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Guide to FY2017 Research Funding at the Department of Homeland Security (DHS)

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Summary and Index

This document provides succinct insights into the various DHS funding opportunities for University research, with special attention to changes anticipated in FY2017.

DHS Missions include preventing terrorism and enhancing security; managing our borders; administering immigration laws; securing cyberspace; and ensuring disaster resilience. Among other agencies, the Department hosts the U.S. Coast Guard, the Transportation Security Agency, and the Chemical, Biological, Radiological, Nuclear and Explosives Office (which subsumes the Domestic Nuclear Detection Office in 2017). The DHS Science and Technology Directorate is the principal source of research funding, but CBRNE/DNDO has its own program.

Descriptive of DHS research funding opportunities pages 2-8

DHS tends to have a more applied focus than many of the other basic research funding agencies. The DHS S&T budget request is lower (~4%) than the estimated budget in 2016. Four University Centers of Excellence will sunset (including USC's CREATE) and solicitations for three new ones and for a Quantitative Analytical Training Center will released. CBRNE expects 24 new exploratory research projects to be funded during 2017.

Overview

The Department of Homeland Security missions include preventing terrorism and enhancing security; managing our borders; administering immigration laws; securing cyberspace; and ensuring disaster resilience. The Department components include the U.S. Coast Guard (USGC), the Federal Emergency Management Agency (FEMA), the U.S. Secret Service (USSS), the Transportation Security Agency (TSA), the Chemical, Biological, Radiological, Nuclear and Explosives Office [which subsumes the Domestic Nuclear Detection Office (DNDO) in 2017], Citizenship and Immigration Services (USCIS), US Immigration and Customs Enforcement (ICE), and the Federal Law Enforcement Training Center (FLETC).

Most of the Department of Homeland Security's University-oriented S&T efforts are in the:

- Science and Technology Directorate
  Focus: identifying, developing, and transitioning technologies and capabilities to counter chemical, biological, explosive, and cyber terrorist threats
- Chemical, Biological, Radiological, Nuclear and Explosives Office (subsuming old DNDO)
  Focus: enhance domestic weapons-of-mass-destruction detection efforts

Note from Tables 1 and 2 that much of the DHS funding at Universities has been distributed to its Centers of Excellence: ~$30M out of a total of ~$70M.

An Office of Academic Engagement (OAE) manages the Homeland Security Academic Advisory Council (HSAAC) which provides advice and recommendations to the Secretary and senior leadership on matters related to homeland security and the academic community. Additionally, OAE works with academia and the Department on issues related to: a) campus resiliency with the Federal Emergency Management Administration (FEMA), b) academic research with Science and Technology (S&T), c) the student intern program, and d) the Student and Exchange Visitor Program with Immigration and Customs Enforcement (ICE).

S&T Directorate

http://www.dhs.gov/st-directorate

The Science and Technology Directorate is the primary research and development arm of the Department. The mission of DHS S&T is to strengthen America's security and resiliency by providing knowledge products and innovative technology solutions for the Homeland Security Enterprise. S&T has a very operational focus - helping to bridge capability gaps identified by component partners and stakeholders. But in mid-2014, the organizational outlook shifted somewhat to include a strategic viewpoint as well. S&T's Visionary Goals:

- Screening at Speed: Security that Matches the Pace of Life
- Trusted Cyber Future: Protecting Privacy, Commerce, and Community
- Enable the Decision Maker: Actionable Information at the Speed of Thought
- Responder of the Future: Protected, Connected, and Fully Aware

The S&T Directorate is organized into four groups that work together to ensure each aspect of S&T's work is given the appropriate amount of emphasis. (See MAPS DHS Charts 3-26)

- Support to the Homeland Security Enterprise (HSE) and First Responders Group (FRG)
  https://www.dhs.gov/science-and-technology/first-responders
  Focus: response community's abilities to protect the homeland and respond to disasters
- The Homeland Security Advanced Research Projects Agency **(**HSARPA)
  https://www.dhs.gov/science-and-technology/hsarpa

Focus: identifying, developing, and transitioning technologies and capabilities
HSARPA has five technical divisions to carry out this mission (See MAPS DHS Charts 10-19)
    - Borders and Maritime Security Division (BMD)
    - Chemical and Biological Defense Division (CBD)
    - Cyber Security Division (CSD)
    - Explosives Division (EXD)
- The Research and Development Partnerships (RDP) group
https://www.dhs.gov/science-and-technology/about-research-and-development-partnerships
Focus: enduring partnerships that deliver technology solutions to the HSE
RDP includes the Office of University Programs (OUP, http://www.dhs.gov/st-oup) which supports critical research and education at U.S. Colleges and Universities to address high-priority DHS-related issues and to enhance capabilities over the long term. (See MAPS DHS Charts 23-26)
    - Centers of Excellence (including USC's CREATE)
    - OUP Education Programs
- The Capability Development Support Group (CDS), including Standards (STN)
https://www.dhs.gov/science-and-technology/cds
Focus: standards development for HSE technologies

Long Range BAA (LRBAA)
https://www.dhs.gov/science-and-technology/st-lrbaa
The Directorate issues a long-range BAA that provides a standing, open invitation for researchers and scientists to contribute their best ideas that address DHS capability gaps. It is a funding mechanism for novel and innovative concepts that potentially address identified generic basic/applied/and advanced technology opportunities. All of Science and Technology Directorate's (S&T) divisions and special programs (such as APEX) may receive, evaluate, and fund research and development projects through the LRBAA. The First Responder Group, Standards, and HSARPA have explicit topics mentioned in the latest LRBAA. (See MAPS DHS Charts 5-9)

There are no specific due dates beyond a limitation imposed by the BAA lifetime. White papers are strongly encouraged, but not required. If a white paper/proposal is submitted, there can be no further contact with S&T personnel until the evaluation is resolved. It is possible for pre-submission inquiries through the LRBAA webpage to get an S&T personnel appraisal of whether the work appears to be in the scope of the division's interest.

Applied Research / Technology Development Solicitations
There are also open solicitations for specific programs /Divisions – these tend to be applied research and technology development. For instance, the First Responders Group (FBO HSHQDC-13-R-B-0012), Chemical Biological Defense Division (FBO HSHQDC-14-R-B0009), Explosives Division (FBO HSHQDC-15-R-B0002) and the Cyber Security Division (FBO HSHQDC-14-R-B0005) each have a generic solicitation (i.e., without specific topic/due date requirements) with subsequent amendments or calls presenting that information. Some recent examples are provided in MAPS DHS Charts 11-14 and 21.

APEX Projects
http://www.dhs.gov/science-and-technology/apex-programs
The S&T Directorate identifies high priority, cross-cutting technological needs as APEX projects. APEX projects may not proceed without the approval of the S&T Directorate Head and the head of

the agency requesting the technology. The agency chiefs must certify that the programs are a strategic priority, that they have managers who have the authority to see projects through, and that they have adequate funding. The technology must be delivered in 18 to 24 months.

University Centers of Excellence (COE, in Office of University Programs)

http://www.dhs.gov/science-and-technology/centers-excellence
https://www.hsuniversityprograms.org/
The COEs work closely with the homeland security community to develop customer-driven, innovative tools and technologies to solve real-world challenges. Their research portfolio is a mix of basic and applied research addressing both short- and long-term needs. There are currently 9 COEs; they have a 5 yr lifespan, with the option of another 5 yrs. (USC's CREATE has reached its terminus and will be sunsetted). The COE network is an extended consortium of hundreds of universities generating ground-breaking ideas for new technologies and critical knowledge. The Office of University Programs (OUP) also plans to establish a new Quantitative Analytical Training Center (QATC) that will conduct training program pilots with one to three DHS Components to assess critical gaps in scientific and analytical capabilities.

Chemical, Biological, Radiological, Nuclear and Explosives Office (CBRNE)

The Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Office is comprised of the following mission-oriented programs that support achievement of the DHS strategic missions, goals, and objectives.

- Radiological Nuclear Detection, Forensics, and Prevention Capability
  The Radiological Nuclear (Rad/Nuc) Detection, Forensics, and Prevention Capability program develops the Global Nuclear Detection Architecture and its domestic implementation, as well as coordinates and stewards technical nuclear forensics efforts.
- Chemical, Biological, and Emerging Infectious Disease Capability (CBEIDC)
  Coordinates DHS efforts dedicated to national resilience against health incidents and supports DHS programs related to bio/chem defense. Manages BioWatch and the National Biosurveillance Integration Center.
- Bombing Prevention
  The Bombing Prevention program leads and coordinates DHS efforts to protect life and critical infrastructure by building capabilities across the private and public sectors to prevent, protect against, respond to, and mitigate bombing incidents.

Domestic Nuclear Detection Office (DNDO)

http://www.dhs.gov/transformational-applied-research-directorate
This office and its programs are being subsumed by the Chemical, Biological, Radiological, Nuclear and Explosives Office in FY2017. Expect the websites to be in transition.

Academic Research Initiative (ARI)

http://www.dhs.gov/academic-research-initiative
The ARI Program has two primary objectives: 1) Engage the academic community to advance fundamental knowledge for radiological/nuclear threat detection and related sciences with emphasis on fundamental research to solve long-term, high-risk challenges, and 2) Develop human capital in the nuclear science and engineering professions, and related fields. Since inception of the ARI in 2007, 77 grants have been awarded to academic institutions. In addition to its focus on basic and fundamental radiation detection science, the ARI funds academic disciplines such as social sciences, deterrence theory, and applied mathematics. The ARI program refreshes its research portfolio every year through an annual solicitation. Areas of emphasis are the Science and

Engineering of: Radiation Detector Materials; Alternative Neutron Detection Technologies; Radiation Detection System Concepts, Approaches, and Architectures; Shielded Special Nuclear Material (SNM) Detection Technologies, Signatures and Sources; Expert Systems, Models, Algorithms, and Data Processing for Nuclear Detection; and Nuclear Forensics.

Exploratory Research (ER) Program

http://www.dhs.gov/exploratory-research-program

The ER program explores innovative, high-risk, early to later-stage technologies, concepts, and ideas that can make transformational contributions to support the GNDA and reduce the risk of nuclear terrorism. Specifically, the ER program researches technologies and techniques that:

- Address capability gaps and weaknesses in the GNDA;
- Provide substantial performance improvement and/or cost reduction of radiation/nuclear detection capabilities; and
- Improve nuclear forensics capabilities.

Successful ER technologies and concepts may then transition to support subsequent Advanced Technology Demonstration (ATD) projects or directly spur commercial development.

Advanced Technology Demonstration (ATD) Program

The ATD program performs accelerated development, characterization, and demonstration of leading-edge technologies that address critical gaps in nuclear detection capabilities. New ATD projects are initiated approximately yearly based on: 1) prioritized gaps in the GNDA; and 2) technological successes from the ER program, the ARI, or other private or public research programs that support the prioritized gaps.

Education

http://www.orau.gov/dhseducation/
http://www.dhs.gov/dhs-scholarship-program

DHS has programs for summer internships in HS-STEM disciplines, and for summer research teams at Minority Serving Institutions. The DHS Scholarship Program provides individual scholarships to support undergraduate students pursuing degrees in homeland security-focused courses of study.

Resources

Homeland Security Planning Documents

There are two documents that provide insights on priorities:

- S&T Directorate Strategic Plan (2015)
  https://www.dhs.gov/publication/dhs-science-and-technology-directorate-strategic-plan
- 2014 Quadrennial Homeland Security Review
  https://www.dhs.gov/publication/2014-quadrennial-homeland-security-review-qhsr

Mission Agency Program Summaries (MAPS)

The DC Office of Research Advancement has created the Federal Mission Agency Program Summaries website to:

1. connect PIs with appropriate funding agency programs/program officers
2. assist in development of white papers/charts/elevator speeches

The website (http://web-app.usc.edu/web/ra_maps) can be accessed using one's USC NetID and Password.

MAPS will have the following resources:

1. *Search Tab* for a searchable database of programs/program officers
   One can do keyword searches to locate many of the associated mission agency (DHS, DOD, DOE, DOT, ED, EPA, NASA, NIST, NOAA and USDA) programs and program officers.
2. *Mission Agency Tab* (DHS, DHHS, DOD, DOE, DOJ, DOT, ED, EPA, INTEL, NASA, NIST, NOAA, and USDA)
   Guide to Agency Funding for FYXX
   Agency Research Program Charts
   Agency Planning Documents
   Chart numbers in the "Guides to Funding" reference the Agency Research Program Chart file.
3. *Presentation Tab* for charts from recent USC Center of Excellence in Research workshops
4. *Proposal Tab* for reports / guides on writing proposals
5. *Email Alerts Tab* for URLs at which one can arrange for automatic solicitation updates
6. *Grantee Tab* for URLs at which one can find previous agency/program officer awardees
7. *Visiting DC Tab* for information about DC Office services

Assistance in Locating Funding and Preparing Proposals

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Table 1: FY2013 - FY2014 DHS Science and Technology Directorate Research Funding at Universities and Colleges ($M)

	2013		2014	
	Applied	Development	Applied	Development
Total for DHS	141	250	178	344
Total at Universities	**33**	**24**	**42**	**34**
Physical Sciences	**0.1**		**0.1**	
Astronomy				
Chemistry				
Physics				
Other				
Environmental Sciences	**6**		**8**	
Atmospheric				
Geological				
Oceanology				
Other				
Mathematics and Computer	**8**		**10**	
Computer Sciences				
Mathematics				
Other				
Engineering	**5**		**6**	
Aeronautical				
Astronautical				
Chemical				
Civil				
Electrical				
Mechanical				
Metal/Materials				
Other				
Life Sciences	**6**		**7**	
Agriculture				
Biological				
Environmental				
Medical				
Other				
Psychological	**0**		**0**	
Social Sciences	**6**		**8**	
Other Sciences	**2**		**2**	

From NSF "Federal Funds for Research and Development: FY2013-2015" NSF 15-324, July 2015
Because the FY2015 entries are Budget Request only, they are not reported here.

Basic	2013	Tables 30, 77 and 80-86
Applied Research	2013	Tables 44, 88 and 91-97
Basic	2014	Table 31 and 78
Applied Research	2014	Table 45 and 89

Table 2: DHS R&D budget pertinent to Universities ($M)

	FY15 Actual	FY16 Est.	FY17 PBR
S&T Directorate			
University Programs	42	42	33
Centers of Excellence		27	27
Research, Development, and Innovation	480	455	437
APEX		78	79
Border Security		33	56
CBE Defense		79	58
Counter Terrorist		83	66
Cyber Security /Information Analytics		65	71
First Responder /Disaster Resilience		102	87
Chemical, Biological, Radiological, Nuclear and Explosives Office			152
Exploratory Research		26	26
Advanced Technology Demonstration		25	24
Academic Research Initiative		13	12
DNDO	159	157	0

Appendix 1: FY2017 DHS Research Programs (change from FY2016 to FY2017 in $M)

S&T Directorate

Research, Development, and Innovation (RD&I)

1. Border Security Thrust

People Screening **from 0 to 6**

Increases in international travel have strained CBP resources, resulting in increased wait times and delays for passengers to clear some Federal Inspection Service areas. In FY 2017, S&T Directorate will expand efforts to introduce process and technology improvements to CBP traveler inspection operations in order to strengthen traveler vetting and facilitate lawful and legitimate travel in support of the President's National Travel and Tourism Strategy. Begin TRL 3 and end 6

2. CB&E Defense Thrust

Chemical Detection **from 0 to 3**

This program seeks to develop more reliable chemical detectors, which will promote their use and reduce vulnerabilities of the population and critical infrastructure in a wide array of operational applications.

Primary Screening for Passengers **from 0 to 10**

The desired goal is to develop people screening technologies that are safe, provide higher resolution scans, and have better automated targeting algorithms. Innovative techniques under development for AIT systems include compressive measurement at video rates, metamaterial antenna components, and agile multi-band imaging (K-band and W-band radar frequencies). Begin TRL 3 and end 7

Primary Screening for Carry-on Bags **from 0 to 7**

This project will deliver carry-on bag screening systems with ATR for both explosives and other prohibited items. Technologies under development include X-ray systems that incorporate coded apertures, compressive sensing, and energy-resolved detectors for enhanced material discrimination. Begin TRL 3-5 and end 7

Secondary Screening Technology Development **from 0 to 5**

High Resolution Trace Program develops Next Generation (Next Gen) ETDs with upgradable and expandable threat library that can selectively identify current and emerging explosives. Special emphasis is placed on achieving such capabilities in a small and portable form factor with direct identification of explosive threats. Begin TRL 4 and end 7

3. University Programs

Centers of Excellence **from 27 to 27**

OUP will compete three COE topic areas addressing high priority DHS research.
It will also establish a new Quantitative Analytical Training Center (QATC) that will conduct training program pilots with one to three DHS Components to assess critical gaps in scientific and analytical capabilities. The Training Center will then design training tools, materials, and course work appropriate to fill these gaps and also conduct research to determine the best approaches to deliver effective training to enhance the HSE workforce's capabilities to conduct quantitative analyses in support of operations or intelligence analysis, such as risk and economic analyses, or management of the increasing volume of job-related data.

CBRNE Office

Academic Research Initiative **from 13 to 12**

A solicitation with revised topic areas is expected to be released in FY 2016 and FY 2018. A solicitation will not be released in FY 2017 because the program will have reached its full capacity.

Exploratory Research **from 26 to 26**

The CBRNE Office anticipates having 45 open ER activities during FY 2017. Twenty-four of these will be new competitive awards with topics to be based on the newly published CBRNE Office Transformational and Applied Research (TAR) R&D Roadmap.

Appendix 2: Abbreviated illustration of a Program Officer Datasheet

Dr. Angela M. Ervin, Ph.D., PMP
Program Manager, Chemical and Biological R&D Branch
Homeland Security Advanced Research Projects Agency (HSARPA)
Science and Technology Directorate
Department of Homeland Security
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Biosketch:
Experience
February 2007 – Present Program Manager, Science & Technology, DHS

Experience in all areas required to manage multiple multi-million dollar R&D projects within the DHS S&T Directorate, Chemical and Biological R&D Branch. Specific projects managed include the Automated Rapid Facility Chemical Agent Monitor (ARFCAM) and Lightweight Autonomous Chemical Information System (LACIS), and the Advanced Chemical Vapor Detection System (ACVDS) Projects as part of the DHS S&T Chemical Countermeasures Portfolio. Currently manage Agricultural Screening Tools Project to develop tools for early detection of FADs. Also manage several Small Business Innovative Research (SBIR) Projects. SME for other detection and T&E efforts.

Education
MBA in Government Acquisition from Strayer University in 2012
Ph.D in Chemistry from George Washington University in 1995
M.S in Chemistry from Villanova University in 1983
B.S in Biology from Villanova University in 1981

Illustrative Publications Reflecting Personal Research Interests:
Copper circulation in two tidally influenced marinas studied with the use of a Nafion polymer probe
Foerster, JW; Lamontagne, RA; Ewing, KJ; et al.
Field Analytical Chemistry and Technology 3(1), 3-18 1999

Development Of A Fiberoptic Sensor For Trace-Metal Detection In Aqueous Environments
Ervin, AM; Ewing, KJ; Lamontagne, RA; et al.
Applied Optics 32(22), 4287-4290 AUG 1 1993

Appendix 3: Acronym and Abbreviation Glossary

Agency specific

AGRO	Agriculture
APEX	High-priority technologies identified for investment by the S&T Directorate
ARES	Airborne Radiological Enhanced Sensor System
ARI	Academic Research Initiative
ATD	Advanced Technology Demonstration
BMD	Border and Maritime Security Division (part of HSARPA)
BTC	BioThreat Characterization
BTRA	Biological Terrorism Risk Assessment
CAS	Chemical Attribution Signatures
CBD	Chemical/Biological Defense Division (part of HSARPA)
CBEIDC	Chemical, Biological, and Emerging Infectious Disease Capability
CBP	U.S. Customs and Border Protection
CBRN	Chemical, Biological, Radiological and Nuclear
CBNRE	Chemical, Biological, Radiological, Nuclear and Explosive (Office in DHS)
CDS	Capability Development Support (Group in S&T Directorate)
CID	Criminal Investigative Division
CIKR	Critical Infrastructure and Key Resources
CNCI	Comprehensive National Cybersecurity Initiative
CONOPS	Concept of Operations
CSD	Cyber Security Division (part of HSARPA)
CTA	Chemical Threat Agent
DNDO	Domestic Nuclear Detection Office (in DHS)
ER	Exploratory Research
ETD	Explosives Trace Detection
EXD	Explosives Division (part of HSARPA)
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FLETC	Federal Law Enforcement Training Center
FRG	First Responders Group (in S&T Directorate)
GNDA	Global Nuclear Detection Architecture (DNDO guidance)
HFD	Human Factors Division (was part of HSARPA)
HSARPA	Homeland Security Advanced Research Project Agency (in S&T Directorate)
HSI	Homeland Security Investigations
HSE	Homeland Security Enterprise
ICE	U.S. Immigration and Customs Enforcement
IED	Improvised Explosive Device
IPD	Infrastructure Protection and Disaster Management Div (was part of HSARPA)
LRBAA	Long-range BAA
MSI	Minority Serving Institution
NCCIC	National Cybersecurity and Communications Integration Center (in DHS's NPPD)
NGFR	Next Generation First Responder
NIFA	National Institute for Food and Agriculture (in USDA)
NPPD	National Protection and Programs Directorate (in DHS)
NRIP	Nuclear and Radiological Imaging Platform
NTNF	National Technical Nuclear Forensics (DNDO program)
OUP	Office of University Programs in the DHS S&T Directorate

PBIED	Person-born IED
POE	Port of entry
PPA	Program/Project Activity
PPE	Personal Protective Equipment
QHSR	Quadrennial Homeland Security Review
RDA&O	Research, Development, Acquisitions, and Operations
RD&I	Research, Development and Innovation
RDT&E	Research, Development, Test and Evaluation
RDP	Research and Development Partnerships (Group in the S&T Directorate)
S&T	Science and Technology generically but also a Directorate in DHS
SNM	Special Nuclear Material
SRD	Systems Resilience Division (part of HSARPA)
STN	Office of Standards (in Capability Development Support Group, S&T Directorate)
TARD	Transformational and Applied Research Directorate (in DHS's DNDO)
TIC	Trusted Internet Connections (Federal Initiative)
TFA	Technical Focus Area
TNF	Technical Nuclear Forensics
TSA	Transportation Security Agency
USCG	United States Coast Guard
USSS	United States Secret Service
VBIED	Vehicle-born IED

General

AMNPO	Advanced Manufacturing National Program Office
AMP	Advanced Manufacturing Partnership
ASEE	American Society for Engineering Education
BAA	Broad Agency Announcement
BRAIN	Brain Research through Advancing Innovative Neurotechnologies
CA	Congressional add
CFDA	Catalog of Federal Domestic Assistance Number
CMOS	Complementary Metal Oxide Semiconductor (electronics)
COE	Center of Excellence
CSI	Congressional Special Interest
DHS	Department of Homeland Security
DNI	Director of National Intelligence
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DoEd	Department of Education (alternative)
DoI	Department of Interior
DOJ	Department of Justice
ED	Department of Education
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FBO	Federal Business Opportunity
FDA	Food and Drug Administration
FFO	Federal Funding Opportunity
FFDRC	Federally Funded Research and Development Center
FHWA	Federal Highway Administration

FOA	Funding Opportunity Announcement
FY	Fiscal Year (1 Oct to 30 Sep for Federal government)
HBCU/MI	Historically Black Colleges/Universities and Minority Institutions
HTM	Hierarchical Temporal Memory
IHE	Institutions of Higher Education
IMI	Institute for Manufacturing Innovation
INTEL	The various agencies that gather intelligence
IR	Infra-Red
IWG	Interagency Working Group
MAPS	Mission Agency Program Summary (provided by USC Res. Adv.)
MEMS/NEMS	Micro- Nano-ElectroMechanical Systems
MRL	Manufacturing Readiness Level
NASA	National Aeronautics and Space Administration
NDI/E	Non-Destructive Inspection/Evaluation
NIST	National Institute for Standards and Technology (in DOC)
NNMI	National Network for Manufacturing Innovation
NOAA	National Oceanic and Atmospheric Administration (in DOC)
NRC	National Research Council
NRI	Nanoelectronics Research Initiative
NRO	National Reconnaissance Office
NSA	National Security Agency
NSF	National Science Foundation
NSTC	National Science and Technology Council
NTIA	National Telecommunications and Information Administration
OBAA	Open Broad Agency Announcement
OMB	Office of Management and Budget
OPM	Office of Personnel Management
ORAU	Oak Ridge Associated Universities
OSD	Office of the Secretary of Defense
OSTP	Office of Science and Technology Policy (White House)
PBR	President's Budget Request (submitted to Congress)
PCAST	President's Council of Advisors on Science and Technology
PTSD	Post-traumatic Stress Syndrome
RD&I	Research, Development and Innovation
RDT&E	Research, Development, Test and Evaluation
RF	Radio-frequency
RFA	Request for Application
S&T	Science and Technology
SBIR	Small Business Innovative Research
SME	Subject Matter Expert
SN	Special Notice
STEM	Science, Technology, Engineering and Mathematics (education)
STTR	Small Business Technology Transfer
TBA	To be announced
TBI	Traumatic Brain Injury
TRL	Technology Readiness Level
UARC	University Affiliated Research Center
USDA	US Department of Agriculture