

## **3D Printing Enables Lightweight, Affordable Radiation Shielding for Satellites - Tethers Unlimited Signs Contract to Develop ‘Versatile Structural Radiation Shielding’**

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**Bothell, WA**, 19 September 2013 – Tethers Unlimited, Inc. (TUI) has signed a contract with the Air Force Research Laboratory (AFRL) to develop technologies to enable 3D printing of spacecraft structures with embedded radiation shielding. Under this Phase II Small Business Innovation Research (SBIR) contract, TUI will develop its patent-pending processes for creating structural elements containing an internal layered composition of polymers and metals that is exceptionally efficient at absorbing space radiation. This “Versatile Structural Radiation Shielding” (VSRS) technology takes advantage of the flexibility of 3D printing to enable rapid and affordable fabrication of customized parts that minimize the mass required to shield spacecraft electronics.

“The desire to lower the cost and improve the performance of spacecraft systems is driving many satellite developers to consider commercial, off-the-shelf, or ‘COTS’ electronics, but these components are more susceptible to radiation than the very expensive hardened components that are traditionally used,” said Nestor Voronka, TUI’s Chief Technologist. “The VSRS technology integrates radiation shielding into the spacecraft structures so we can enable those COTS components to operate reliably while maintaining their low-cost and low-mass advantages.”

“The VSRS project builds upon our extensive work over the past five years adapting additive manufacturing techniques to fabricate multifunctional spacecraft structures,” said TUI’s CEO and Chief Scientist, Dr. Rob Hoyt. TUI has used these processes to create spacecraft exoskeletons with integral multi-layer thermal insulation, and under funding from NASA’s Innovative Advanced Concepts program it is currently developing ways to fabricate spacecraft structures on-orbit. “We hope to leverage the power of additive manufacturing to enable a radical change in the way spacecraft are built, dramatically reducing costs and increasing performance for many missions.”

### **About Tethers Unlimited, Inc.**

Tethers Unlimited, Inc. develops innovative technologies to enable transformative capabilities and dramatic cost savings for missions in Space, Sea, Earth, and Air. Its technology portfolio includes advanced space propulsion systems, high-performance components for nanosatellites, frequency-agile satellite communications systems based upon software defined radios, and methods for additive manufacturing of multifunctional spacecraft structures. To learn more about TUI and its products, please visit [www.tethers.com](http://www.tethers.com).

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