Hypervelocity Projectile

ONR Program Code 35

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At a Glance

What is it?

- The HVP is a next generation, common, low drag, guided projectile capable of completing multiple missions from different gun systems.

How does it work?

- The HVP is configurable for various mission roles and gun systems through the use of multiple Integrated Launch Package (ILP) components coupled with a modular, common airframe.

What will it accomplish?

- With its increased velocity, precision, and extended range, the HVP will provide the Navy with the capability to address a variety of current and future Naval threats in the mission areas of naval surface fire support, ship defense, and anti-surface warfare using current and future gun systems.

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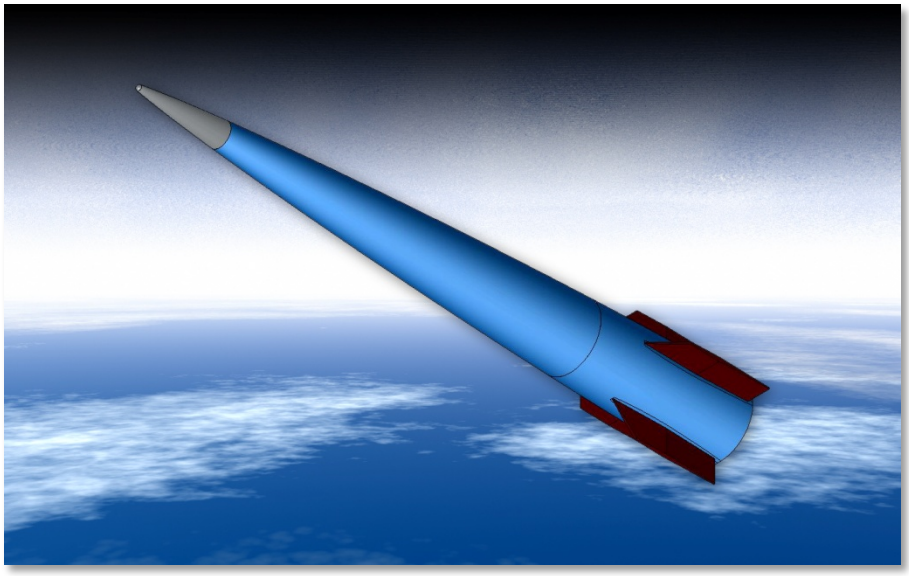

The Hypervelocity Projectile (HVP) is a next generation, common, low drag, guided projectile capable of completing multiple missions for gun systems such as the Navy 5-Inch, 155-mm, and future railguns. Types of missions performed will depend on gun system and platform. The program goal is to address mission requirements in the areas of Naval Surface Fire Support , Cruise Missile Defense, Anti-Surface Warfare, and other future Naval mission areas. Mission performance will vary from gun system, launcher, or ship. HVP's low drag aerodynamic design enables high velocity, maneuverability, and decreased time-to-target. These attributes coupled with accurate guidance electronics provide low cost mission effectiveness against current threats and the ability to adapt to air and surface threats of the future.

The high velocity compact design relieves the need for a rocket motor to extend gun range. Firing smaller more accurate rounds improves danger close/collateral damage requirements and provides potential for deeper magazines and improved shipboard safety. Responsive wide area coverage can be achieved using HVP from conventional gun systems and future railgun systems.

The modular design will allow HVP to be configured for multiple gun systems and to address different missions. The hypervelocity projectile is being designed to provide lethality and performance enhancements to current and future gun systems. A hypervelocity projectile for multiple systems will allow for future technology growth while reducing development, production, and total ownership costs.

Research Challenges & Opportunities:

- High acceleration tolerant electronic components
- Lightweight, high strength structural composites
- Miniature, high density electronic components
- Safe high energy propellants compatible with shipboard operations
- Aerothermal protection systems for flight vehicles