



Abstract #1686

English

Preliminary Test Results from the Helium Extraction and Acquisition Testbed

At the University of Wisconsin-Madison, research is ongoing to develop a prototype lunar volatiles extraction system that will demonstrate a process for acquiring valuable volatile gases that can be used for power, fuel or life support in space. The prototype system is called the Helium Extraction and Acquisition Test bed (HEAT) and is based on past lunar volatiles miner designs that were developed at the University of Wisconsin Fusion Technology Institute. Testing of HEAT is focused on measuring the rate of gas extraction from the processed lunar simulant and measuring the thermal energy recovery can be achieved in this kind of volatile extraction system with the use of a heat pipe heat exchanger. Preliminary results of the testing of the HEAT system will be presented.

French

No abstract title in French

No French resume

Author(s) and Co-Author(s)

Mr. Aaron Olson
Graduate Research Fellow
University of Wisconsin

Prof. Gerald L Kulcinski
(UnknownTitle)
University of Wisconsin

Prof. John F Santarius
(UnknownTitle)
University of Wisconsin

Dr. James Mantovani
(UnknownTitle)
NASA Kennedy Space Center

Aaron Olson earned a B.S. in Mechanical Engineering in 2012, completed his M.S. in Engineering Mechanics and Astronautics in May of 2014 and is expecting to complete a Ph.D. in this same field in 2017. During his undergraduate education, He studied abroad at the Institut Supérieur de l'Aéronautique et de l'Espace in Toulouse, France for a semester, had internships at both NASA Goddard Space Flight Center and NASA Langley Research Center, and was part of the 2011 winning NASA Exploration Habitat competition student team that built an expandable module for NASA'S Deep Space Habitat Prototype. Aaron was the president of the UW-Madison chapter of Students for the Exploration and Development of Space, participated in NASA's Undergraduate Microgravity Research program and was also a crew member of the 110th Mars Desert Research Station Crew. Now, as a Ph.D. candidate and NASA Space Technology Research Fellow, Aaron is researching the acquisition of lunar volatiles for future power generation and in-space life support and propellant purposes with Professor Gerald Kulcinski and the collaboration of NASA Kennedy Space Center's Swamp Works Lab.