ADDITIVE MANUFACTURING
an Enabling Technology for “Green” Hybrid Spacecraft Propulsion

Dr. Tony Whitmore will discuss the developmental of an innovative “green” hybrid propulsion system, applicable to small spacecraft, or the upper stages of nano-launch vehicles. With this system, the rocket fuels are printed using a form of additive manufacturing known as Fused Deposition Modeling (FDM). Using FDM overcomes multiple technical issues frequently associated with hybrid propulsion systems, FDM also reduces development and production costs by supporting high production rates across a wide range of form factors. Most significantly, because FDM processing builds the specimen one layer at a time, thermo-plastic materials fabricated via FDM possess unique electrical breakdown properties that greatly enhance system ignitability and restart capability. When fully developed, this propulsion technology has the potential for “drop-in” replacement of many hydrazine-based propulsion applications.

Dr. Whitmore is currently a professor in the Mechanical & Aerospace Engineering (MAE) Department at USU and has 30 years of academic, technical, and program management experience in the aerospace industry. Dr. Whitmore joined USU after more than 25 years working as a civil servant for NASA, where he worked as a research engineer, technical lead, group leader, principal investigator, chief engineer, and branch chief. He was also fortunate to work on seven different “X-planes.” Dr. Whitmore is a licensed private pilot with more than 400 hours as pilot in command. He has also accumulated numerous flight and flight simulator hours as a flight test engineer in military-class or high performance jet aircraft. He received a BS in Aerospace Engineering at University of Illinois, Urbana-Champaign, and a Masters in Mechanics and Structures and a PhD in Aerospace Engineering at University of California-Los Angeles.

Thursday, November 16, 2017
Innovation Campus
1695 North Research Parkway, North Logan, UT
Building 1695
Room A102 (Taj Mahal)
12:00PM - 1:00PM
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