



Naval Surface Warfare Center Dahlgren Division

NSWCDD Hypersonic Activities

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*Navy League of the United States
Sea-Air-Space Exposition*

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The Leader in Warfare Systems Development and Integration



NAVAL SURFACE WARFARE CENTER
DAHLGREN DIVISION
DAHLGREN | DAM NECK



Why Hypersonic Weapons?



- Hypersonic weapons: *The speed at which the battle will be fought.*
 - Defense against hypersonic weapons enables offensive weapon counter-punch
 - Offensive hypersonic weapons provide the US Navy long-range, time-critical strike capability
- Nationally, the US is accelerating the transition of hypersonic weapons from development to fielding

NSWCDD is prioritizing its expertise, workforce, and infrastructure to meet the hypersonic threat and to support national hypersonic efforts

Naval Warfare Centers Collaborating to Meet the Challenges of Hypersonic Warfare

- Naval Warfare Centers have identified hypersonic research roles, responsibilities, activities, and contributors across the Warfare Center Divisions
 - Offensive and Defensive Hypersonic Weapon Systems
 - Hypersonic Types
 - Missile boost-glide
 - Missile boost-cruise/sustained
 - Gun/munition/projectiles
 - Hypersonic Functional Area
 - Applied materials
 - High temperature advanced structural and aperture materials
 - Guidance, navigation, & control software and algorithms
 - Guidance, navigation, & control hardware
 - Aerodynamic and aerothermal characterization
 - Flight & mission performance analysis
 - Propellants, rocket motors, CAD/PADs
 - Explosives, warheads, & fuzing
 - Launcher systems
 - Planning, targeting, and fire control
 - Weapon lethality and effects
 - Target vulnerability assessment and reduction



Accelerate hypersonic capability transition to the Fleet through horizontal integration across the One Team Enterprise and broader NR&DE

- **70 years of experience with reentry systems, Standard Missile, gun systems**
- **Hypersonic Weapons Advancement Thrust**
- **Repurposed facilities and new capabilities**
 - Set new world record in for a gun-launched hypercone (109 NM, March 2022)
- **Offensive and Defensive Hypersonic Portfolio**
 - Navy, Army, Air Force, ONR, OSD, DARPA, MDA
 - Collaboration with SNL, AvMC, APL, AEDC, CUBRC, SR
- **Hypersonic Technology Innovation & Investment**
 - Naval Innovative Science Engineering (NISE) collaboration across the Warfare Centers
 - Navy Engineering Education Consortium (NEEC) collaboration w/ Universities
 - Naval Surface Technology & Innovation Consortium (NSTIC) collaboration w/Industry



**Surface Navy Lead for Offensive and Defensive Hypersonic
Weapon Systems Integration**



Thrust Area Objectives

1. Prioritize hypersonic weapons defense within our threat engineering activities
2. Establish a national hypersonic technology presence
3. Aggressively pursue opportunities to support the development of defensive weapon system capabilities
4. Expand our roles and responsibilities in the development of offensive systems
5. Establish electromagnetic launch facilities test bed as a national asset for hypersonic systems development and testing

FOCUSED TECHNOLOGY AREAS

- Materials Development
- Modeling & Simulation
- Test and Evaluation
- GNC and Signal Processing
- Terminal Effects



Thank You

