



## **New CNST Projects to Investigate Computed Radiography and Nested Material Technologies**

The Center for Naval Shipbuilding Technology (CNST) has recently received approval from the Office of Naval Research (ONR) to award two new projects valued at approximately \$850,000. The selected projects address two essential U.S. shipbuilding and ship repair processes, each intended to increase the efficiency and reduce the costs of manufacturing and maintaining U.S. Navy vessels. These projects have the potential to impact all shipbuilding programs, but in the short term are specifically focused on the VIRGINIA Class Submarine and T-AKE programs. Together with these two projects, CNST now has 14 projects underway that cover many U.S. shipyard design, fabrication, assembly and quality assurance processes.

The Computed Radiography project will complement the Digital Radiography project being conducted at Northrup Grumman Newport News Shipbuilding. This 12-month, \$228,000 project is led by Electric Boat and will provide data to support the use of Computed Radiography in lieu of conventional film radiography. The Computed Radiography system in place at Electric Boat uses imaging plates that are the same size as standard film. This will allow imaging plates to be used in shipboard and shop applications to provide a more “real life” comparison to film. A one-to-one film size comparison affords better evaluation of technical attributes by allowing similar orientation and film-to-specimen contact that reduces geometric un-sharpness. Film and digital images will be taken for various weld configurations, using production welds whenever possible, that will enable a reasonable assessment of the technology.

The Nested Material project is a \$622,000, twelve-month effort that will address scrap-prone areas in ship construction. Its specific focus is on pipe spool fabrication; an area that is particularly subject to waste and inefficient use of material. Currently, US shipbuilders attempt to manage this process using traditional nesting methods that are inefficient, inflexible, and frequently inconsistent with an individual hull's build strategy and schedule. The National Steel and Shipbuilding Company (NASSCO) will lead the effort to develop a dynamic pipe nesting process that enables an efficient pipe spool fabrication process that supports a flexible manufacturing environment. The goal is improved Pipe Shop efficiency that implements an automated pipe fabrication planning process; one that is able to apply defined rules for pipe part routing and nesting, but can accept late input changes to the work plans to accommodate emerging schedule changes and shop level loading requirements.

### **About CNST**

CNST is a Navy ManTech Center of Excellence, chartered by the Office of Naval Research (ONR) to identify, develop and deploy, in U.S. shipyards, advanced manufacturing technologies that will reduce the cost and time to build and repair Navy ships. For additional information on this and other CNST projects, please visit [www.cnst.us](http://www.cnst.us).

