



CRANE

Innovation Infosheet

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Adhesion Improvement via Laser Nanostructuring

Track Code: CRANE-103030

Categories:

- Materials and Manufacturing
- NSWC Crane

Keywords:

- Adhesives
- Crane
- Laser Surface Treatment
- Lasers
- Materials and Manufacturing

Improved methods for ultrashort pulse laser nanostructuring or texturizing has led to the ability to adjust a material's characteristics for the purposes of increased adhesion or altered chemical interaction properties. Applications of this technology and method are myriad including medical implants and devices, coating applications or removal, and energy storage.

Naval Surface Warfare Center, Crane Division (NSWC Crane) has developed patent pending technology and methods to increase the adhesive properties of a surface through laser nanostructuring or texturing. Ultrashort pulse lasers are used to athermally convert the target surface into a plasma state for restructuring on the target surface. The nanostructuring adjusts the interfacing material's characteristics, such as the surface area or the chemical interaction properties.

This new process has the potential to replace mechanical abrasion, etching, or chemical bonding agents in a variety of applications including, but not limited to, the medical field, removal of coatings, application of longer lasting coatings, and energy storage. Government and prime contractors are sought for integrating and transitioning these structures into commercial and military products for improved performance and market demand.

People:

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Intellectual Property:

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