KU
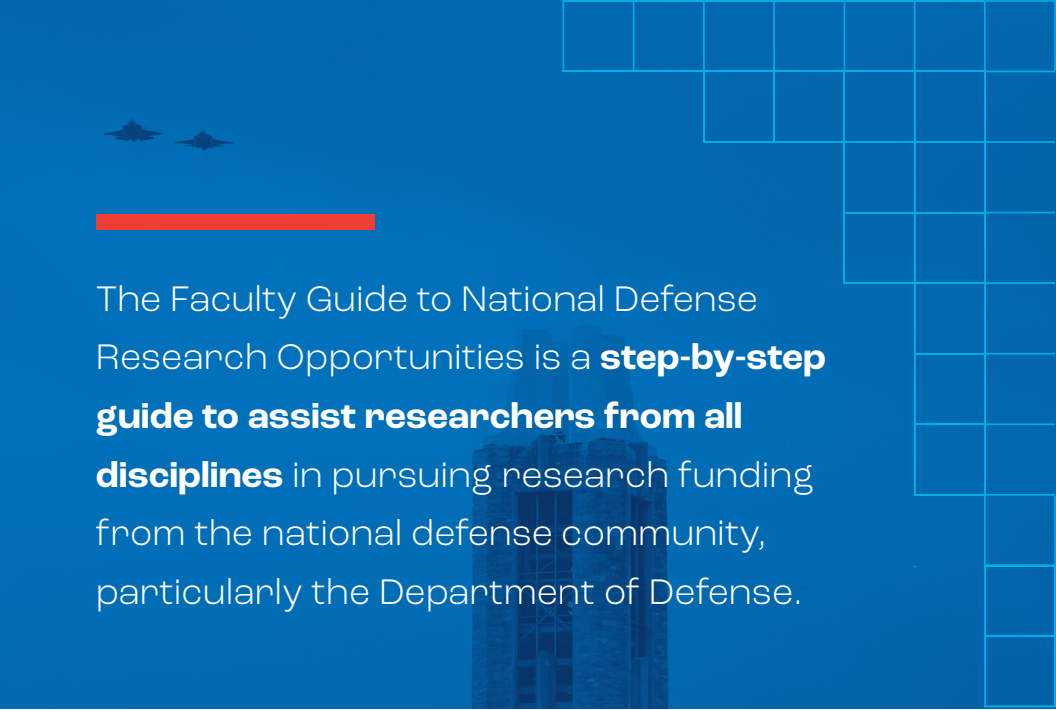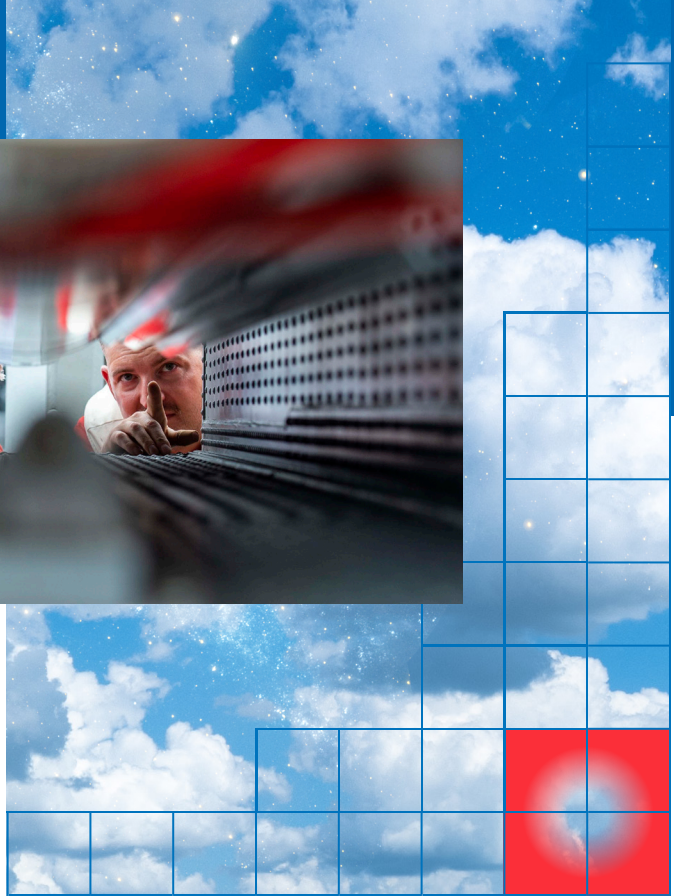
Faculty Guide to National Defense Research Opportunities

THE UNIVERSITY OF KANSAS

The Faculty Guide to National Defense Research Opportunities is a **step-by-step guide to assist researchers from all disciplines** in pursuing research funding from the national defense community, particularly the Department of Defense.

STEP 1: KNOW YOURSELF

A common mistake when considering national security research opportunities is asking, "What kind of research is DoD looking to fund?" Better questions are: "Where do I want my research focus to be in five years? Given my focus, where might there be national defense relevance?" With some exceptions, the national security community is so vast that nearly every university discipline resonates somewhere within the national security enterprise.

STEP 2: HEILMEIER CATECHISM

Examine your research focus through the lens of the nine-question Heilmeier Catechism. Use the quad chart on page 15 to summarize your analysis:

1.   What are you trying to do? Articulate your objectives without jargon.
2.   How is it done today, and what are the limits of current practice?
3.   What is new in your approach, and why will you be successful?
4.   Who cares?
5.   If you are successful, what difference will it make?
6.   What are the risks?
7.   How much will it cost?
8.   How long will it take?
9.   What are the mid-term and final "exams" to check for success?

STEP 3: BROAD AGENCY ANNOUNCEMENTS

Broad agency announcements (BAAs) are the DoD's equivalent of other agencies' calls for proposals. Unofficially, there are three types of BAAs: informational, annual and topical. Look for a BAA you think may be relevant to your research focus. KU's Office of National Defense Initiatives can assist.

STEP 4: ENGAGE THE 'SYSTEM'

The "system" here is the DoD research enterprise, which can be engaged quite efficiently. The DoD doesn't want to waste your time or theirs. The best way to engage with the DoD is through a program manager — in person, by phone or via email. Send a two-paragraph email with paragraph one stating what you intend to do and paragraph two describing your related competence. If you don't get a return email in about 10 days, call the program manager and leave a short follow-up message once a week for two weeks. Still no response? Contact KU's Office of National Defense Initiatives for assistance.

STEP 5: RESPOND TO PROGRAM MANAGER SUGGESTIONS

Program manager responses generally come in one of three flavors:

1. **"Interesting idea. Please send me a white paper."** This is a very positive response, and you should send the requested paper ASAP.

2. **"Your work is relevant to my program. Please keep me informed as it develops."** This is a positive response. Send an email every 3 to 6 months when you publish a relevant article, have interesting data or have other news.

3. **"I don't think your work is relevant to my program."** Although this is not a positive response, it is an opportunity to ask the program manager where they think your work might fit within the DoD research enterprise.
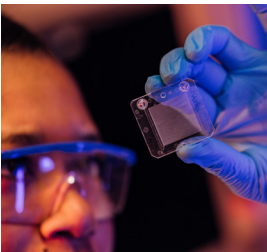
Myth-busting DoD research

MYTH

My research has no DoD relevance.

REALITY

DoD funds research across a broad array of disciplines, including the physical, life and social sciences, as well as the humanities. This multidisciplinary approach is essential for addressing the complex and evolving challenges of national security. The question is not necessarily whether DoD funds research relevant to a particular topic, but more often where and who within DoD is funding relevant research. Contact KU's Office of National Defense Initiatives for assistance finding the right entry point for your research interests.

MYTH

All DoD research is classified research.

REALITY

DoD research at U.S. universities is overwhelmingly unclassified basic research with few restrictions on publishing or student involvement. University researchers performing basic, fundamental research need not fear that they will wake up one morning to find their work classified. If a university researcher opts to become involved in advanced technology development, they will know about any restrictions beforehand.

MYTH

DoD research is "wired," so it's a waste of time to apply for funding.

REALITY

DoD program managers have responsibility and authority to focus their programs on specific technical challenges, even at the basic research level. They are not generally in the business of building university capacity. If increased institutional capability results, so much the better; but their intent is to buy the best intellectual thought focused on an intellectual challenge. DoD program managers do not want to waste your time or theirs. They are generally upfront about their interest in your research. Within the above parameters, DoD support may appear "wired," but a better description is "tightly focused."

Department of Defense

RESEARCH, DEVELOPMENT, TESTING & EVALUATION

Advanced technology plays a critical role in ensuring U.S. national security. To maintain technological superiority on the battlefield, the Department of Defense (DoD) relies on scientific and technical knowledge developed in large measure through research, development, testing and evaluation (RDT&E) funded by the department and performed by industry, universities, federal laboratories and others. DoD also relies increasingly on technology developed by the private sector for commercial markets.
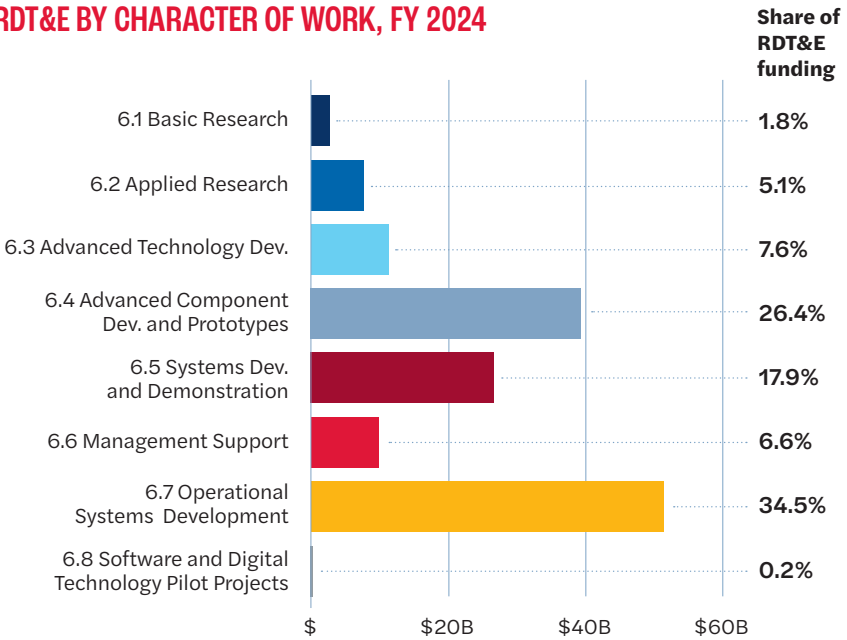
DOD RDT&E BUDGET ACTIVITY COSTS

DoD budget justifications and congressional appropriation reports describe funding by the character of the work to be performed. This characterization consists of eight categories, each with a budget activity code (6.1 through 6.8).
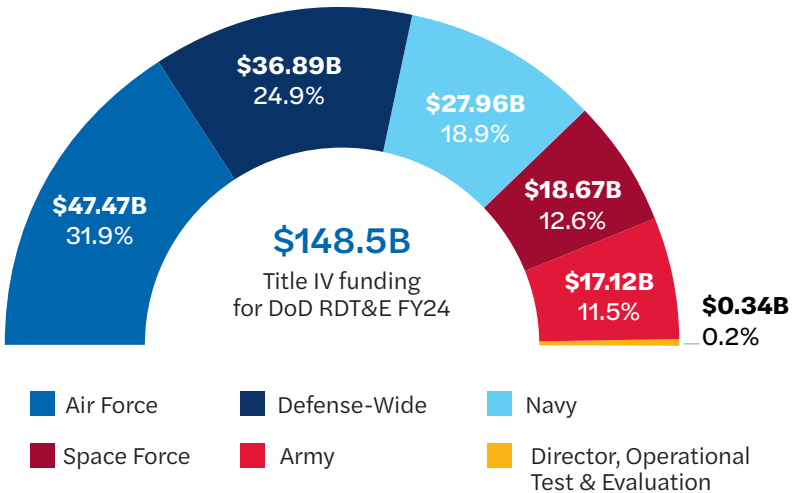
6.1 Basic Research
6.2 Applied Research
6.3 Advanced Technology Development
6.4 Advanced Component Development & Prototypes
6.5 System Development & Demonstration
6.6 RDT&E Management Support
6.7 Operational Systems Development
6.8 Software & Digital Technology Pilot Projects

DoD funding profiles

RDT&E BY CHARACTER OF WORK, FY 2024

Share of RDT&E funding

Character of Work	Share
6.1 Basic Research	1.8%
6.2 Applied Research	5.1%
6.3 Advanced Technology Dev.	7.6%
6.4 Advanced Component Dev. and Prototypes	26.4%
6.5 Systems Dev. and Demonstration	17.9%
6.6 Management Support	6.6%
6.7 Operational Systems Development	34.5%
6.8 Software and Digital Technology Pilot Projects	0.2%

Axis: $ — $20B — $40B — $60B

RDT&E BY ORGANIZATION, FY 2024

$148.5B
Title IV funding for DoD RDT&E FY24

- $47.47B — 31.9% — Air Force
- $36.89B — 24.9% — Defense-Wide
- $27.96B — 18.9% — Navy
- $18.67B — 12.6% — Space Force
- $17.12B — 11.5% — Army
- $0.34B — 0.2% — Director, Operational Test & Evaluation

Source: Congressional Research Service analysis of Department of Defense, FY 2024 RDT&E Programs, Nov. 19, 2024 (crs.gov).

Basic research

ACADEMIA

Universities receive about 60% of the DoD's 6.1 Basic Research funds each year. DoD defines basic research as systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and/or observable facts without specific applications toward processes or products in mind. With very few exceptions, the results of basic research will not be classified or restricted, and are reported in the open literature.

GRANT ANNOUNCEMENTS

Most DoD basic research funding is advertised through broad agency announcements (BAA) from the three services. Proceed to the website below and select Department of Defense under the Agency category. Finally, type keywords in the search box related to your particular research interest areas.

grants.gov/search-grants ➔

Agencies with $40M+ of basic research for universities

—

Air Force Office of Scientific Research (AFOSR)

—

Army Research Office (ARO)

—

Office of Naval Research (ONR)

—

Defense Threat Reduction Agency (DTRA)

—

Congressionally Directed Medical Research Program (CDMRP)

DoD research sampler

Air Force Office of Scientific Research (**AFOSR**)
Focus: pilot, aerospace mission (6.1 only)

Army Research Office (**ARO**)
Focus: soldier, ground force mission (6.1 only)

Office of Naval Research (**ONR**)
Focus: sailor, marine, ship/sub, ocean mission (6.1 - 6.3)

Defense Threat Reduction Agency (**DTRA**)
Focus: weapons of mass destruction (6.1 - 6.3)

Defense Advanced Research Projects Agency (**DARPA**)
Focus: defense-wide technology innovation (6.1 - 6.3)

Congressionally Directed Medical Research Program (**CDMRP**)
Focus: medical research on congressional topics (6.1 only)

Army Research Institute for Behavioral & Social Sciences (**ARI**)
Focus: basic research in behavioral science (6.1 - 6.3)

Army Corps of Engineers (**USACE**)
Focus: public engineering services through ERDC (6.1 - 6.3)

Chemical Biological Defense Program (**CBDP**)
Focus: chemical/biological warfare defense (6.1 - 6.3)

Defense Medical R&D Program (**DMRDP**)
Focus: military specific medical research (6.1 - 6.3)

Office of the Secretary of Defense (**OSD**)
Focus: overarching defense issues (6.1 - 6.3)

Naval Postgraduate School (**NPS**)
Focus: military graduate education and research (6.1 - 6.3)

Search for these agencies, offices and programs in your web browser or scan the QR code for a list of current websites.

Faculty opportunities

DOD WORKSHOPS

The DoD Basic Research Office (BRO) sponsors workshops in emerging areas of science and engineering and provides oversight and management of DoD's basic research investments. The BRO sets scientific priorities aimed toward ensuring DoD is a leader in scientific discovery and identifying new paths for investigation. The office is responsible for setting department policy for grants, and manages programs including the Vannevar Bush Faculty Fellowship, the Minerva Research Initiative, the Historically Black Colleges & Universities/Minority Institutions (HBCU/MI) Program, as well as a number of pilot programs meant to rethink the department's approach to managing and maturing basic research investments.

DEPSCOR

The Defense Established Program to Stimulate Competitive Research (DEPSCoR) aims to increase the number of university researchers and improve the capabilities of institutions of higher education in eligible jurisdictions to perform competitive basic research in science and engineering relevant to the DoD mission and reflect national security priorities. Although it is a standalone program, DEPSCoR research efforts are an important part of a DoD program manager's basic research portfolio. Kansas is a DEPSCoR state.

YOUNG INVESTIGATOR PROGRAM (YIP)

The BRO, DTRA and DARPA each have announcements for young faculty programs. The eligibility typically is within five years of Ph.D. or equivalent degree or from initial tenure-track appointment.

SENIOR INVESTIGATOR PROGRAM (SIP)

The Vannevar Bush Faculty Fellowship (VBFF) supports outstanding faculty in topics of interest to DoD. Awardees are generally about 20 years post Ph.D., have impressive credentials, and address a science/engineering basic research topic of interest to DoD. The BRO sponsors the VBFF; the Office of Naval Research manages the grants. In FY 2024, the office received 170 white papers, from which expert panels invited 27 proposals, for a final recommendation of 11 fellows. Each fellow receives up to $3 million over a five-year fellowship to pursue cutting-edge fundamental research.

Human & health research

HUMAN SOCIAL, CULTURAL & BEHAVIORAL MODELING

The Minerva Research Initiative primarily funds social science basic research by university-led research teams. Minerva's Defense Education & Civilian University Research (DECUR) Partnership aims to develop collaborative basic research partnerships between Defense Professional Military Education (PME) institutions and civilian research universities by supporting basic research projects that improve capacities in defense-related basic social science. These programs were paused in 2025.

DEFENSE HEALTH PROGRAMS

Congress typically adds funds to the DoD budget to support select medical basic research topics. These have totaled about $1 billion per year in recent years. Funds are inserted by a congressperson for specific topics for that year only. Those topics are openly competed for through Congressionally Directed Medical Research Program (CDMRP) solicitations.

VETERANS ADMINISTRATION

The VA is primarily a health care delivery organization, but it also supports intramural research activity focused on improving health care and addressing the unique needs of the veteran population. Some key areas of current VA interest include precision medicine, genomics, chronic pain, women's health, PTSD/TBI, behavioral health and point-of-care. VA researchers compete for DoD, National Institutes of Health, and Centers for Disease Control & Prevention funding.
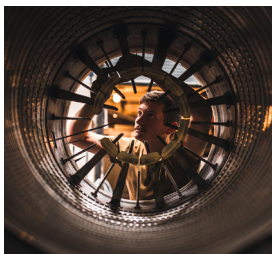
Instrumentation

DURIP

The Defense University Research Instrumentation Program (DURIP) supports university research infrastructure essential to high-quality Navy-relevant research — the research instrumentation that is necessary to carry out cutting-edge research. As part of the University Research Initiative (URI) budget, the DURIP is competed each summer.

Multidisciplinary

MURI

Multidisciplinary University Research Initiative (MURI) efforts involve teams of researchers investigating high-priority topics and opportunities that intersect more than one traditional technical discipline. For many military problems, this multidisciplinary approach serves to stimulate innovations, accelerate research progress and expedite transition of results into naval applications.

PARTNERSHIP AGREEMENTS

KU has partnership agreements that facilitate faculty and student exchanges, collaborative research, and special funding opportunities:

U.S. Army Corps of Engineers Research Development Center
Educational Partnership Agreement

U.S. Cyber Command
Educational Partnership Agreement

National Spectrum Consortium
Other Transaction Authority Contract

Special awards

PECASE

The Presidential Early Career Award for Scientists & Engineers (PECASE) is the highest honor bestowed by the U.S. government on outstanding scientists and engineers in the early stages of their independent research careers. The White House, following recommendations from participating agencies, confers the awards annually. To be eligible for a Presidential Award, an individual must be a U.S. citizen, national or permanent resident. Some winning scientists and engineers receive up to a five-year research grant.

Environmental

SERDP & ESTCP

The Strategic Environmental Research & Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP) harness the latest science and technology to develop and demonstrate innovative, cost-effective and sustainable solutions to meet the DoD's environmental challenges. SERDP is a basic and applied research program; ESTCP focuses on demonstration and validation of technologies.

Broad agency announcement taxonomy

There are three categories of broad agency announcements (BAAs). All are vehicles that allow for the submission of white papers or proposals, but each serves a different purpose:

INFORMATIONAL BAAs

These can generally be identified by having long open periods. For example, the Army Research Laboratory BAA has an open period of 5 years. These BAAs are important because they often provide information on the various program managers' focus areas and procedures for white paper and proposal submission. But unless a program manager explicitly suggests sending a proposal using this type of BAA, it will likely be a waste of time. On the other hand, if a program manager encourages you to submit under an informational BAA, the proposal has a good chance of being funded.

ANNUAL BAAs

Annual BAAs describe long-running, generally annual, funding opportunities. For example, in recent years, the DoD's Multidisciplinary University Research Initiative (MURI) white papers have been due on June 1, 2020 (FY21), June 7, 2021 (FY22), May 16, 2022 (FY23), and May 5, 2023 (FY24). This program has been around for 25 years, so it's a safe bet you can expect to see the public release of MURI BAA in May or June each year. The Defense University Research Instrumentation Program (DURIP) is similar.

TOPICAL BAAs

Topical BAAs are the hardest to anticipate but are often interesting in that they generally announce a new funding opportunity for researchers within a discipline, research community, or problem space. The Air Force Office of Scientific Research's Brain-Derived Neuromorphic Computing with Intelligent Materials was a topical BAA announced in April 2021 with a June 2021 white paper deadline. The award was $1 million per year for five years.

Insert Project / Technology Title Here

PI: Insert PI Name Here   **Org:** Recipient Organization   **Award Amount Requested:** $$$$$$$

Goal / Hypothesis (example)

Enter text

Approach

Enter text

Insert a picture or graphic here, with a caption that represents the proposed work

Goals / Milestones (example)

Comments / Challenges / Issues / Why Now? / etc.

- If timelines change, comment here.
- If off by more than one quarter in spending, comment here.

Timeline and Cost

Activities CY	25	26	27	28
Text (Major aim/study/milestone)				
Text (Major aim/study/milestone)				
Text (Major aim/study/milestone)				
Text (Major aim/study/milestone)				
Estimated Budget ($K)	$000	$000	$000	$000

Updated: (place date of last update)

Preparing to communicate with program managers

Believe it or not, DoD program managers want to hear from you! But they are often overloaded. Use the two-paragraph email approach (described earlier) with a quad chart attached (pictured above and available for download by scanning the QR code below) if you have a specific idea. If you don't hear from them, call and leave a voicemail. Still nothing? Contact the KU Office of National Defense Initiatives for assistance.

Scan the QR code to download, print and customize this quad chart for your engagement with DoD program managers.

KU THE UNIVERSITY OF KANSAS

Office of National Defense Initiatives
222 Strong Hall
1450 Jayhawk Blvd.
Lawrence, KS 66045

ndi.ku.edu →

Assistant Vice Chancellor, National Defense Initiatives
Retired Col. Mike Denning, U.S. Marine Corps
785-864-1684

Director, National Defense Education Initiatives
Retired Lt. Col. Trent Williams, U.S. Air Force
785-864-7508
trentwilliams@ku.edu

Director, National Defense Research Initiatives
Retired Lt. Col. Kurt Preston, U.S. Army
785-864-2618
kurt.preston@ku.edu