

# NASA selects proposals for ultra-lightweight materials for journey to Mars and beyond

April 8 2015, by Joshua Buck



Credit: NASA

NASA has selected three proposals to develop and manufacture ultra-lightweight (ULW) materials for future aerospace vehicles and structures. The proposals will mature advanced technologies that will enable NASA to reduce the mass of spacecraft by 40 percent for deep space exploration.

"Lightweight and multifunctional materials and structures are one of NASA's top focus areas capable of having the greatest impact on future NASA missions in human and robotic exploration," said Steve Jurczyk, associate administrator for the agency's Space Technology Mission Directorate in Washington. "These advanced technologies are necessary for us to be able to launch stronger, yet lighter, spacecraft and components as we look to explore an asteroid and eventually Mars."

Composite sandwich structures are a special type of material made by attaching two thin skins to a lightweight core. Traditional composite sandwich structures incorporate either honeycomb or foam cores. This type of composite is used extensively within the aerospace industry and in other applications making it possible for future journeys to Mars. The ULW materials being developed by NASA vary significantly from traditional cores and are expected to result in a significant decrease in mass.

Phase I awards of the solicitation are valued up to \$550,000, providing awardees with funding for 13 months to produce 12-by-12-by1-inch ULW core panels. Technologies selected to continue to Phase II will demonstrate the ability to scale up to 2-feet by 2-feet by 1-inch and ultimately to produce 10-feet by 11-feet by 1-inch ULW core panels, with NASA providing up to \$2 million per award for up to 18 months.

The three awards selected for contract negotiations are:

- HRL Laboratories LLC of Malibu, California: Ultralight Micro-

truss Cores for Space Launch Systems

- ATK Space Systems LLC of Magna, Utah: Game Changing Technology Development Program Ultra-Light Weight Core Materials for Efficient Load Bearing Composite Sandwich Structures
- Dynetics Inc. of Huntsville, Alabama: Ultra-Lightweight Core Materials for Efficient Load-Bearing Composite Sandwich Structures

Proposals for this solicitation were received from NASA centers, universities and industry. NASA's Langley Research Center in Hampton, Virginia, manages the Game Changing Development Program for STMD. For more information about STMD, the Game Changing Development Program and crosscutting space technology areas of interest to NASA, visit: [nasa.gov/spacetech](http://www.nasa.gov/spacetech)"  
target="\_blank">[www.nasa.gov/spacetech](http://www.nasa.gov/spacetech)

Provided by NASA

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