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, WHI HBCU Office**
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
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

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

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

**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

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

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

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

<table>
<thead>
<tr>
<th>Portfolio</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA1</td>
<td>$2,222M</td>
</tr>
<tr>
<td>BA2</td>
<td>$4,660M</td>
</tr>
<tr>
<td>BA3</td>
<td>$4,977M</td>
</tr>
<tr>
<td>BA4</td>
<td>$340M</td>
</tr>
<tr>
<td>BA7</td>
<td>$309M</td>
</tr>
<tr>
<td>BA6</td>
<td>$186M</td>
</tr>
</tbody>
</table>

BA6 $186M, Procurement $330M
Expanding & Developing Partnerships

Attract & Retain the Best and Brightest

Infrastructure

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

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

Expanding & Developing Partnerships

• 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

Innovative Practices

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

Attract & Retain the Best and Brightest

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.
* Identifies programs that either completely, or have a component, that specifically targets under-served populations
"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.
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
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
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

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

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

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.

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

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

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

The 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

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

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 for more information

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

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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

The 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

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


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

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](http://www.usaeop.com)
Thank You!

Helpful Websites

- FedBizOpps.gov
- Open ARL/ARO BAAs: https://www.arl.army.mil/www/default.cfm?page=8
- www.sbir.gov/about/about-sttr
- 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
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.
• 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.
• 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
• 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

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

Integrity ★ Service ★ Excellence

DISTRIBUTION STATEMENT: A. Approved for public release.
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

Photographs courtesy of Laserfest.org
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 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.

**High-Yield Explosives**
- ... easily available materials with many ways to deliver
- ... point targets

**Nuclear Weapons**
- ... difficult to acquire, devastating in use

**Chemical Weapons**
- ... cheap and easy to make
- ... casualties not widespread

**Biological Weapons**
- ... use available technology
- ... attacks not quickly recognized, propagate with time

**Radiological Devices**
- ... dangerous to assemble with high contamination impact
- ... low lethality

**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
- 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
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

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
- 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

Optical Signal Processor Technology

Field Programmable Gate Array Technology

Advanced Command and Control Algorithms

Data Fusion and Tracking Algorithms

“Notional”

High Energy Laser Technology

Propulsion Technology
BAA Programs

• 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
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

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)
• DoD SBIR/STTR website: https://sbir.defensebusiness.org
• SBA SBIR/STTR website: https://www.sbir.gov

To Contact MDA

• SBIR / STTR 256-955-2020 sbirsttr@mda.mil
• University / BAA 256-450-3800 Advanced Research@mda.mil
• Commercialization 256-450-5343 SBIR-PhaseIII@mda.mil
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
**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.
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/GEINT 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

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

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 or www.usgs.gov

Approved for Public Release, 16-165
Contact Information

• **NGA Academic Research Program (NARP):**
  – **E-mail:** narppo@nga.mil
  – www.nga.mil/narp

• **Broad Agency Announcements:**
  – “Business Opportunities” on www.nga.mil and www.fbo.gov (FedBizOpps)
  – “Research Grants Opportunities” on www.grants.gov

• **NGA Visiting Scientist Program:**
  – www.ORAU.org/Maryland
  – www.pcrecruiter.net (Select Company → ‘NGA’ and Search)
  – Opportunities throughout the year
Grants.gov and DoD Grant Awards Website Overview for Historically Black Colleges and Universities May 26, 2016
All DoD Competitive Grant and Cooperative Agreement funding opportunities are posted on Grants.gov
Grants.gov
http://www.grants.gov
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
### Advanced Search

<table>
<thead>
<tr>
<th>Cyber</th>
<th>Award Number</th>
<th>Principal Investigator or Project Director Name</th>
<th>Anticipated Award Amount Minimum</th>
<th>Anticipated Award Amount Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

#### Found 12 Records in 1.077 seconds

**Results per page:** 10

**Sort by:** Select Sort Order

**Order:** A-Z

<table>
<thead>
<tr>
<th>Project Title and Description</th>
<th>Funding Agency</th>
<th>DoD Awarding Office</th>
<th>Recipient Organization</th>
<th>Potential Period of Performance</th>
<th>Anticipated Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal Modeling of Emergence in Distributed Cyber-Physical Systems</td>
<td>United States Air Force</td>
<td>FA8750 AFRL Roma Research Site, Rome NY</td>
<td>University of Texas at Arlington</td>
<td>04/16/2015 – 04/15/2017</td>
<td>$499,546</td>
</tr>
<tr>
<td>Dynamic Data-Driven and Real-Time Verification for Industrial Control System Security</td>
<td>United States Air Force</td>
<td>FA9550 Air Force Office of Scientific Research, Arlington, VA</td>
<td>ILLINOIS INSTITUTE OF TECHNOLOGY</td>
<td>06/01/2015 – 05/31/2017</td>
<td>$150,000</td>
</tr>
</tbody>
</table>
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