
CURRICULUM VITAE

Contact Information

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Citizenship: United States of America

Education

M.S. (1986) Physics, Vanderbilt University, Nashville, TN
B.A. (1984) Chemistry and Physics, Transylvania University, Lexington, KY
International Space University (1991), Space Business & Management, Toulouse, France

Employment

2008 – Present
Deputy Manager, Advanced Concepts Office
NASA Marshall Space Flight Center, Huntsville, Alabama

2005 - 2008
Manager, Science Programs and Projects Office
NASA Marshall Space Flight Center, Huntsville, Alabama

2002 – 2005
Manager, In-Space Propulsion Technology Project
NASA Marshall Space Flight Center, Huntsville, Alabama

2000 – 2002
Manager, In-Space Transportation Technology, Advanced Space Transportation
Program, NASA Marshall Space Flight Center, Huntsville, Alabama

1999 – 2000
Manager, Interstellar Propulsion Research Project, Advanced Space Transportation
Program, NASA Marshall Space Flight Center, Huntsville, Alabama

1996 – 1999
Study Manager for Space Tether Missions and Applications, Program Development
Directorate, NASA Marshall Space Flight Center, Huntsville, Alabama

1990 – 1996

Study Manager for Space Science Advanced Concepts, Program Development Directorate, NASA Marshall Space Flight Center, Huntsville, Alabama

1986 – 1990

Research Physicist, General Research Corporation, Huntsville, Alabama

Space Flight Experience

2007 – Present

Co-Investigator, Fortissimo Space Tether Experiment (with JAXA)

1997 - 2003

Principal Investigator, Propulsive Small Expendable Deployer System

Awards & Recognition

Rotary Stellar Award Finalist, 2007

Vanderbilt University Holladay Lecturer in Physics, 2007

NASA Exceptional Achievement Medal, 2000

NASA Exceptional Achievement Medal, 1999

Professional of the Year: Huntsville Association of Technical Societies, 1998

Who's Who in Science and Engineering, 1991 – present

MENSA

Technical Committees

2004 – Present

Co-Chair, Joint Army-Navy-NASA-Air Force (JANNAF) Spacecraft Propulsion Subcommittee

Patents

“A Laser-Triggered Fiber Optic Neutron Sensor,” 1994

“Combination Solar Sail and Electrodynamic Tether Propulsion System,” 2003

“Electrodynamic Tether,” 2006

Books Authored

Living off the Land in Space (2007) with co-authors Gregory Matloff and C Bangs
Solar Sails (2008) with co-authors Giovanni Vulpetti and Gregory Matloff (Honorable Mention - First Runner Up - in the 2008 Cosmology and Astronomy category of the 2008 PROSE Awards given by the Association of American Publishers)
Paradise Regained: The Regreening of Planet Earth (to be published August 2009)

Technical Consultant

Lost In Space: The Movie 1998 Theatrical Release, New Line Cinemas
Deep Six novel by Jack McDevitt
Cradle of Saturn novel by James P. Hogan
Deep Space Probes textbook by Gregory Matloff
Kicking the Sacred Cow popular science book by James P. Hogan
Hyperthought novel by M. M. Buckner

Selected Publications

Les Johnson and Dan Thomas, "A Comparison of Lunar Lander Options for Robotic Exploration of the Moon," *Journal of the British Interplanetary Society*, Vol. 62, No. 1, January 2009.

Hironori Fujii, Takeo Watanabe, Les Johnson, et al, "Sounding Rocket Experiment of Bare Electrodynamic Tether System," *Acta Astronautica*, Vol. 64 (2009), pp. 313-324

L. Johnson, H.A. Fujii, and J.R. Sanmartin, "Fortissimo: A Japanese Space Test of Bare Anode Tethers," Dec. 2008 JANNAP Propulsion Meeting, Orlando, Florida

Gregory L. Matloff, Roman Zezerashvili, Claudio Maccone, and Les Johnson, "The beryllium hollow-body solar sail: exploration of the Sun's gravitational focus and the inner Oort Cloud," 2008, physics, space-ph, arXiv:0809.3535

L. Johnson and Paul Gilbert, "NASA's Discovery Program: Moving toward the Edge (Of the Solar System)," *Journal of the British Interplanetary Society*, Vol. 61, No. 8, August 2008.

Gregory L. Matloff, Les Johnson, and Claudio Maccone, "Helios and Prometheus: A Solar/Nuclear Outer-Solar System Mission," *Journal of the British Interplanetary Society*, Vol. 60, No. 12, December 2007

Les Johnson, Roy M. Young, and Edward E. Montgomery, "Recent Advances in Solar Sail Propulsion Systems at NASA," *Acta Astronautica*, Vol. 61 (2007), 376-382

Johnson, Les; Young, Roy; and Montgomery, Edward E., Status of Solar Sail Propulsion: Moving Toward an Interstellar Probe,” New Trends in Astrodynamics and Applications III, AIP Conf. Proc., February 7, 2007, Volume 886, pp. 207-214

Les Johnson, Bonnie James, Randy Baggett, and Edward E. Montgomery, “NASA’s In-Space Propulsion Technology Program: A Step Toward Interstellar Exploration,” 41st Symposium Realistic Near-Term Advanced Scientific Space Missions, Aosta, Italy, 4-6 Jul. 2005

Les Johnson, David Harris, Ann Trausch, Gregory L. Matloff, Travis Taylor, and Kathleen Cutting, “A Strategic Roadmap to Centauri,” Journal of the British Interplanetary Society, Vol. 58, No. 9/10, September/October 2005

L. Johnson, D. Harris, A. Trausch, G.L. Matloff, T. Taylor, and K. Cutting, “In-Space Propulsion: Connectivity to In-Space Fabrication and Repair,” NASA/TM-2005-214184, September 2005

Griffin, Brand; Thomas, Brent; Vaughan, Diane; Drake, Bret; Johnson, Les; Woodcock, Gordon, “A Comparison of Transportation Systems for Human Missions to Mars, 40th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit; Fort Lauderdale, FL; July 11-14, 2004

Les Johnson, Leslie Alexander, Randy Baggett, Joseph Bonometti, Melody Herrmann, Bonnie James, and Edward E. Montgomery, “NASA’s In-Space Propulsion Technology Program: Overview and Status,” 52nd Joint Army-Navy-NASA- Air Force Propulsion Meeting, 10-13 May, 2004

Johnson, Les; Alexander, Leslie; Baggett, Randy M; Bonometti, Joseph A; Herrmann, Melody; James, Bonnie F; Montgomery, Sandy E, “NASA In-Space Propulsion Technology Program: Overview and Update,” 36th Annual Division for Planetary Science Meeting; 8-10 Nov. 2004

E.E. Montgomery, L. Johnson, R. Young, J. Presson, “Solar Sail Propulsion: A Simple, Propellantless, Rapidly Maturing Technology,” American Astronomical Society, DPS meeting #36, #10.02; Bulletin of the American Astronomical Society, Vol. 36, 2004

L. Johnson and J. Robinson, “NASA's In-Space Propulsion Technology Program,” American Astronomical Society, DPS meeting #36, #10.01; Bulletin of the American Astronomical Society, Vol. 36, 2004

E. Montgomery and C. Johnson, “The Development of Solar Sail Propulsion for NASA Science Missions,” 45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Palm Springs, California, Apr. 19-22, 2004

Les Johnson, Enrico Lorenzini, Brian Gilchrist, Nobie Stone, and Ken Wright, “Propulsive Small Expendable Deployer System (ProSEDS) Experiment: Mission

Overview and Status,” AIAA-2003-5094, 39th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Huntsville, Alabama, July 20-23, 2003

Woodcock, Gordon; Farris, Robert; Johnson, Les; Jones, Jonathan; Kos, Larry; Trausch, Ann, “Benefits of Nuclear Electric Propulsion for outer Planet Exploration,” 38th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Indianapolis, IN; 7-10, July 2002

B. Eberle, B. Farris, L. Johnson, J. Jones, and L. Kos, “Selection and Prioritization of Advanced Propulsion Technologies for Future Space Missions,” 38th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Indianapolis, Indiana, July 7-10, 2002

Les Johnson, B. Farris, B. Eberle, G. Woodcock, and B. Negast, “Integrated In-Space Transportation Plan,” NASA/CR-2002-212050, October 2002

Johnson, Les, “Propulsion Technologies for Exploration of the Solar System and Beyond,” Review of Scientific Instruments, Volume 373, No. 2, Pages 1079-1082, 2001

Johnson, Les, “Propellantless Propulsion Technologies for In-Space Transportation,” 52nd IAF Conference, Toulouse, France; 1-5 Oct. 2001

Kirk Sorensen, Les Johnson, and Ken Welzyn, “Conceptual design issues of a Spinning Tether Orbital Transfer System (STOTS),” Aerospace Sciences Meeting and Exhibit, 38th, Reno, NV, Jan. 10-13, 2000

Johnson, L; Leifer, S. “Propulsion Options for Interstellar Exploration,” AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, 36th, Huntsville, AL; 16-19 July 2000

Matloff, Gregory L., and Johnson, Les, “Magnetic surfing - Reformulation of Lenz's law and Applications to Spacecraft Propulsion,” AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, 36th, Huntsville, AL, 16-19 July, 2000

Les Johnson, “The Tether Solution,” IEEE Spectrum, Volume 37, Issue No. 7, Pages 38-43, July 2000

L. Johnson, R.D. Estes, E. Lorenzini, M. Martinez-Sanchez, and J. Sanmartin, “Propulsive Small Expendable Deployer System Experiment,” Journal of Spacecraft and Rockets, 2000, vol. 37, no. 2

E. C. Lorenzini; M. L. Cosmo; M. Kaiser; M. E. Bangham; D. J. Vonderwell; L. Johnson, “Mission Analysis of Spinning Systems for Transfers from Low Orbits to Geostationary,” Journal of Spacecraft and Rockets, 2000 vol.37 no.2 (165-172)

R. D. Estes; E. C. Lorenzini; J. Sanmartin; M. Martinez-Sanchez; C. L. Johnson; and I. E. Vas, "Bare Tethers for Electrodynamic Spacecraft Propulsion," *Journal of Spacecraft and Rockets* 2000, vol.37 no.2 (205-211)

L. Johnson, B. Gilchrist, R. D. Estes and E. Lorenzini, "Overview of Future NASA Tether Applications," *Advances in Space Research*, 1999, Volume 24, Issue 8, p. 1055-1063

Santangelo, Andrew; Johnson, Les; Gilchrist, Brian; Hoffman, John; Lorenzini, Enrico; Estes, Robert, "Advancing electrodynamic tethers to commercially viable systems - STEP-AIRSEDS," NASA/JPL/MSFC/AIAA Annual Advanced Space Propulsion Workshop, 10th, Huntsville, AL; 5-8 Apr. 1999

Johnson, Les; Estes, Robert D; Lorenzini, Enrico; Martinez-Sanchez, Manuel; Sanmartin, Juan; Vas, Irwin, "Electrodynamic Tethers for Spacecraft Propulsion," AIAA, Aerospace Sciences Meeting & Exhibit, 36th, Reno, NV; 12-15 Jan. 1998

Johnson, Les; Ballance, Judy; Gilchrist, Brian; Estes, Robert D; Lorenzini, Enrico, "Propulsive Small Expendable Deployer System (ProSEDS) Space Experiment," AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, 34th, Cleveland, OH; 13-15 July 1998

Johnson, L; Herrmann, M., "International Space Station Electrodynamic Tether Reboost Study," 1998, NASA Technical Memorandum 1998-208538

Johnson, L., Gilchrist, B., Estes, R. D., Lorenzini, E, Martinez-Sanchez, M., and Sanmartin, J., "Electrodynamic Tether Propulsion for Spacecraft and Upper Stages, July 1998 JANNAF Propulsion Meeting, Volume 1, pages 253-262

Gallagher, D L; Johnson, L; Moore, J; Bagenal, F, "Electrodynamic Tether Propulsion and Power Generation at Jupiter," NASA Technical Publication 1998-208475

Johnson, L., and Herrmann, M., "Tether-Based Investigation of the Ionosphere and Lower Thermosphere Concept Definition Study Report, NASA Technical Memorandum, 1997-108843

Armstrong, T.P, and Johnson, L., "Magnetosphere Imager Science Definition Team Interim Report," NASA Technical Memorandum, 1995

Johnson, L., and Herrmann, M., "Inner Magnetosphere Imager mission: a new window on the plasma universe," *Optical Engineering* 33(02), 329-334, February 1994

Johnson, Les and Herrmann, Melody, "Imaging the Earth's magnetosphere from space - The inner magnetosphere imager mission," *Instrumentation for Magnetospheric Imagery II; Proceedings of the Conference, San Diego, CA; UNITED STATES; 14 July 1993.* pp. 2-10. 1993

Herrmann, Melody, and Johnson, Les, "Spacecraft design considerations for an inner-magnetosphere imager mission," Proceedings of SPIE -- Volume 1744 Instrumentation for Magnetospheric Imagery, June 1992, pp. 2-12

Johnson, Charles L., and Brown, Norman S., "Near-term SEI science missions utilizing an evolutionary lunar transportation system," IAF, International Astronautical Congress, 43rd, Washington, Aug. 28-Sept. 5, 1992

Charles L. Johnson, Kurtis L. Dietz, T. W. Armstrong, and B. L. Colborn, "Mitigation of Adverse Environmental Effects on Lunar-Based Astronomical Instruments," Space '92, Proceedings of the Third International Conference held in Denver, Colorado, May 31-June 4, 1992

Johnson, Charles L., and Dietz, Kurtis L., "Effects of the lunar environment on optical telescopes and instruments," Proceedings of SPIE -- Volume 1494, Space Astronomical Telescopes and Instruments, September 1991, pp. 208-218