

The Strongest Materials Ever and Space Travel



Yuntian Zhu

Distinguished Professor, Department of Materials Science and Engineering

CURRENT RESEARCH

Carbon nanotube composites will revolutionize technologies for space explorations

Carbon nanotubes (CNTs) are the strongest material ever made by mankind. However, they are tiny and need to be assembled into a macroscopic composite to utilize their strength. Dr. Yuntian Zhu, of North Carolina State University, has developed a new nanotechnology to make CNT composites that are stronger than any current engineering materials. More importantly, his technology is conducive to scaling up for industrial production. If successful, the new strong, lightweight and conductive carbon nanotube composites can revolutionize and advance many high technologies from sporting goods to space travel. For example, new commercial airplanes are using carbon fiber composites to reduce weight. However, the poor conductivity makes airplanes susceptible to thunder-strikes when flying into clouds. The conductive and strong CNT composites could be used on the outer skin of the aircraft fuselage to solve this problem without adding parasitic weight. In addition this strong, light material would be in high demand for making space structures and vehicles for space explorations such as travel to Mars!

Dr. Zhu and his team solve problem with an "outside-the-box" approach. In fact, in addition to being used for commercial aircrafts and space travel, Dr. Zhu is using CNT composites to reach greater heights as he helps to develop the necessary materials for an elevator to space (<http://www.thespacereview.com/article/48/1>). Dr. Zhu and his team often take problems that have been unsuccessful and find solutions that are revolutionary. His...

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AFFILIATION



North Carolina State University

EDUCATION

- Ph.D., in Materials Science and Engineering, 1994 . University of Texas at Austin

AWARDS

- Fellow, ASM International, 2010
- Fellow, American Physical Society, 2011
- Fellow, American Association for the Advancement of Science (AAAS), 2012
- Albert Sauveur Achievement Award, ASM International, 2014
- Leadership Award, TMS, 2015

RESEARCH AREAS

Technology, Materials Science / Physics, Space

FUNDING REQUEST

Your contributions will support the continued research of Dr. Yuntian Zhu as he develops nanotube composites that are stronger than any current engineering materials. Donations will support the necessary \$2M needed for a new facility, scaling up, and for personnel. In choosing to donate you will be an important part of revolutionizing space travel and commercial flights!