

## **Robert D. Braun**

Professor, Aerospace Engineering Sciences, 2016 - present.  
University of Colorado Boulder

## **Degrees**

B.S., Aerospace Engineering, Penn State University  
M.S., Astronautics, George Washington University  
Ph.D., Aeronautics and Astronautics, Stanford University

## **Georgia Tech Experience**

David and Andrew Lewis Associate Professor of Space Technology, Aerospace Engineering, 2003 - 2009.  
David and Andrew Lewis Professor of Space Technology, Aerospace Engineering, 2009 - 2016.  
Founding Director, Center for Space Technology and Research, 2013 - 2016.  
Director, Space Systems Design Laboratory, 2003 - 2016.

## **Other Professional Positions**

Chief Technologist, NASA, 2010-2011.  
Special Assistant for Exploration Engineering, NASA Langley Research Center, 2001-2003.  
Chief Engineer, Intelligent Synthesis Environment Program Office, NASA Langley Research Center, 2000-2001.  
Earth Entry Vehicle Manager, Mars Sample Return Project, NASA Langley Research Center, 1999-2000.  
Aerospace Technologist, NASA Langley Research Center, 1989-1999.  
  
Co-founder and Chief Technology Officer of Terminal Velocity, LLC., a small business focused on the development of a suite of re-entry devices to improve orbital debris hazard prediction and promote space utilization (2012 - 2015).  
  
United States Air Force Scientific Advisory Board, 2012 - 2014.  
Advisory Council, Jet Propulsion Laboratory, 2006 - 2009, 2012 - 2016.  
Advisory Board, Johns Hopkins Applied Physics Laboratory Space Systems Sector, 2012 - 2014.  
Advisory Board, Charles Stark Draper Laboratory Space Systems Sector, 2008 - 2009, 2012 - present.  
International Advisory Board, Skolkovo Institute of Science and Technology, 2013 - 2016.  
Chair, Mars 2020 Standing Review Board, 2014 - 2016.  
Advisory Council, The Planetary Society, 2009 - present.  
Advisory Council, Planet Labs, Inc., 2012 - 2016.  
Advisory Board, Florida Space Institute, 2012 - 2016.  
Advisory Board, Nuon Ventures, 2014 - 2015.

## **Five Selected Publications:**

Putnam, Z.R.; and Braun, R.D.; "Precision Landing at Mars Using Discrete-Event Drag Modulation," Journal of Spacecraft and Rockets, Vol. 51, No. 1, pp. 128-138, Jan-Feb, 2014.  
Grant, M.J.; Steinfeldt, B.A.; Matz, D.M.; Braun, R.D.; and Barton, G.H.; "Smart Divert - A New Entry, Descent and Landing Architecture." Journal of Spacecraft and Rockets, Vol. 47, No. 3, pp. 385-393, May-June, 2010.  
Theisinger, J.T.; and Braun, R.D.; "Multidisciplinary Hypersonic Entry Aeroshell Shape Optimization," Journal of Spacecraft and Rockets, Vol. 46, No. 5, pp. 957-966, Sept-Oct, 2009.  
Clark, I.M.; Hutchings, A.L.; Tanner, C.L.; and Braun, R.D.; "Supersonic Inflatable Aerodynamic Decelerators for Use on Future Robotic Missions to Mars." Journal of Spacecraft and Rockets, Vol. 46, No. 2, pp. 340-352, Mar-Apr, 2009.  
Braun, R.D.; and Manning, R.M.; "Mars Entry, Descent and Landing Challenges," Journal of Spacecraft and Rockets, Vol. 44, No. 2, pp. 310-323, Mar-Apr, 2007.

## **Selected Invited Talks and Congressional Testimony: 2009 - present**

Advancements in Space Technology, invited seminar, Skolkovo Institute of Science and Technology, November 11, 2014.  
Our Generation's Space Race, invited talk, The Penn State Forum, November 6, 2014.  
Engineering in a Time of Transition, invited colloquium at the University of Texas at Austin, April 15, 2014.  
Investment in Space Technology is Critical for NASA and our Nation's Future, invited written testimony to the U.S. House of Representatives Committee on Commerce, Science and Transportation, June 19, 2013.  
The Role of NASA in the 21<sup>st</sup> Century, keynote address at the SpaceVision 2012 conference, Buffalo-Niagara Convention Center, Buffalo, NY, November 8, 2012. Also given as inaugural seminar in the National Institute of Aerospace 10<sup>th</sup> Anniversary Celebration, Hampton, VA, November 1, 2012.  
Mars Entry, Descent and Landing Technology Advancements, invited lecture at Institut Supérieur de l'Aéronautique et de l'Espace, June 20, 2012.  
Ready; Set; Change the World, Pennsylvania State University College of Engineering Commencement Address, May 4, 2012.  
Investments in our Future: The NASA Space Technology Program, invited lectures and presentations at approximately 75 AIAA, AAS, industry forum, university, professional society and Congressional events, 2010-2011.  
Mars Entry, Descent and Landing Technology Advancements, AIAA von Kármán Lectureship in Astronautics, AIAA Aerospace Sciences Meeting, January 6, 2011.

NASA Technology Programs Are A Critical Investment in our Future, invited testimony to the U.S. Senate Committee on Commerce, Science and Transportation, March 10, 2010.

Strengthening NASA's Technology Programs, invited testimony to the U.S. House of Representatives Subcommittee on Science and Technology, October 22, 2009.

### **Professional Service:**

Member, National Academy of Engineering.

Vice Chair, NRC Space Studies Board, 2014 – present.

Chair, NRC Frontiers in Engineering Symposium, 2014 – 2016.

Member, NRC Technical Feasibility Panel, Committee on Human Spaceflight, 2013 – 2014.

Member, NRC Mars Panel, Planetary Science Decadal Survey, 2009.

Co-chair, NRC Committee to Review the NASA Institute for Advanced Concepts, 2008-2009.

Member, NRC New Opportunities in Solar System Exploration Committee, 2007-2008.

Fellow AIAA.

Editor-in-Chief, AIAA Journal of Spacecraft and Rockets, 2014 – present.

### **Selected Honors and Awards**

AAS Space Technology Award, 2014, “For extraordinary contributions in technology to enable the landing of vehicles on other planets, and for creating NASA technology development programs designed to build our nation’s future space capabilities and solve grand societal challenges on Earth.”

Alvin Seiff Memorial Award, 2012, for “Extraordinary and ongoing contributions to the field of planetary entry, descent and landing, including teaching a new generation of EDL system engineers, serving as the first NASA Chief Technologist in over a decade, and leadership and engineering knowledge that have contributed greatly to all NASA Mars surface missions from Pathfinder to MSL.”

NASA Distinguished Service Medal, 2011, in “Recognition of distinguished service in fostering cultural change, the advancement of crosscutting technology, and innovative approaches within NASA and the Government.”

AIAA von Karman Astronautics Lectureship, 2011, for “Significantly advancing the understanding of the challenge of Mars entry, descent, and landing, and for the development of systems concepts and technologies enabling Mars exploration.”

AIAA Lawrence Sperry Award, 1999, for “Significant contributions enabling the successful entry, descent, and landing of the Mars Pathfinder spacecraft, and the development of the Mars Microprobes and Mars Surveyor 2001 Orbiter and Lander.”

NASA Exceptional Achievement Medal, 1998, for “Outstanding engineering contributions which led to the successful entry, descent, and landing of the Mars Pathfinder spacecraft.”

NASA Exceptional Achievement Medal, 1996, for “Outstanding technical achievement in the application of flight systems entry analysis to space missions and commercial launch services.”

Presidential Award for Design Excellence, 2000, presented to the Mars Pathfinder Team.

National Air and Space Museum Trophy, 1998, presented to the Mars Pathfinder Team.

NASA Group Achievement Award, 2013, for “Outstanding achievement in managing the development and operations of the Mars Science Laboratory Project.”

NASA Group Achievement Award, 2010, for “Outstanding work in support of the CEV Project and for developing the first human-rate ablative heatshield in 40 years.”

NASA Group Achievement Award, 2004, for “Significant technology advancement of Mars airplane flight systems demonstrating their validity as a credible space science platform.”

NASA Group Achievement Award, 2000, for “Design of an innovative aeroshell system satisfying the unique entry, descent, and impact requirements of the Mars Microprobe mission.”

NASA Group Achievement Award, 1998, for “Outstanding technical contributions in the design, test, operations, and post-flight data reconstruction phases of the Mars Pathfinder mission.”

NASA Group Achievement Award, 1997, for “Outstanding contributions to the analysis and design of the Mars Pathfinder entry, descent, and landing system through definition of Mars atmospheric, aerodynamics, aerothermodynamics, and flight dynamics in support of the Space Science Enterprise.”

NASA Group Achievement Award, 1997, for “Outstanding contributions, skill, and teamwork as a member of the Mars Pathfinder operations navigation team.”

NASA Group Achievement Award, 1997, for “Outstanding skill and commitment in the design, development, and validation of the Mars Pathfinder Entry, Descent, and Landing subsystems.”

NASA Group Achievement Award, 1997, for “Outstanding skill and teamwork in the development of the Mars Pathfinder Entry, Descent, and Landing end-to-end verification simulation.”

NASA Inventions and Contributions Board Team Award, 2008, for “Development of the formal and approved entry, descent and landing Monte-Carlo simulation methodology used in NASA flight project practices.”

NASA Inventions and Contributions Board Team Award, 2006, for “The creative development of technically significant software which has been accepted and approved by NASA, entitled POST.”