opportunities for undergraduate students at HBCU/MIs to participate in research, under the guidance of an appropriate research mentor, at the Naval Research Lab.
- Interns receive a stipend of \$550.00 per week for the 10-week program (\$5,500.00 total), housing and a travel allowance of up to \$600.00.

*Naomi Delgado Cruz, Senior,  
Mechanical Engineering,  
The Polytechnic University of  
Puerto Rico*



*Derick Buckles, Senior,  
Physics Major,  
Morgan State University*



# NAVY HBCU/MI FACULTY START-UP PROGRAM



- Provides start-up funding for new, untenured faculty members whose teaching and research impact Department of Defense (DoD) needs in materials science/engineering.
- Each grant (\$200,000 for doctoral/master's institutions; \$100,000 for primarily undergraduate institutions) can be spent over a two year time period.
- *Program Sponsored by: ONR Division 332, Naval Materials*



# Air Force Research Laboratory



***Integrity ★ Service ★ Excellence***

## **White House Initiative on Historically Black Colleges/Universities (Webinar)**

**May 26, 2016**

**Mr. Edward J. Lee  
edward.lee@us.af.mil  
Program Coordinator**

**Air Force Office of Scientific  
Research**



# Air Force Research Laboratory



**Assistant Secretary of the Air Force (Acquisition)**



**Air Force Materiel Command (AFMC)**



**Space Vehicles (RV)**



**Information (RI)**



**Munitions (RW)**



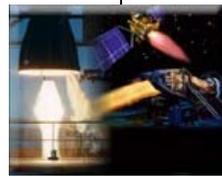
**Directed Energy (RW)**



**Materials & Manufacturing (RX)**



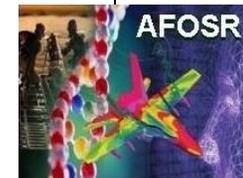
**Sensors (RY)**



**Aerospace Systems (RQ)**



**711th Human Performance Wing (711 HPW)**



**Air Force Office of Scientific Research (AFOSR)**



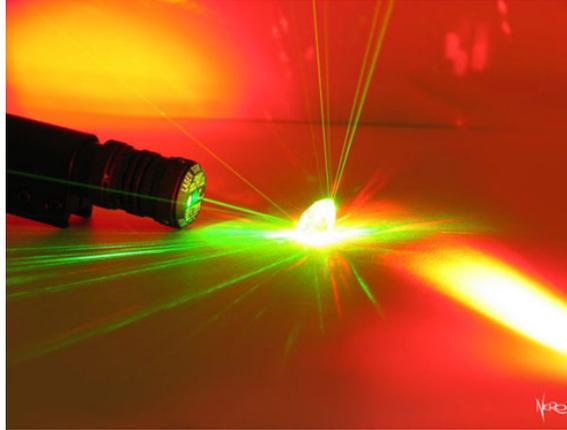
# Basic vs Applied vs Advanced

## Basic Research



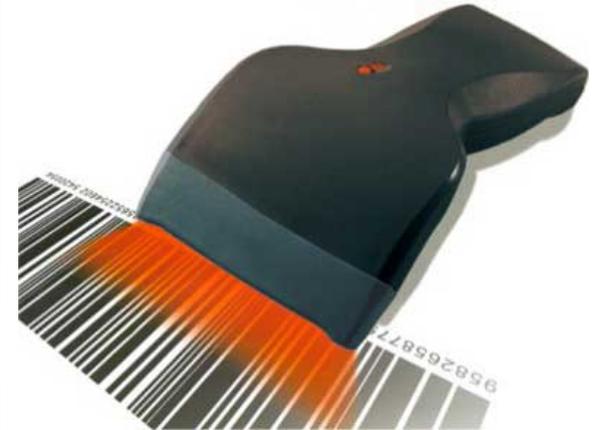
- Systematic study directed toward greater knowledge or understanding
- Fundamental aspects of phenomena
- Not aimed at specific applications towards processes or products

## Applied Research



- Systematic inquiry involving the practical application of science
- Accesses and uses accumulated theories, knowledge, methods, and techniques, for a specific, often state-, business-, or client-driven purpose.

## Advanced Technology



- Development and integration of hardware for field experiments and tests
- Direct relevance to identified military needs
- System specific
- Used to demonstrate general military utility or cost reduction potential



# HBCU/MI and YIP Programs



- **Historically Black Colleges & Universities and Minority Institutions (HBCU/MI) Program**
  - Provides grants for research and instrumentation at HBCU/MIs
  - 22 grants awarded at \$2.0M in FY09 and \$2.5M in FY10, FY11 and FY12
    - \$3.7M in 2013 (26 projects supported)
    - \$3.8M in 2014 (30 projects supported)
    - \$4.5M in 2015 (30 projects supported)
    - \$4.5M in 2016 (33 projects supported)
- **Young Investigators Program (YIP)**
  - Enhances early career development for outstanding young investigators
  - Must have received PhD in the last five years
  - \$120K per year for 3 years (up to 5)
  - 57 grants awarded at \$16.6M in FY15
  - 59 grants awarded at \$21.7M in FY16
  - 50 grants are being projected at \$18M in FY17 (closes 1 Jun 16)

# DEFENSE THREAT REDUCTION AGENCY

## Basic Research Broad Agency Announcement

*Webinar Briefing to Potential Applicants*

**May 26th, 2016**

***Robert A. Kehlet***

*Research and Development Directorate*

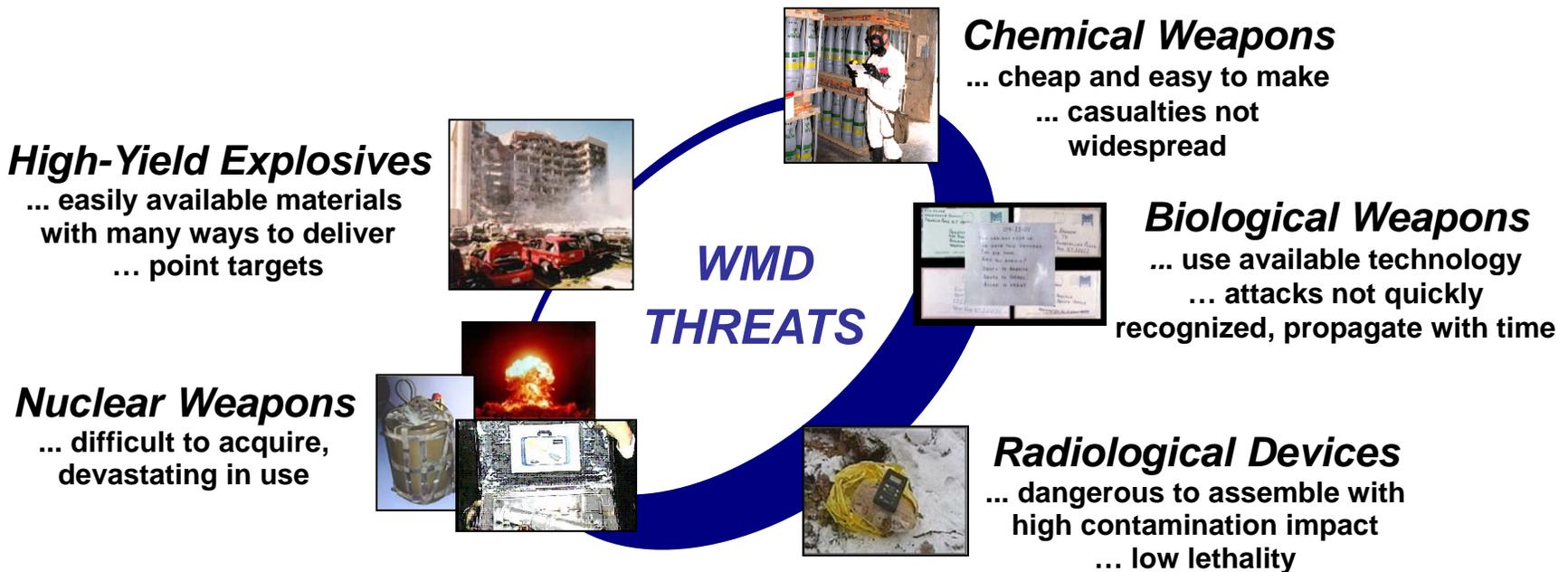
*Defense Threat Reduction Agency & USSTRATCOM  
Center for Combating WMD & Standing Joint Force  
Headquarters-Elimination*





# DTRA Mission

DTRA safeguards the United States and its Allies from Weapons of Mass Destruction (WMD) by providing capabilities to reduce, eliminate, and counter the threat and mitigate its effects.



**Providing Solutions Across the Full Spectrum of Combating WMD**



# Basic Research Thrust Areas

1. **Science of WMD Sensing and Recognition** - Generation of information that provides knowledge of the presence, identity, and/or quantity of material or energy in the environment that may be significant.
2. **Network Sciences** - Convergence of computer, information, mathematical, natural, and social science, including social networks and prediction of adversarial intent to employ WMD.
3. **Science for Protection** - Knowledge to protect life and life-sustaining resources including threat containment, decontamination, threat filtering, and shielding of systems.
4. **Science to Defeat WMD** - Phenomena that improves success of defeat actions (use of weapons) including explosives, accessing target WMDs such as bio agents and weapon modeling.
5. **Science to Secure WMD** - Environmentally responsible processes to secure, neutralize and control WMD and disrupt proliferation pathways.



# Award Value\* & Upcoming Events

- Single Scope:
  - Average \$150K/year for 3 yrs + up to 2 option yrs
- Multidisciplinary:
  - Average \$350K/year for 3 yrs + up to 2 option yrs
- Young Investigator Programs:
  - Average \$100K/year for 3 yrs + up to 2 option yrs
- Annual Technical Review Week of July 18, 2016
  - [www.dtrareviews.com](http://www.dtrareviews.com)
- **NEXT BAA WINDOW: December 2016**

*\*All values are TOTAL (direct and indirect) grant values*



# Mistakes to Avoid

- Waiting until the last minute
  - We do not accept late proposals
- Applying to the wrong announcement
  - Universities must apply to the BR-BAA through Grants.gov
  - BR-BAA = Basic Research – open once per year, topic driven
  - Service Call – not for Universities!
- Using the wrong package to submit
  - Please use care to use the package specific to the topic you are applying
  - Do not use the “Example Package”
- Incorrect contact information
- Not following the topic guidelines (\$)
- Not adequately covering C-WMD relevance



# *Missile Defense Agency Advanced Research Overview*

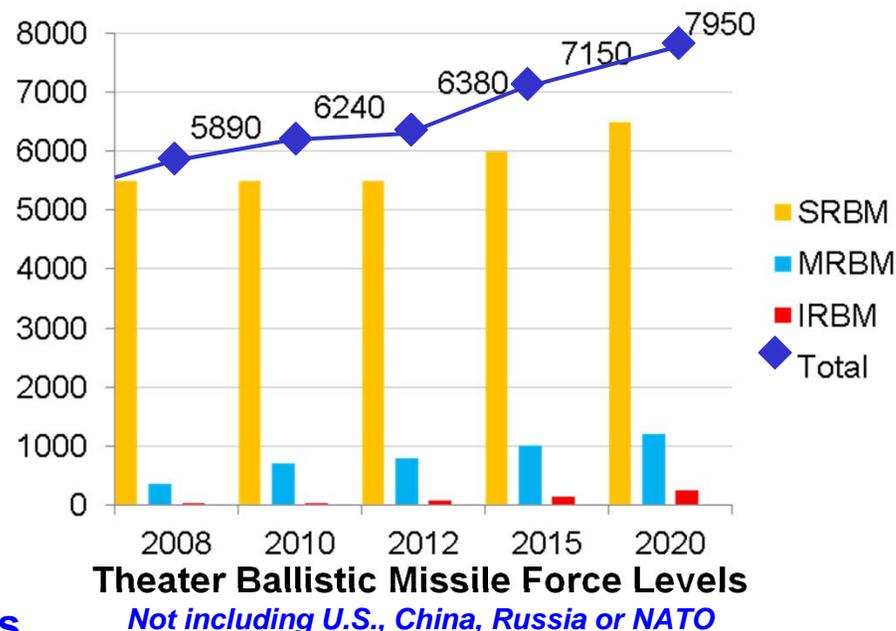
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Approved for Public Release  
16-MDA-8596 (9 March 16)



# The Increasing Ballistic Missile Threat

- Increasing theater threat capabilities
  - Accuracy & Range
  - North Korea developing new IRBM
- Developing ICBM threat
  - North Korea developing KN-08 ICBM
  - Iran may be technically capable of flight-testing an ICBM by 2015
  - Space Launch Vehicles (SLV) could serve as a test beds for ICBM technologies
- Challenging Missile Defense
  - Maneuver / Salvo firings / Countermeasures



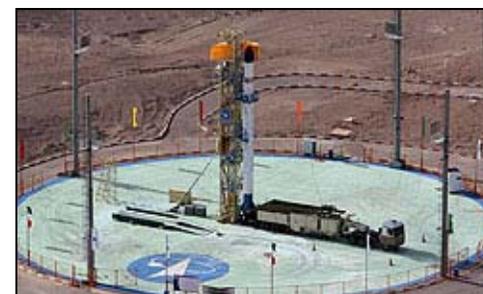
**North Korean KN-08 ICBM Launcher on Parade, 2012**



**North Korean Mobile IRBM on Parade, 2010**



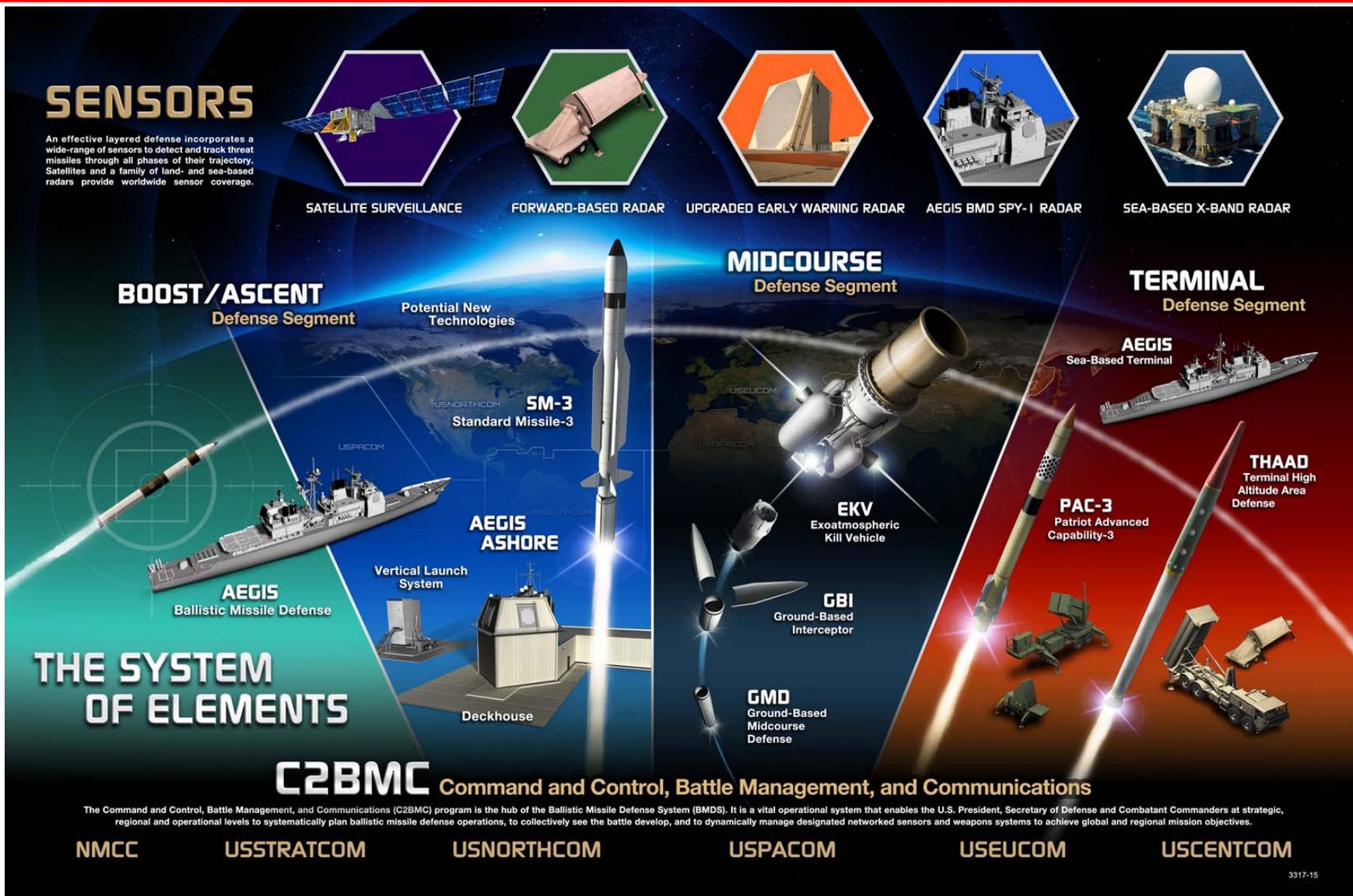
**NK Taepo Dong-2 SLV Launch, 2012**



**Iranian Safir SLV on Launch Pad, 2011**



# Today's Ballistic Missile Defense System





# Representative Technology Topics

## Space and Sensor Technology



**Advanced Cognition Processing and Algorithms for Improved Identification**

**System Communications**

**Command and Control Human-to Machine Interface**

**Improved Track Accuracy for Missile Engagements**

**Open Framework Planner with Embedded Training**

**Improvements in Spacecraft Manufacturing Efficiency**

**Innovative Antenna Arrays Enabling Continuous Interceptor Communications**

## Directed Energy Technology



**Power Sources and Thermal Management for High Energy Lasers**

**High Power Optical Fibers**

**Quick Recovery High Energy Diodes**

**Ultra low SWaP Diode Pump Modules**

**Large Stroke, High Spatial Bandwidth, Deformable Mirrors**

**Light Weight, Dampened Optical Benches**

**Optics & Coatings for Alkali Environments**

## Interceptor Technology



**Interceptor Thermal Protection Systems**

**Lethality Enhancements**

**Multi-Object Payload Deployment**

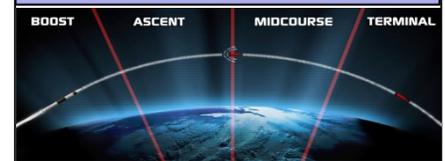
**Advanced Reserve Battery Technologies**

**MENS IMU Solutions for Missile Defense Applications**

**Lithium Oxyhalide Battery Separator Material**

**High Temperature Material Manufacturing Improvements**

## Future BMDs Concept Development



**Expand Digital, Constructive, and HWIL Tools**

**Aerospace Vehicle Target Tracking and Discrimination**

**Radar Interferometric Processing for EMG**

**Radiation Hardened Mirror & Focal Plane Array Technology**

**Low Light Short Wave Infrared Focal Plane Arrays**

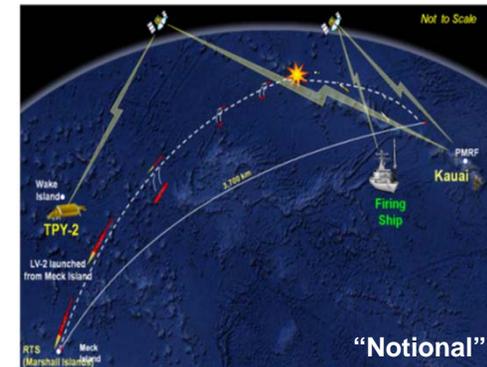
**Innovative Ways to Shorten System Level Simulation Integration Time**



# University Engagement / Domestic

## • Technical Objectives

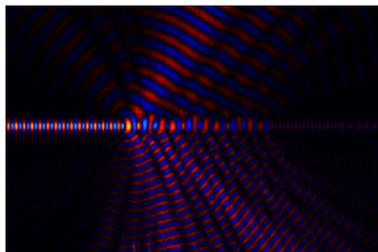
- Fund relevant, advanced research and development at domestic universities and academic institutions
- Exploit breakthroughs in science to offer robust technical improvements to BMDS
- Build portfolio of revolutionary technology to support and enhance BMDS
- Develop holistic partnerships
- Educate future scientists and engineers



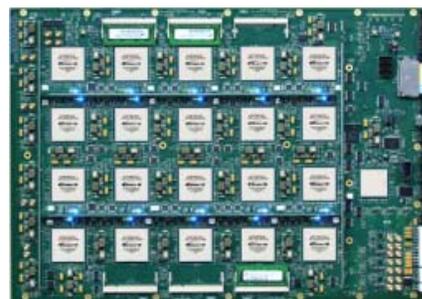
Data Fusion and Tracking Algorithms



Advanced Command and Control Algorithms



Optical Signal Processor Technology



Field Programmable Gate Array Technology



High Energy Laser Technology



Propulsion Technology



# BAA Programs

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- **Missile Defense Science & Technology Advanced Research**
  - Open continuously for proposals from universities
    - Broad Agency Announcement (<http://www.fbo.gov>)
  - Research topics revised annually
  - MDA is seeking strategic alliances with universities
  - Two year base period with one year option
    - Base period \$400,000
    - Option year \$200,000
- **Advanced Technology Innovation Broad Agency Announcement**
  - Open continuously to university and commercial vendors
  - Contract value not limited
  - Link: [http://www.mda.mil/business/advanced\\_research.html](http://www.mda.mil/business/advanced_research.html)



## BAA: Source Selection

---

- **MDA receives white paper**
- **Evaluation team evaluates and makes recommendations for award based on a peer or scientific review process IAW with FAR 35.016(d) and (e)**
- **Technical evaluator(s) uses criteria IAW the BAA to score white paper**
  - Technical merit
  - Capabilities
  - Management
- **BAA Selection Official makes selections based on the evaluation criteria IAW the BAA, MDA funding and technology priorities**



## For More Information

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[www.mda.mil](http://www.mda.mil)

- **Missile Defense News, Images, Videos, Fact Sheets**
- **BMDs Overview, BMD Basics**
- **MDA Business Opportunities**  
([http://www.mda.mil/business/advanced\\_research.html](http://www.mda.mil/business/advanced_research.html))
- **DoD SBIR/STTR website:** <https://sbir.defensebusiness.org>
- **SBA SBIR/STTR website:** <https://www.sbir.gov>

### [To Contact MDA](#)

- **SBIR / STTR**            [256-955-2020](tel:256-955-2020) [sbirsttr@mda.mil](mailto:sbirsttr@mda.mil)
- **University / BAA**    [256-450-3800](tel:256-450-3800) [Advanced Research@mda.mil](mailto:Advanced_Research@mda.mil)
- **Commercialization** [256-450-5343](tel:256-450-5343) [SBIR-PhaseIII@mda.mil](mailto:SBIR-PhaseIII@mda.mil)

NGA | RESEARCH DIRECTORATE

## NGA RESEARCH

Dennis T. Walker

May 26, 2016



**NGA**  
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

## NGA Academic Research Program

**Function:** Serve as NGA Research's primary interface with the academic community

**Mission:** Engage academia and non-profit research organizations to discover emerging science and technology that will enhance and transform Geospatial Intelligence

Transition in Progress – Possibly new focus and direction for the Broad Agency Announcement



**NGA**  
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

## Academic Research Program



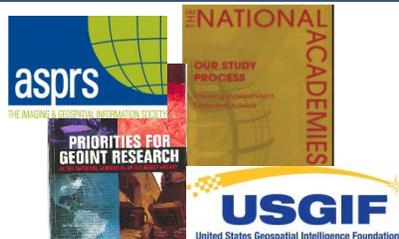
- **Access to innovative, high-payoff, path-breaking research** from leading universities through a flexible Broad Agency Announcement (BAA) that can adapt to new research priorities
- **Program Elements:** NGA University Research Initiative (NURI), Historically Black Colleges and Universities/Minority-serving Institutions, Science, Technology, Engineering, and Mathematics (STEM), IC Postdoctoral Fellowships, New Investigator, *Collaborative Research Forums*, workshops, and symposia
- **Research Areas:** remote sensing, compressive sensing, spatio-temporal data analysis, human geography, predictive modeling, GEOINT focused curricula

## Visiting Scientist Program



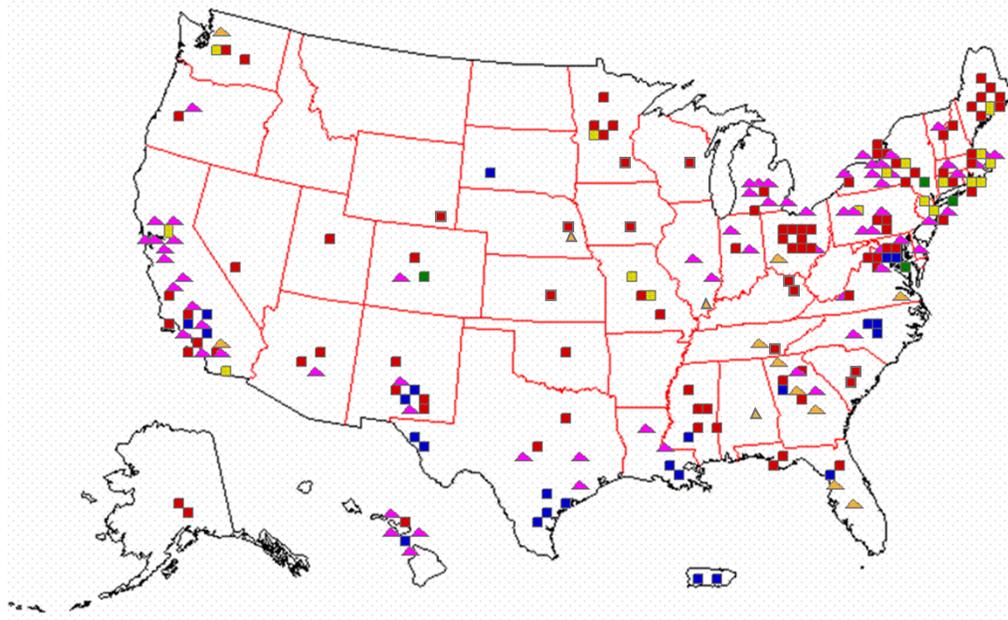
- **Deepening Partnership with Academia** by bringing in top-notch scientists for a 1-2 year period to work side-by-side with NGA staff scientists; Focused on NGA Research investment areas; 36 participants to date – 12 have joined the government to continue research
- **Research Areas:** sensor modeling, spatio-temporal data analysis, gravity modeling, spectral tools, OPIR sensors, atmospheric modeling

## Outreach to Professional Organizations



- **Working with the National Academy of Sciences and Professional Organizations** to develop studies and workshops focused on new GEOINT research directions and future science and technology workforce skills

# Nationwide Collaboration



NGA Academic Partnerships *Explore and Innovate* the best-of-breed multi-disciplinary science and technology innovations to impact current and future GEOINT science, tradecraft, capabilities, and acquisition

➤ **NGA Academic Research Program**

- 37 active research grants with total value over \$12.9M

➤ **NGA Visiting Scientist Program**

- 37 participants to date, 7 active, 12 participants hired by Government

➤ **U.S. Service Academies**

- Over 1,600 cadets received GIS training
- 27 cadet interns at NGA



# What is NGA Research?

OUR RESEARCH is organized around a number of focused research areas. A research area has a clearly defined span in terms of science and technology, and the potential to be the source of powerful new NGA capabilities. Within each research area, we will:

- become the trusted partner that knows the current and anticipated state of the art, anywhere;
- **know the research investments that are being made globally in industry, academia and governments;**
- understand our NGA customers' planned future needs;
- identify potential powerful new capabilities for NGA, and the research strategies required to fully explore them;
- ensure rigor in our analyses, plans, execution, test and evaluation;
- support transition to practice of the best technologies, from all sources;
- maintain awareness of the relevant deployed capabilities of other countries.

<b>07</b>	
<u>Research Areas</u>	
<b>Automation</b>	<b>Radar</b>
<b>Spectral</b>	<b>Geophysics</b>
<b>Geospatial Cyber</b>	<b><u>Environment &amp; Culture</u></b>
<b>Geospatial Cyber</b>	<b>Anticipatory Analytics</b>



### Mission Emphasis Areas

- Research
- Information systems/open IT/data sciences
- Analytics and analytical capabilities
- Workforce strategy/modernization

### Application Protocols

- Every 2 years, Fiscal year Q4

### Submissions & Evaluations

- Fiscal year Q2
- Evaluations and assessment by subject matter experts of core knowledge units and GS specialty areas

### Designation Announcements

- Fiscal year Q3
- Initiate follow-on meetings with professors and orientation at NGA HQ in Springfield, VA

## Benefits: CAE-designated institutions

- Access to subject matter experts with insights about research ideas, expertise for GS/GEOINT events, and alignment of curricula with real-world challenges
- Expanded networks across NGA, IC and DoD, including access to hiring possibilities and internships
- Use of NGA/USGS logos

---

### NGA Senior Executive for Academic Outreach (SEAO) and STEM

Lenora Peters Gant, Ph.D.  
571-557-0120  
Lenora.P.Gant@nga.mil

Alicia Bynum-Bryant  
571-557-2583

Application information:  
571-557-4667 or 571-557-9643

For more information, visit:  
[www.nga.mil](http://www.nga.mil) or [www.usgs.gov](http://www.usgs.gov)



## Centers of Academic Excellence (CAE) for Geospatial Sciences (GS)

## Contact Information

- **NGA Academic Research Program (NARP):**
  - E-mail: [narppo@nga.mil](mailto:narppo@nga.mil)
  - [www.nga.mil/narp](http://www.nga.mil/narp)
- **Broad Agency Announcements:**
  - “Business Opportunities” on [www.nga.mil](http://www.nga.mil) and [www.fbo.gov](http://www.fbo.gov) (FedBizOpps)
  - “Research Grants Opportunities” on [www.grants.gov](http://www.grants.gov)
- **NGA Visiting Scientist Program:**
  - [www.ORAU.org/Maryland](http://www.ORAU.org/Maryland)
  - [www.pcrecruiter.net](http://www.pcrecruiter.net) (Select Company → ‘NGA’ and Search)
  - Opportunities throughout the year



**NGA**  
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY



**NGA**  
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

NGA.mil  
A row of six circular icons: Twitter, Facebook, YouTube, LinkedIn, Google+, and a generic profile icon.



**Grants.gov and DoD Grant  
Awards Website Overview  
for  
Historically Black Colleges  
and Universities  
May 26, 2016**



# Grants.gov

<http://www.grants.gov>



- All DoD Competitive Grant and Cooperative Agreement funding opportunities are posted on Grants.gov

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GRANTS.GOV > Search Grants

## SEARCH GRANTS

BASIC SEARCH CRITERIA:

Keyword(s):

Funding Opportunity Number:

CFDA:

SEARCH

OPPORTUNITY STATUS:

Posted (138)

Closed (49)

Archived (1,483)

FUNDING INSTRUMENT TYPE:

All Funding Instruments

Cooperative Agreement (112)

Grant (122)

Other (16)

Procurement Contract (43)

ELIGIBILITY:

All Eligibilities

For profit organizations other than small businesses (4)

Independent school districts (1)

Individuals (1)

CATEGORY:

All Categories

Business and Commerce (2)

Education (1)

Environment (5)

Health (2)

AGENCY:

All Agencies

All Agency for International Development (71)

All Corporation for National and Community Service (3)

All Department of Agriculture (52)

All Department of Commerce (20)

All Department of Defense (138)

AGENCY: [X] All Department of Defense

Search Tips | Export Results

SORT BY: Posted Date (Descending) Update Sort

DATE RANGE: All Available Update Date Range

1 - 25 OF 138 MATCHING RESULTS: < Previous 1 2 3 4 5 6 Next >

Funding Opportunity Number	Opportunity Title	Agency	Posted Date	Close Date
W81XWH-16-DMDRP-CDA	Duchenne Muscular Dystrophy Career Development Award	Dept. of the Army -- USAMRAA	05/23/2016	10/19/2016
W81XWH-16-LCRP-CA	Lung Cancer Concept Award	Dept. of the Army -- USAMRAA	05/23/2016	08/11/2016
W81XWH-16-DMDRP-IIRA	Duchenne Muscular Dystrophy Investigator-Initiated Research Award	Dept. of the Army -- USAMRAA	05/23/2016	10/19/2016
NWO-CESU-08	Population Monitoring of Arctic Foxes on Shemya Island, Alaska	Omaha District	05/18/2016	06/18/2016
NWO-CESU-07	WAKE ISLAND RATTUS EXULANS/HERMIT CRAB	Omaha District	05/18/2016	06/18/2016
USAFA-FOA-2016-2	Department of Defense Science, Technology, Engineering & Mathematics Outreach	Air Force Academy	05/16/2016	08/08/2016
W81XWH-16-PHTBIRP-CR3A	DoD Psychological Health/Traumatic Brain Injury Cognitive Resilience and Readiness Research Award	Dept. of the Army -- USAMRAA	05/13/2016	09/07/2016
W81XWH-16-GWIRP-CPA	DoD Gulf War Illness Clinical Partnership Award	Dept. of the Army -- USAMRAA	05/13/2016	10/20/2016
W81XWH-16-SCIRP-CTA	DoD Spinal Cord Injury Clinical Trial Award	Dept. of the Army -- USAMRAA	05/13/2016	09/21/2016
W81XWH-16-SCIRP-TRA	DoD Spinal Cord Injury Translational Award	Dept. of the Army -- USAMRAA	05/13/2016	09/21/2016
W81XWH-16-SCIRP-QRA	DoD Spinal Cord Injury Qualitative Award	Dept. of the Army -- USAMRAA	05/13/2016	09/21/2016
W81XWH-16-SCIRP-IIRA	DoD Spinal Cord Injury Investigator-Initiated	Dept. of the Army -- USAMRAA	05/13/2016	09/21/2016
CECT-NWO-CA-FY16	OMAHA DISTRICT SIKES ACT FY 16 COOPERATIVE AGREEMENT (S)	Omaha District	05/13/2016	06/13/2016
W81XWH-16-GWIRP-NIA	DoD Gulf War Illness New Investigator Award	Dept. of the Army -- USAMRAA	05/13/2016	10/20/2016
W81XWH-16-GWIRP-GWIERA	DoD Gulf War Illness Epidemiology Research Award	Dept. of the Army -- USAMRAA	05/13/2016	10/20/2016
W81XWH-16-GWIRP-TEA	DoD Gulf War Illness Treatment Evaluation Award	Dept. of the Army -- USAMRAA	05/13/2016	10/20/2016
W81XWH-16-GWIRP-IIRFA	DoD Gulf War Illness Investigator-Initiated Focused Research Award	Dept. of the Army -- USAMRAA	05/13/2016	10/20/2016
NWO-CESU-06	Migratory Bird Surveys on the Joliet Training Area LTA	Omaha District	05/13/2016	06/13/2016
CESU-NWO-05	ARCHAEOLOGICAL SURVEY FOR TIMBER HARVEST AT FT DRUM, NY.	Omaha District	05/13/2016	06/13/2016
DARPA-BAA-16-39	TRAnsformative DESign (TRADES)	DARPA - Defense Sciences Office	05/11/2016	07/26/2016



# Grants.gov

<http://www.grants.gov>



GRANTS.GOV > Search Grants

## VIEW GRANT OPPORTUNITY



FOA-AFRL-RQKP-2016-0001  
 Collaborative Center for Multidisciplinary Sciences Program  
 Department of Defense  
 Air Force -- Research Lab

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**SYNOPSIS**

VERSION HISTORY

RELATED DOCUMENTS

PACKAGE

[Print Synopsis Details](#)

The synopsis for this grant opportunity is detailed below, following this paragraph. This synopsis contains all of the updates to this document that have been posted as of 4/28/2016. If updates have been made to the opportunity synopsis, update information is provided below the synopsis.

If you would like to receive notifications of changes to the grant opportunity click [send me change notification emails](#). The only thing you need to provide for this service is your email address. No other information is requested.

*Any inconsistency between the original printed document and the disk or electronic document shall be resolved by giving precedence to the printed document.*

### General Information

<b>Document Type:</b> Grants Notice	<b>Posted Date:</b> Apr 28, 2016
<b>Funding Opportunity Number:</b> FOA-AFRL-RQKP-2016-0001	<b>Last Updated Date:</b> May 04, 2016
<b>Funding Opportunity Title:</b> Collaborative Center for Multidisciplinary Sciences Program	<b>Original Closing Date for Applications:</b> May 30, 2016
<b>Opportunity Category:</b> Discretionary	<b>Current Closing Date for Applications:</b> Jun 10, 2016
<b>Opportunity Category Explanation:</b>	<b>Archive Date:</b> Jun 29, 2016
<b>Funding Instrument Type:</b> Cooperative Agreement	<b>Estimated Total Program Funding:</b> \$3,000,000
<b>Category of Funding Activity:</b> Science and Technology and other Research and Development	<b>Award Ceiling:</b>
<b>Category Explanation:</b>	<b>Award Floor:</b>
<b>Expected Number of Awards:</b> 1	
<b>CFDA Number(s):</b> 12.800 -- Air Force Defense Research Sciences Program	
<b>Cost Sharing or Matching Requirement:</b> No	

### Eligibility

**Eligible Applicants:** Unrestricted (i.e., open to any type of entity above), subject to any clarification in text field entitled "Additional Information on Eligibility"

**Additional Information on Eligibility:**

### Additional Information

**Agency Name:** Air Force -- Research Lab

**Description:** AFRL/RQVC is interested in providing assistance to create a partnership to collaborate on basic and applied research in the area of aerospace vehicle design and assessment methods to include as areas of interest: high-fidelity system level design optimization, risk-quantified multi-source coupled analyses and sensitivities, goal oriented adaptive analyses, risk-quantified design space exploration and experimental validation. The research goals for each area are described in the full text announcement.

**Link to Additional Information:**

**Contact Information:** If you have difficulty accessing the full announcement electronically, please contact:  
 John D. McClellan Grants Officer Phone 937-713-9944   
[For Questions & Assistance](#)



# DoD Grant Awards Website

<https://dodgrantawards.dtic.mil/grants/#/home>



- All DoD Grant Awards from Dec. 9, 2014 are posted on this publicly searchable website



## DoD Grant Awards

[Simple Search](#) [Advanced Search](#)

### Welcome

Welcome to the Department of Defense (DoD) Grant Awards Website. This website was established in response to a statutory requirement contained in Section 8123 of the fiscal year 2015 DoD Appropriations Act (Division C of the Consolidated and Further Continuing Appropriations Act, Public Law 113-235). This website contains publicly-searchable descriptive abstracts of DoD grant awards from December 9, 2014 (the date of passage of the Act), along with other grant award information. Members of the public may conduct searches using a variety of fields and/or keywords, and view or download the results. For more information on the DoD grant award data available from this website, please see the frequently asked questions (FAQ) section under the Help menu.

### Notice

DoD awarding offices are in the process of uploading DoD grant awards dating from December 9, 2014 to the website. If you are looking for a particular grant award from that date and it does not appear in your search, please try again at a later date. We will post a message here when all FY 2015 awards have been entered. DoD grant award information for fiscal years after 2015 will be entered on a continuing basis as grant awards are made.

[Simple Search](#)

Search by the following fields: **project title, award abstract, award number, DoD awarding office, and recipient organization name.**

[Advanced Search](#)

Search by these additional fields: **award amount, fiscal year, funding agency, start/end dates, creation/modified dates, and POC name.**



# DoD Grant Awards Website

<https://dodgrantawards.dtic.mil/grants/#/home>



## DoD Grant Awards

Simple Search    Advanced Search

### Advanced Search

Cyber  Search Method  Award Number

2015  Starting:  From date  To date  Principal Investigator or Project Director Name

Recipient Organization  \$ Anticipated Award Amount Minimum  \$ Anticipated Award Amount Maximum

All DoD Awarding Offices  All Funding Agencies

Found 12 Records in 1.077 seconds    Viewing Records 1 – 10    Total Anticipated Award Amount: \$7,539,521

Results per page: 10    Sort by: Select Sort Order    Order: A-Z   

< < 1 2 > >

Project Title Award Number	Funding Agency	DoD Awarding Office	Recipient Organization	Potential Period of Performance	Anticipated Award Amount
<a href="#">Formal Modeling of Emergence in Distributed Cyber-Physical Systems</a> FA87501510105	United States Air Force	FA8750 AFRL Rome Research Site, Rome NY	University of Texas at Arlington	04/16/2015 – 04/15/2017	\$499,546
<a href="#">Computation-based Probabilistic Validation of Complex Cyber-controlled Systems</a> FA95501510059	United States Air Force	FA9550 Air Force Office of Scientific Research, Arlington, VA	UNIVERSITY OF ILLINOIS CHAMPAIGN	04/01/2015 – 03/31/2018	\$606,503
<a href="#">Dynamic Data-Driven and Real-Time Verification for Industrial Control System Security</a> FA95501510190	United States Air Force	FA9550 Air Force Office of Scientific Research, Arlington, VA	ILLINOIS INSTITUTE OF TECHNOLOGY	06/01/2015 – 05/31/2017	\$150,000



# DoD Grant Awards Website

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## Formal Modeling of Emergence in Distributed Cyber-Physical Systems

**Award Number:** FA87501510105  
**Fiscal Year:** 2015  
**Anticipated Award Amount:** \$499,546  
**Potential Period of Performance:** 04/16/2015 – 04/15/2017

**Funding Agency:** United States Air Force  
**Awarding Office:** FA8750 AFRL Rome Research Site, Rome NY

**Recipient Organization:** University of Texas at Arlington  
**Principal Investigator:** Taylor Johnson

### Abstract:

This effort suggests the development and use of scalable formal methods in mission (1) specification and verification, (2) runtime monitoring, and (3) trusted and assured control, all to be conducted in conjunction with (4) a rigorous evaluation method on distributed cyber-physical systems (DCPS) with prototypical features of modern Air Force systems like UAV swarms and satellite constellations.



# Questions?



## Questions to the DOD panel?

### Rules of Engagement:

- Raise the virtual hand
- You will be acknowledged as your audio is unmuted
- Or you can chat questions for all participants (note everyone online will see your post)

## Closing Remarks

*Elyse Jones, Operations and Program Specialist, WHIHBCU Office*