April 25, 2024

The Honorable Jon Tester
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Ken Calvert
Chairman
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

The Honorable Susan Collins
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Betty McCollum
Ranking Member
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Tester, Chairman Calvert, and Ranking Members Collins and McCollum,

On behalf of the Coalition for National Security Research (CNSR), a 100xx-member-plus coalition of industry, academia, scientific and professional associations, and non-profits, we write to thank you for your support for the Defense Science and Technology (S&T) program in the fiscal year (FY) 2024 Defense Appropriations bill. We understand the FY 2024 appropriations cycle has been especially challenging as Congress has debated overall funding levels for the federal government; we sincerely appreciate Congress' careful consideration of Defense S&T funding throughout the process. As you transition to considering the FY 2025 Defense Appropriations bill, we urge you to prioritize the Defense S&T program once again.

As you know, the Pentagon continues to ignore the congressional direction included in the Defense appropriations bills and unilaterally removes the generous – and essential – funding increases Congress provides to the 6.1, 6.2, and 6.3 program elements that comprise the Defense S&T program. As a result, these accounts were cut significantly in the FY 2025 budget compared to FY 2024 appropriated levels. Perhaps even more concerning, the Administration's FY 2025 budget request for Defense S&T is in general less than its FY 2024 request. We are deeply concerned by this trajectory. The looming threats of near-peer conflict and increasing gray zone activity mean it is imperative we adequately fund Defense S&T and basic research.

To provide a clear overview, the table at the end of this document summarizes the recent funding history and our specific requests for the program elements most relevant to our coalition. While each PE has its own unique portfolio of work, they share two key characteristics: (1) The Defense basic research funded by these programs support the R&D that contributes to

revolutionary technological capabilities. (2) These programs directly and indirectly strengthen our defense industrial base workforce.

Military Capabilities to Win Strategic Competition

We must invest in the foundational research that underpins our national security and technological superiority. Prior investments in DoD basic research have led to advances in hypersonics testing, various quantum technologies, creating semiconductors fueling defense radar systems, improvements in solar cell efficiency, laser technologies, stealth capabilities, night vision, GPS, sonar, radar, precision munitions, biosensors, and near-real-time delivery of battlefield information. Current investments in DoD basic research are working towards next-generation sensor technologies to improve situational awareness (optics, materials science, electrical engineering); autonomous vehicles to support Service members in the field (AI, cognitive psychology, underwater robotics, aeronautics); new strategies for enhancing Service members' health and performance (bioengineering, material science, genetics, neuroscience); new systems to improve maintenance of key equipment (optics, electrical engineering, AI, mechanical engineering); and more.

Unfortunately, there is growing evidence – in reports from groups like the House Select Committee on the Strategic Competition Between the United States and the Chinese Communist Party (House CCP Committee), DoD and the National Science Board (NSB) –

- the United States is falling behind in the race for leadership in certain critical technologies[1] [2];
- China currently is the world leader in hypersonics and aims to overtake the West in AI R&D by 2025[3]; and
- China has the largest Navy in the world, placing further importance on the developing military technologies to provide strategic advantages[4].

University and Basic Research Initiatives: The Army, Navy and Air Force each have a University Research Initiative (URI) program element that supports critical multidisciplinary research (through MURI) as well as the instrumentation (through DURIP) that is needed to create transformational military technologies. The Office of the Secretary of Defense has a comparable program called Basic Research Initiatives (BRI). Investments in BRI and URIs have resulted in new domestic semiconductor manufacturing capabilities, advances in quantum computing and communication, military drones, nanotechnology, and sensor enabling navigation in GPS compromised environments among many other military technological capabilities.

In FY 2025, the Pentagon includes a URI program element for the Space Force as well. While CNSR is pleased to see this inclusion in the budget request, we are concerned it comes at the expense of Air Force research. We continue to investigate the budget details to understand the impacts, and we urge Congress to ensure that Air Force and Space Force URIs both have the support they need.

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[1] https://selectcommitteeontheccp.house.gov/media/policy-recommendations/reset-prevent-build-strategy-win-americas-economic-competition-chinese

[2] https://ncses.nsf.gov/pubs/nsb20243

[3] https://media.defense.gov/2023/Oct/19/2003323409/-1/-1/1/2023-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF

[4] Ibid

Minerva Research Initiative: Many of the national security challenges we face are social or have social elements to them. Minerva serves as DoD's signature social science basic research program, and each Service contributes some funding for Minerva to support their social science research priorities. Minerva research provides an important source of new ideas to better understand social, behavioral, cultural, and political aspects that are inherent to our security stability. is contributing to areas of strategic interest to DoD such as AI/machine learning, contested maritime water issues, cyber and ransomware, and China's rise in foreign affairs among others.

Defense Advanced Research Projects Agency (DARPA): DARPA's ability to create truly revolutionary new military capabilities is well documented. With no intramural research laboratories, DARPA relies on partners, such as CNSR members, to conduct transformational scientific research to advance military technologies. In fact, more than 90 percent of DARPA's R&D budget is awarded extramurally. DARPA-sponsored research with industry and the academic community has led to stealth capabilities, unmanned aerial systems, metamaterials, advances in microelectronics and the computer chips fueling AI technologies.

Strengthen Defense Industrial Base and S&T Workforce

The Defense basic research programs described above are a critical component of ensuring the U.S. has a robust defense industrial base (DIB) and S&T workforce. When adequately resourced, individuals funded by these research programs can enjoy a long career of intellectually stimulating projects that have larger national and social impacts, as well as access to state-of-art facilities and equipment. Furthermore, basic research program elements support a wide range of programs dedicated to strengthening the industrial base workforce by attracting the most creative minds to solve complex military challenges and training students in fields of critical interest to DoD.

This work is essential as DoD estimates that the DIB will require more than 4 million total jobs to maintain sustainable throughput in 2030[5]. The various subsectors that make up the DIB, like advanced manufacturing (missing 2.1 million worker)[6] and semiconductors (missing 67,000 workers)[7], are anticipating labor shortfalls in that same time period. Additionally, a DIU report on the space sector calls out workforce as a top industry concern[8]. According to the House CCP Committee, this is happening at the same time China is gaining on the U.S. in the race for global talent. They find that the CCP has invested heavily in scientific and technological education, which has resulted in as many as five times as many STEM graduates as the United States. "It is clear the United States needs more individuals working on research and development in critical and emerging technologies," they say[9].

Defense S&T Scholarship and Fellowship Programs: With adequate resources, DoD programs – like the Science, Mathematics, and Research for Transformation (SMART) Scholarship-for-

[5] https://www.defense.gov/News/News-Stories/Article/Article/3540407/dod-is-taking-steps-to-shore-up-industrial-workforce/
[6] https://www2.deloitte.com/us/en/insights/industry/manufacturing/manufacturing-industry-diversity.html
[7] https://www.semiconductors.org/chipping-away-assessing-and-addressing-the-labor-market-gap-facing-the-u-s-semiconductor-industry/
[8] https://www.diu.mil/latest/ssib23-report-calls-for-action-to-build-enduring-advantages-in-space-for
[9] https://selectcommitteeonthecp.house.gov/media/policy-recommendations/reset-prevent-build-strategy-win-americas-economic-competition-chinese

Service Program and the National Defense Science and Engineering Graduate (NSDEG) Fellowship – support DoD's ability to recruit and educate the future DoD civilian STEM workforce and DIB. These programs provide unique pathways for STEM students to pursue high quality educations – which include research internship opportunities – and begin a rewarding career with the DoD.

Programs Ensuring Everyone is Engaged in Defense S&T: Only by ensuring everyone in the U.S. has the opportunity to engage in the Defense and S&T enterprises can we meet the challenges of today and tomorrow. The National Defense Education Program (NDEP) supports a comprehensive workforce development and training by funding activities such as the manufacturing engineering education program, enhanced civics education, after-school programs, competitions, and internships for students and professional development and training for educators. For institutions of higher education (IHE), DoD's Historically Black Colleges and Universities and Minority-Serving Institutions (HBCU/MI) program brings a diverse pool of talent to engage in critical discovery, while the Defense Established Program to Stimulate Competitive Research (DEPSCoR) ensures DoD is resourcing IHEs across the U.S. regardless of institution type or geographic location.

Thank you for your prior commitments to a robust Defense S&T program; we hope that commitment will continue in the coming year. Please do not hesitate to contact us if CNSR can be of any service as the FY 25 Appropriations process advances.

Sincerely,

John Latini & Heather Bloemhard
Co-Chairs

	Program Element	FY 23 Enacted	FY 24 Budget Request	FY 24 Enacted	CNSR FY 25 Request	FY 25 Budget Request	*FY 25 Budget - FY 24 Budget*
	RDT&E Overall	*$139,760,526*	*$144,979,625*	*$148,320,479*	*$151,985,687*	*$143,156,590*	*-1.26%*
	6.1 Basic Research	*$2,918,940*	*$2,479,661*	*$2,628,162*	*$3,418,142*	*$2,452,901*	*-1.08%*
	6.2 Applied Research	*$7,800,894*	*$6,017,674*	*$7,604,821*	*$7,568,167*	*$5,795,874*	*-3.69%*
	6.3 Advanced Tech. Dev.	*$11,705,849*	*$9,327,385*	*$11,292,885*	*$10,602,299*	*$8,959,028*	*-3.95%*
	Defense Science & Technology (S&T)	*$22,425,683*	*$17,824,720*	*$21,525,868*	*$21,588,608*	*$17,207,803*	*-3.46%*
Army	Defense Research Sciences	$391,642	$296,670	$334,670	$383,370	$310,191	*4.56%*
	University Research Initiatives	$107,160	$75,672	$85,672	$186,212	$78,166	*3.30%*
	University and Industry Research Centers	$121,160	$108,946	$124,946	$126,083	$109,726	*0.72%*
	Cyber Collaborative Research Alliance	$5,355	$5,459	$5,459	$5,787	$5,525	*1.21%*
	Artificial Intelligence and Machine Learning Basic Research	$10,078	$10,708	$10,708	$11,350	$10,309	*-3.73%*
	Basic Research Overall	**$635,395**	**$497,455**	**$561,455**	**-**	**$513,917**	**3.31%**
Navy	University Research Initiatives	$147,376	$96,355	$106,355	$208,136	$94,259	*-2.18%*
	Defense Research Sciences	$541,513	$540,908	$557,158	$632,987	$483,914	*-10.54%*
	Basic Research Overall	***$688,889***	***$637,263***	***$663,513***	**-**	***$578,173***	***-9.27%***
Air Force	Defense Research Sciences	$406,125	$401,486	$381,386	$457,269	$361,930	*-9.85%*
	University Research Initiatives	$206,192	$182,372	$185,472	$297,300	$143,372	*-21.38%*
	Basic Research Overall	**$612,317**	**$583,858**	**$566,858**	**-**	**$505,302**	**-13.45%**
Space Force	Defense Research Sciences	$25,000	$0	$20,100	$74,306	$21,349	*N/A*
	University Research Initiatives	$30,000	$0	$14,400	$121,264	$14,731	*N/A*
	Basic Research Overall	***$55,000***	***$0***	**$34,500**	**-**	***$36,080***	***N/A***
	DTRA Basic Research	$16,584	$14,761	$21,761	$23,067	$15,311	*3.73%*

Defense-Wide	Defense Research Sciences	$404,370	$311,531	$304,031	$366,263	$303,830	*-2.47%*
	High Energy Laser Research Initiatives	$21,257	$16,329	$16,329	$17,309	$16,518	*1.16%*
	Basic Research Initiatives	$93,673	$71,783	$111,783	$118,490	$77,132	*7.45%*
	Basic Operational Medical Research Science	$76,874	$50,430	$50,430	$53,456	$99,048	*96.41%*
	National Defense Education Program	$174,347	$159,549	$162,549	$171,242	$169,986	*6.54%*
	Historically Black Colleges and Universities/Minority Institutions	$100,500	$100,467	$101,467	$128,755	$99,792	*-0.67%*
	Chemical and Biological Defense Program	$39,734	$36,235	$33,486	$35,495	$37,812	*4.35%*
	Minerva Research Initiative (MRI)	$22,798	$22,668	$22,668	$24,028	TBD	*TBD*
	Basic Research Overall	**$927,339**	**$761,085**	**$801,836**	**-**	**$819,429**	**7.67%**
	Defense Advanced Research Projects Agency (DARPA)	$4,064,764	$4,388,382	$4,122,590	$4,338,073	$4,369,913	*-0.42%*
	DHP R&D & CDMRPs	$3,041,610	$0	$2,877,048	$2,074,391	$0	*0.00%*


COALITION FOR NATIONAL SECURITY RESEARCH
The Coalition for National Security Research (CNSR) is a broad-based alliance of industry, academia, scientific and professional organizations, and non-profits committed to advocating for a strong Defense Science and Technology enterprise.