

BNNano enters Cooperative Research and Development Agreement with the U.S. Naval Postgraduate School

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BURLINGTON, NC, USA, January 14, 2021 /EINPresswire.com/ -- [BNNano](#) Inc., the leading global supplier of enhanced [Boron Nitride Nanotubes \(NanoBarbs™\)](#), has entered into a Cooperative Research and Development Agreement (CRADA) with the US Naval Postgraduate School (NPS) located in Monterey, CA. NPS provides defense-focused graduate education to advance the operational effectiveness, technological leadership, and warfighting advantage of the Naval service. Boron Nitride NanoBarbs™ are a revolutionary nanomaterial with exceptional physical and chemical properties like electrical resistivity, superhydrophobicity, thermal stability, thermal conductivity, strength, and stiffness.

NPS collaborators include Professors Dr. Claudia Luhrs, Dr. Emre Gunduz, and Dr. Andy Nieto whose research and development include cold spray, additive manufacturing, and polymeric composite systems. They recognize the utility of Boron Nitride NanoBarbs™ (BNNBs) as they exhibit exceptional physical and chemical properties including superior strength and stiffness, thermal conductivity and are electrically insulative, neutron absorbing among other characteristics.

Dr. Luhrs' has more than 20 years' experience developing nanostructured materials in academic and industrial environments. Her team's targeted research tailors materials' properties resulting in nanomaterials with a wide range of applications (i.e., catalysts, batteries, supercapacitors, impact resistant, structural components, microelectronics, high temperature systems and conductive aerospace composite structures). Dr. Luhrs plans to employ NanoBarbs™ to enhance the thermal conductivity of lightweight carbon composites used by the aerospace industry. She also plans to combine them with phase change materials to optimize temperature regulation systems in living and storage spaces.

Dr. Gunduz focuses on the bulk synthesis and applications of nanostructured aluminum-based energetic materials. Such multifunctional materials provide structural support as well as thermal output in welding and additive manufacturing. A patent holder, he is involved with start-ups focused on additive manufacturing within the defense domain. Dr. Gunduz commented, "The high-strength Boron Nitride NanoBarbs™ strengthened alloys have many potential uses in the

aerospace industry where weight is at a premium. The lower cost of NanoBarbs™ along with potentially comparable mechanical properties to boron nitride nanotubes, could be a game changer for these applications.” He continued, “The suitability of these raw materials with additive manufacturing is especially attractive for high-performance parts fabrication with sophisticated geometries and microstructures that could be used for fuselage and engine components.”

During Dr. Nieto’s decade in nanotechnology, he pioneered the field of graphene reinforced ceramic matrix composites, which has grown and is implemented in numerous industries to include engine manufacturers. His research harnesses nanomaterials to develop improved materials through intelligent and systematic designs. Dr. Nieto intends to incorporate NanoBarbs™ into metallic coatings for metal part repair and thermal barrier coatings. While at the US Army Research Lab, he engineered sandphobicity into next generation thermal barrier coatings to protect gas turbine engines from damage induced by sand and fine particulate ingestion.

Jason Taylor, BNNano’s Chief Technology Officer, expressed excitement to partner with NPS and highlighted the numerous potential commercial and defense applications. He noted, “the potential of cold spraying of NanoBarb™ reinforced composites with increased strength and corrosion resistance could revolutionize material coating and prevent wear and corrosion.” Mr. Taylor also emphasized the potential applications in aerospace, thermal management, and battery materials and breakthroughs when NanoBarb™ are integrated into foam structures improving strength.

BNNano looks forward to its partnership with NPS and is eager to expand future engagement with NPS departments.

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