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Navy demonstrates world's most powerful rail gun

By Release

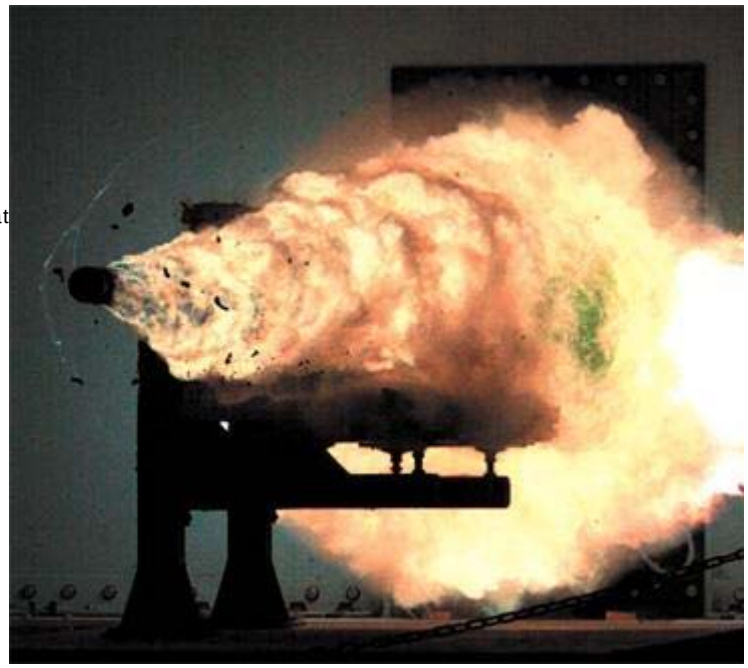
DAHLGREN — The Navy's Office of Naval Research successfully conducted a record-setting firing of an electromagnetic rail gun at Naval Surface Warfare Center, Dahlgren, Jan. 31.

An audience, including the Chief of Naval Operations Adm. Gary Roughead, witnessed the revolutionary technology in action.

He said, "I never ever want to see a sailor or Marine in a fair fight. I always want them to have the advantage.

"We should never lose sight of always looking for the next big thing, always looking to make our capability better, more effective than what anyone else can put on the battlefield," Roughead said.

ONR's Electromagnetic Rail Gun program is part of the Department of the Navy's Science and Technology investments, focused on developing new technologies to support Navy and Marine Corps war fighting needs.



An electromagnetic rail gun at Naval Surface Warfare Center, Dahlgren, fires a projectile with 10.64 megajoules of force, a muzzle velocity of 2520 meters per second. The image was taken from high-speed video of the test.

ONR has facilitated a key partnership between leading scientists and engineers from Boeing, Charles Stark Draper Lab, Inc., General Atomics, Department of Energy (Lawrence Livermore National Laboratory), U.S. Naval Academy, Naval Postgraduate School, Naval Sea Systems Command (PMS 500), Naval Surface Warfare Center - Carderock and Dahlgren Divisions, the U.S. Army and Great Britain.

"We are seeing the culmination of years of research coming together to bring focus to exciting new technology," Chief of Naval Research, Rear Adm. Bill Landay, said. "Here at ONR we are striving to move (science and techology) from vision to results."

Rail gun technology uses high power electromagnetic energy instead of explosive chemical propellants to propel a projectile farther and faster than any preceding gun. At full capability, the rail gun will be able to fire a projectile more than 200 miles at a muzzle velocity of Mach 7 and impacting its target at Mach 5. In contrast, the Navy's premiere gun, the Mark 45 five-inch gun, has a range of nearly 20 miles. The high velocity projectile will destroy its targets due to its kinetic energy rather than with conventional explosives.

The safety aspect of the rail gun is one of its greatest advantages, according to Dr. Elizabeth D'Andrea, ONR's Electromagnetic Rail gun Program manager. Safety on board ship is increased because no explosives are required to fire the projectile and no explosive rounds are stored in the ship's magazine.

Science and technology challenges met by ONR in the development of the rail gun include development of the launcher, pulse power generation and the guided projectile design. The program's goal is to demonstrate a full capability, integrated rail gun prototype by 2016-2018.