Curriculum Vitae

Stephen A. Whitmore, PhD
Emeritus Professor, Mechanical and Aerospace Engineering Department
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Dr. Stephen A. Whitmore, Professor of Mechanical and Aerospace Engineering has more than 35 years of academic, technical, and program management experience in the aerospace industry. He joined USU in 2005 after more than 25 years as a civil servant for NASA. Dr. Whitmore served multiple roles within NASA including those of principal investigator, chief engineer, branch chief, and program manager. He was fortunate to have worked on 7 different "X-planes." He received his PhD in Aerospace Engineering from UCLA in 1988. Dr. Whitmore is a Licensed Private Pilot with more than 250 hours as pilot in command. He has also earned more than 40 hours as second in command and flight engineer in Military-Class Jet aircraft.

Dr. Whitmore is director of the Propulsion Research Laboratory at Utah State. The Propulsion Research Laboratory has recently developed a promising "green" alternative to hydrazine-based space propulsion systems. This approach is ideal for supporting the small-to-intermediate volume production rates required for most Aerospace applications, and offers potential of improving component quality, consistency, and performance, while reducing development and production costs. Dr. Whitmore and his team have recently received two key patents that are key to commercialization of this technology.

On March 25, 2018, a flight experiment built by students at Utah State University under the Direction Professor Whitmore, roared into space aboard a Terrier-Malemute sounding rocket from the NASA Wallops Flight Facility aboard a Terrier Malemute sounding rocket. The rocket fuel used for this experiment was manufactured using a 3-D printer, and is made from the same material as "legos." The vehicle flew in space for approximately seven minutes and reached an altitude of 107 miles before parachuting back to Earth and splashing down in the Atlantic Ocean for recovery. The team mounted two of the soda-can sized units to a small test frame inside the large sounding rocket. When the rocket reached the apogee altitude, its mid-section fell away and exposed the student experiments to the vacuum of space. The motor systems were successful fired five times. This event marks the first time a hybrid rocket system was restarted multiple time in a true space environment. This technical accomplishment significantly increases the Technology Readiness Level of this potentially market-disruptive technology.

Education

- 1989 PhD, Aerospace Engineering, University of California, Los Angeles.
  - Major: Flight Dynamics and Control
  - Minors: Applied Mathematics, Fluid Mechanics
- 1987 Professional Engineer Degree, University of California, Los Angeles
- 1983 MS, University of California, Los Angeles
  - Major: Mechanics and Structures
- 1980 BS, Aerospace Engineering, University of Illinois, Urbana-Champaign
  - Magna Cum Laude (High Honors)

Major Awards and Honors

- NASA Marshall Space Flight Center, Summer Faculty Fellowship, 2018.
- USU MAE Department Researcher of the Year, 2017.
- NASA Marshall Space Flight Center, Summer Faculty Fellowship, 2016.
- NASA Marshall Space Flight Center, Summer Faculty Fellowship, 2015.
- USU MAE Department Researcher of the Year, 2015.
- NASA University Student Launch Initiative, National Champions 2008, 2009, 2011, 2012.

    - Design, Build, Fly Competition
    - Mentor and Instructor, Champion Utah State Senior Design Team(s)
- Best Paper, Hybrid Rocket Sessions, 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, Atlanta, Georgia, 30 July - 01 August 2012.
    - *"Development and Testing of a Multiple Use Plug Hybrid (for) Nanosats (MUPHyN)"*
- Best Paper, Ground Test Technical Sessions at the 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Denver, CO, 2-5 August 2009.Hybrid Rocket Sessions,
    - *"A Novel Technique for Reconstructing High-Frequency Transient Motor Case Pressure Measurements,*"
- Utah Engineering Educator of the Year, 2009
    - Utah Governor's Engineering and Economic Development Council.
- Engineering Educator of the Year, 2008
    - Utah AIAA Section,
- Associate Fellow Award, American Institute of Aeronautics and Astronautics, 1997
- NASA Engineering Achievement Medal, 1995.
- Best NASA Technical Publication, Dryden Flight Research Center, 1995.
    - *"In-Flight Demonstration of a Real Time Flush Air Data Sensing (RT-FADS) System," NASA TM-104314.*
- Outstanding Scientist
    - NASA Ames Research Center, 1991
    - NASA Dryden Flight Research Center, 1992

Publications and Patents (Full publication and patent list available on request)

Dr. Whitmore has published more than 160 technical monographs including peer reviewed journal papers, peer reviewed NASA technical papers and memoranda, papers in conference proceedings, and book chapters.

- More than 180 Published Technical Monographs
- 56 Peer Reviewed Journal Papers
- 31 Peer Reviewed NASA Technical Papers and Memoranda
- 100 Papers Published in Conference Proceedings
- 3 Book Chapters
- 6 USA Patents Awarded, 6 USA provisional patents filed, 3 utility applications pending

Professional Employment History

- *2005 - Present Professor, Mechanical and Aerospace Engineering Dept., Director of Propulsion Research Laboratory*, *Utah State University, Logan UT*
- Promoted to Associate Professor and Granted Tenure, April 2011,
- Promoted to Full Professor, April 2015.
- *2002-2005 Lead Flight Mechanics / Aerodynamics X-37 Approach and Landing Test Vehicle (ALTV), NASA DFRC, Edwards CA*
- *2000 –2002 Michael J. Smith Space Systems Chair, Naval Postgraduate School, Monterey CA*
- *1999-2000 Chief Engineer, X-40a OMV Program, NASA DFRC, Edwards CA.*
- *1996-1999 Vehicle Aerodynamics Technical Group Lead, NASA DFRC, Edwards CA*
- *1994-1996 Acting Chief, Fluid and Flight Mechanics Branch, NASA DFRC, Edwards CA*
- *1985-1994 Aerospace Research Engineer, Aerodynamics Branch, NASA Ames Research Center (ARC), Moffett Field CA*
- *1983-1984 Full-Time Graduate Study Leave, NASA Fellowship, University of California, Los Angeles CA*
- 1980-1983 Research Engineer, Flight Mechanics / Dynamics Branch, NASA DFRC, Edwards CA
- 1976-1979 Student Intern, NASA Dryden Flight Research Center (DFRC), Edwards, CA

- **Additional Information:**

Research Support and/or Scholastic Performance

Dr. Whitmore has published more than 180 technical monographs including peer reviewed journal papers, peer reviewed NASA technical papers and memoranda, papers in conference proceedings, and book chapters.

Full publication and patent list available on request)

• 32 Peer Reviewed NASA Technical Papers and Memoranda
• 60 Peer Reviewed Journal Papers
• 100+ Papers Published in Conference Proceedings
• 3 Book Chapters
• 7 USA Patents Awarded, 7 USA provisional patents filed, 2 Utility applications pending

- **7-Year Research Funding Profile, Jan. 2016 – Jan. 2023**

• *Total # of Funded Awards: 23*
• *Total Award Funding Since 2015: $2,230,670*

Web of Science H, i10-Index Summary, Jan. 2016-2023

Cited by VIEW ALL

	All	Since 2018
Citations	2694	1252
h-index	30	18
i10-index	74	47