

**Braun, Robert D.**  
**December 2009**

## **PUBLICATIONS**

### **A. Published Books and Parts of Books**

1. Braun, R. D., and Kroo, I. M.: "Development and Application of the Collaborative Optimization Architecture in a Multidisciplinary Design Environment."  
Multidisciplinary Design Optimization: State of the Art, N. Alexandrov and M. Y. Hussaini, Editors, SIAM, February 1997.

### **B. Refereed Publications**

1. Braun, R. D.; Powell, R. W.; and Hartung, L. C.: "The Effect of Interplanetary Trajectory Options on a Manned Mars Aerobrake Configuration." NASA TP-3019, August 1990.
2. Braun, R. D.: "The Influence of Interplanetary Trajectory Options on a Chemically Propelled Manned Mars Mission." The Journal of the Astronautical Sciences, Vol. 38, No. 3, pp. 289-310, July-September 1990.
3. Braun, R. D. and Blersch, D. J.: "Propulsive Options for a Manned Mars Transportation System." Journal of Spacecraft & Rockets, Vol. 28, No. 1, pp. 85-92, January-February 1991.
4. Striepe, S. A. and Braun, R. D.: "Effects of a Venus Swingby Periapsis Burn During an Earth-Mars Trajectory." The Journal of the Astronautical Sciences, Vol. 39, No. 3, pp. 299-312, July-September 1991.
5. Braun, R. D. and Powell, R. W.: "Aerodynamic Requirements of a Manned Mars Aerobraking Transfer Vehicle." Journal of Spacecraft & Rockets, Vol. 28, No. 4, pp. 361-367, July-August 1991.
6. Desai, P. N. and Braun, R. D.: "Mars Parking Orbit Selection." The Journal of the Astronautical Sciences, Vol. 39, No. 4, pp. 447-468, October-December 1991.
7. Gnoffo, P. A.; Price, J. M.; and Braun, R. D.: "Computation of Near-Wake, Aerobrake Flowfields." Journal of Spacecraft & Rockets, Vol. 29, No. 2, pp. 182-189, March-April 1992.
8. Braun, R. D.; Powell, R. W.; and Lyne, J. E.: "Earth Aerobraking Strategies for Manned Return from Mars." Journal of Spacecraft & Rockets, Vol. 29, No. 3, pp. 297-304, May-June 1992.
9. Braun, R. D. and Powell, R. W.: "A Predictor-Corrector Guidance Algorithm Used in High-Energy Aerobrake System Studies." Journal of Guidance, Control and Dynamics, Vol. 15, No. 3, pp. 672-678, May-June 1992.

10. Freeman, D. C.; Powell, R. W.; and Braun, R. D.: "Manned Mars Aerobrake Vehicle Design Issues." SPACE TECHNOLOGY, Industrial and Commercial Applications, Vol. 12, No. 3, pp. 313-324, July 1992.
11. Lyne, J. E.; Tauber, J. E.; and Braun, R. D.: "Parametric Study of Manned Aerocapture, Part 1: Earth Return From Mars." Journal of Spacecraft & Rockets, Vol. 29, No. 6, November-December 1992.
12. Desai, P. N.; Braun, R. D.; and Powell, R. W.: "Aspects of Parking Orbit Selection in a Manned Mars Mission." NASA TP-3256, December 1992.
13. Striepe, S. A.; Powell, R. W.; Braun, R. D.; and Fowler, W.: "Influence of Interplanetary Trajectory Selection on Earth Atmospheric Entry Velocity of Mars Missions." Journal of Spacecraft & Rockets, Vol. 30, No. 4, pp. 420-425, July-August 1993.
14. Striepe, S. A.; Powell, R. W.; Braun, R. D.; and Fowler, W.: "Influence of Interplanetary Trajectory Selection on Mars Atmospheric Entry Velocity." Journal of Spacecraft & Rockets, Vol. 30, No. 4, pp. 426-430, July-August 1993.
15. Lyne, J. E. and Braun, R. D.: "Flexible Strategies for Manned Mars Missions Using Aerobraking and Nuclear Thermal Propulsion." The Journal of Astronautical Sciences, Vol. 41, No. 3, pp. 339-347, July-September 1993.
16. Powell, R. W. and Braun, R. D.: "A Six Degree-of-Freedom Guidance and Control Analysis of Mars Aerocapture." Journal of Guidance, Control and Dynamics, Vol. 16, No. 6, pp. 1038-1044, November-December 1993.
17. Gage, P. J.; Braun, R. D.; and Kroo, I. M.: "Interplanetary Trajectory Optimization Using a Genetic Algorithm." The Journal of Astronautical Sciences, Vol. 43, No. 1, pp. 59-76, January-March 1995.
18. Braun, R. D.; Powell, R. W.; Lepsch, R. A.; Stanley, D. O.; and Kroo, I. M.: "Comparison of Two Multidisciplinary Optimization Strategies for Launch Vehicle Design." Journal of Spacecraft and Rockets, Vol. 32, No. 3, pp. 404-410, May-June 1995.
19. Braun, R. D.; Powell, R. W.; Englund, W. C.; Gnoffo, P. A.; Weilmuenster, K. J.; and Mitcheltree, R. A.: "Mars Pathfinder Six Degree-of-Freedom Entry Analysis." Journal of Spacecraft & Rockets, Vol. 32, No. 6, pp. 993-1000, November-December 1995.
20. Gnoffo, P. A.; Weilmuenster, K. J.; Braun, R. D.; and Cruz, C. I.: "Influence of Sonic Line Location on Mars Pathfinder Probe Aerothermodynamics." Journal of Spacecraft & Rockets, Vol. 33, No. 2, pp. 169-177, March-April 1996.
21. Spencer, D. A. and Braun, R. D.: "Mars Pathfinder Atmospheric Entry: Trajectory Design and Dispersion Analysis." Journal of Spacecraft & Rockets, Vol. 33, No. 5, pp. 670-676, September-October 1996.

22. Desai, P. N.; Braun, R. D.; Powell, R. W.; Engelund, W. C.; and Tartabini, P. V.: "Six Degree-of-Freedom Entry Dispersion Analysis for the METEOR Recovery Module." Journal of Spacecraft and Rockets, Vol. 34, No. 3, May-June 1997.
23. Braun, R. D.; Kroo, I. M.; and Moore, A. A.: "Use of the Collaborative Optimization Architecture for Launch Vehicle Design." Journal of Spacecraft & Rockets, Vol. 34, No. 4, pp. 478-486, July-Aug., 1997.
24. Rowell, L. F.; Braun, R. D.; Olds, J. R.; and Unal, R.: "Multidisciplinary Conceptual Design Optimization of Space Transportation Systems." Journal of Aircraft, Vol. 36, No. 1, pp. 218-226, Jan.-Feb. 1999.
25. Moss, J.N., Blanchard, R.C., Wilmoth, R.G., and Braun, R.D.: "Mars Pathfinder Rarefied Aerodynamics." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 330-339, May-June, 1999.
26. Vaughan, R.M., Kallemeyn, P.H., Spencer, D.A. and Braun, R.D.: "Navigation Flight Operations for Mars Pathfinder." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 340-347, May-June, 1999.
27. Braun, R.D.; Spencer, D.A., Kallemeyn, P.H., Vaughan, R.M.: "Mars Pathfinder Atmospheric Entry Navigation Operations." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 348-356, May-June, 1999.
28. Spencer, D.A.; Blanchard, R.A.; Braun, R.D.; Kallemeyn, P.H.; and Thurman, S.W.: "Mars Pathfinder Entry, Descent, and Landing Reconstruction." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 357-366, May-June, 1999.
29. Gnoffo, P.A.; Braun, R.D.; Weilmuenster, K.J.; Mitcheltree, R.A.; Engelund, W.C.; and Powell, R.W.: "Prediction and Validation of the Mars Pathfinder Hypersonic Aerodynamic Database." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 367-373, May-June, 1999.
30. Mitcheltree, R.A.; Moss, J.N.; Cheatwood, F.M.; Greene, F.A.; and Braun, R.D.: "Aerodynamics of the Mars Microprobe Entry Vehicles." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 392-398, May-June, 1999.
31. Mitcheltree, R.A.; DiFulvio M.; Horvath, T.J.; and Braun, R.D.: "Aerothermal Heating Predictions for Mars Microprobe." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 405-411, May-June, 1999.
32. Braun, R. D.; Mitcheltree, R. A.; and Cheatwood, F. M.: "Mars Microprobe Entry-to-Impact Analysis." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 412-420, May-June, 1999.

33. Queen, E.M.; Cheatwood, F.M.; Powell, R.W.; Braun, R. D., and Edquist, C.T.: "Mars Polar Lander Aerothermodynamic and Entry Dispersion Analysis." Journal of Spacecraft & Rockets, Vol. 36, No. 3, pp. 421-428, May-June, 1999.
34. Unal, R.; Braun, R.D.; Moore, A.A.; and Lepsch, R.A.: "Designing for Cost Using Genetic Algorithms." Journal of Parametrics, Vol. 21, No. 1, pp. 59-73, Fall 2001.
35. Unal, R.; Braun, R.D.; Moore, A.A.; and Lepsch, R.A.: "Design Optimization on a Cost Basis Using Orthogonal Arrays." Journal of Cost Analysis & Management, pp. 41-50, Winter 2001.
36. Braun, R.D.; Wright, H.S.; Croom, M.A.; Levine, J.S.; and Spencer, D.A.: "Design of the ARES Mars Airplane and Mission Architecture." Journal of Spacecraft and Rockets, Vol. 43, No. 5, pp. 1026-1034, Sept-Oct, 2006.
37. Rohrschneider, R.R.; and Braun, R.D.: "Survey of Ballute Technology for Aerocapture." Journal of Spacecraft and Rockets, Vol. 44, No. 1, pp. 10-23, Jan-Feb, 2007.
38. Putnam, Z.R.; Braun, R.D.; Rohrschneider, R.R.; and Dec, J.A.: "Entry System Options for Human Lunar Return." Journal of Spacecraft and Rockets, Vol. 44, No. 1, pp. 194-202, Jan-Feb, 2007.
39. 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.
40. Wooster, P.D.; Braun, R.D.; Ahn, J.; and Putnam, Z.R.: "Mission Design Options for Human Mars Missions." MARS: The International Journal of Mars Science and Exploration, Vol. 3, pp. 12-28, Aug. 2007.
41. Christian, J.A.; Manyapu, K.; Wells, G.W.; Lafleur, J.M.; Verges, A.M.; and Braun, R.D.: "Sizing of an Entry, Descent, and Landing System for Human Mars Exploration." Journal of Spacecraft and Rockets, Vol. 45, No. 1, pp.130-141, Jan-Feb, 2008.
42. Putnam, Z.R.; Bairstow, S.H.; Barton, G.H.; and Braun, R.D.: "Improving Lunar Return Entry Footprints Using Enhanced Skip Trajectory Guidance." Journal of Spacecraft and Rockets, Vol. 45, No. 2, pp. 309-315, Mar-Apr, 2008; see also The Draper Technology Digest, Vol. 11, CSDL-R-3009, pp. 24-33, 2007.
43. Clark, I.G.; and Braun, R.D.: "Ballute Entry Systems for Lunar Return and Low-Earth-Orbit Return Missions." Journal of Spacecraft and Rockets, Vol. 45, No. 3, pp. 619-630, May-June, 2008.
44. Korzun, A.M.; Braun, R.D.; Wagner, E.B.; Fulford-Jones, T.R.; Deems, E.C.; Judnick, D.C.; Keese, J.E.: "Mars Gravity Biosatellite: Engineering, Science and Education." Acta Astronautica, Vol. 63, No. 4, pp. 8-19, July-Aug. 2008.

45. Rohrschneider, R.R.; and Braun, R.D.: "Static Aeroelastic Analysis of a Thin-Film Clamped Ballute for Titan Aerocapture." Journal of Spacecraft and Rockets, Vol. 45, No. 4, pp. 785-801, July-Aug, 2008.
46. Dubos, G.F.; Saleh, J.H.; and Braun, R.D.: "Technology Readiness Level, Schedule Risk, and Slippage in Spacecraft Design." Journal of Spacecraft and Rockets, Vol. 45, No. 4, pp. 836-842, July-Aug, 2008.
47. 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.
48. Korzun, A.M.; Braun, R.D.; and Cruz, J.R.: "A Survey of Supersonic Retropropulsion Technology for Mars Entry, Descent and Landing," Journal of Spacecraft and Rockets, Vol. 46, No. 5, pp. 929-937, Sept-Oct, 2009.
49. 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.
50. Alemany, K. and Braun, R.D.: "Design Space Pruning Heuristics and Global Optimization Method for Conceptual Design of Low-Thrust Asteroid Tour Missions," Accepted for publication in Acta Astronautica, 2010.
51. Steinfeldt, B.A.; Grant, M.J.; Matz, D.M.; Braun, R.D.; and Barton, G.H.: "Guidance, Navigation and Control Technology Enabling Pinpoint Landing at Mars." Accepted for publication in the Journal of Spacecraft and Rockets, 2010.
52. 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." Accepted for publication in the Journal of Spacecraft and Rockets, 2010.

### **C. Other Publications**

1. Braun, R. D.: "Trajectory Analysis of a Low Lift/Drag Aeroassisted Orbit Transfer Vehicle." AAS 87-123. 25th Goddard Memorial Symposium, Goddard Space Flight Center, Greenbelt, MD, March 1987. See also Visions of Tomorrow: A Focus On National Space Transportation Issues (Dr. Gerald Soffen, ed.), Science and Technology Series, Vol. 69, pp. 163-174, March 1987.
2. Braun, R. D. and Suit, W. T.: "Aeroassisted Orbit Transfer Vehicle Trajectory Analysis." NASA TM 89138, January 1988.
3. Braun, R. D. and Youngblood, J. W.: "Interplanetary Mars Mission Analysis." Research and Technology 1988. NASA TM 4078, pp. 115-116, December 1988.
4. Braun, R. D.: "A Survey of Interplanetary Trajectory Options for a Chemically Propelled Manned Mars Vehicle." AAS 89-202. AAS/NASA International Symposium on Mission Design and Orbital Mechanics, Goddard Space Flight Center, Greenbelt, MD, April 24-27, 1989. See also Orbital Mechanics and Mission

Design (Jerome Teles, ed.), Advances in the Astronautical Sciences, Vol. 69, pp. 681-695, April 1989.

5. Braun, R. D. and Blersch, D. J.: "Propulsive Options for a Manned Mars Transportation System." AIAA 89-2950. AIAA/ASME/SAE/ASEE 25th Joint Propulsion Conference, Monterey, CA, July 10-12, 1989.
6. Striepe, S. A. and Braun, R. D.: "Effects of a Venus Swingby Periapsis Burn During an Earth-Mars Trajectory." AAS 89-426. AAS/AIAA Astrodynamics Specialist Conference, Stowe, VT, August 7-10, 1989.
7. Braun, R. D. and Powell, R. W.: "Aerodynamic Requirements of a Manned Mars Aerobraking Transfer Vehicle." AIAA 90-2817. AIAA Atmospheric Flight Mechanics Conference, Portland, OR, August 20-22, 1990.
8. Desai, P. N. and Braun, R. D.: "Mars Parking Orbit Selection." AIAA 90-2890. AIAA/AAS Astrodynamics Conference, Portland, OR, August 20-22, 1990.
9. Freeman, D. C.; Powell, R. W.; and Braun, R. D.: "Manned Mars Aerobrake Vehicle Design Issues." IAF 90-197. 41st Congress of the International Astronautical Federation, Dresden, GDR, October 6-12, 1990.
10. Powell, R. W. and Braun, R. D.: "High-Energy Aerobraking Studies." Research and Technology 1989. NASA TM 4150, pp. 130-131, February 1990.
11. Braun, R. D. and Powell, R. W.: "Aerodynamic Requirements for Manned Mars Aerobraking Transfer Vehicle." Research and Technology 1990. NASA TM 4243, pp. 168-169, January 1991.
12. Braun, R. D. and Powell, R. W.: "A Predictor-Corrector Guidance Algorithm for Use in High-Energy Aerobrake System Studies." AIAA 91-0058. 29th Aerospace Sciences Meeting, Reno, NV, January 7-10, 1991.
13. Gnoffo, P. A.; Price, J. M.; and Braun, R. D.: "On the Computation of Near Wake, Aerobrake Flowfields." AIAA 91-1371. AIAA 26th Thermophysics Conference, Honolulu, HI, June 24-26, 1991.
14. Braun, R. D.; Powell, R. W.; and Lyne, J. E.: "Earth Aerobraking Strategies for Manned Return from Mars." AIAA 91-2873. AIAA Atmospheric Flight Mechanics Conference, New Orleans, LA, August 12-14, 1991.
15. Lyne, J. E.; Tauber, M. E.; and Braun, R. D.: "Earth Return Aerocapture for Manned Mars Missions." AIAA 91-2874. AIAA Atmospheric Flight Mechanics Conference, New Orleans, LA, August 12-14, 1991.
16. Striepe, S. A.; Powell, R. W.; Braun, R. D.; and Fowler, W.: "Interplanetary Trajectory Optimization of Mars Aerobraking Missions with Constrained Atmospheric Entry Velocities." AAS 91-421. AAS/AIAA Astrodynamics Specialist Conference, Durango, CO, August 19-22, 1991.

17. Bourke, R. D., Editor: "SEI Engineering Requirements on Robotic Missions: Report of the Mars Atmospheric Knowledge Requirements Working Group." JPL D-8465, May 10, 1991.
18. Powell, R. W. and Braun, R. D.: "A Six Degree-of-Freedom Guidance and Control Analysis of Mars Aerocapture." AIAA 92-0736. 30th Aerospace Sciences Meeting, Reno, NV, January 6-9, 1992.
19. Lyne, J. E. and Braun, D. D.: "Flexible Strategies for Manned Mars Missions Using Aerobraking and Nuclear Thermal Propulsion." AAS 93-0171. AAS/AIAA Space Flight Mechanics Meeting, Monterey, CA, February 22-24, 1993.
20. Braun, R. D.; Kroo, I. M.; and Gage, P. J.: "Post-Optimality Analysis in Aircraft Design." AIAA 93-3932. AIAA Aircraft Design, Systems, and Operations Meeting, Monterey, CA, August 11-13, 1993.
21. Gage, P. J.; Braun, R. D.; and Kroo, I. M.: "Interplanetary Trajectory Optimization Using a Genetic Algorithm." AIAA 94-3773. AIAA/AAS Astrodynamics Conference, Scottsdale, AZ, August 1-3, 1994.
22. Braun, R. D.; Powell, R. W.; Lepsch, R. A.; Stanley, D. O.; and Kroo, I. M.: "Multidisciplinary Optimization Strategies for Launch Vehicle Design." AIAA 94-4341. 5th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Panama City, FL, September 7-9, 1994.
23. Kroo I.; Altus S.; Braun, R. D.; and Sobieski, I.: "Multidisciplinary Optimization Methods for Aircraft Preliminary Design." AIAA 94-4325. 5th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Panama City, FL, September 7-9, 1994.
24. Braun, R. D.; Powell, R. W.; Englund, W. C.; Gnoffo, P. A. ; Weilmuenster, K. J.; and Mitcheltree, R. A.: "Six Degree-of-Freedom Atmospheric Entry Analysis for the Mars Pathfinder Mission." AIAA 95-0456. 33rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 9-12, 1995.
25. Braun, R. D. and Kroo, I.: "A Collaborative Approach to Trajectory Optimization." Proceedings of the International Conference on Scientific Computation and Differential Equations (SciCADE 95), Stanford, CA, March 28-April 1, 1995.
26. Unal, R.; Braun, R. D.; Moore, A. A.; and Lepsch, R. A.: "Design Optimization For Cost Using Genetic Algorithms." Proceedings of the International Society of Parametric Analysts 17th Annual Conference, San Diego, CA, May 30 - June 2, 1995.
27. Moore, A. A.; Braun, R. D.; and Powell, R. W.: "The Infusion of Cost Into the Multidisciplinary Design of Space Transportation Systems." Proceedings of the International Society of Parametric Analysts 17th Annual Conference, San Diego, CA, May 30-June 2, 1995.

28. Gnoffo, P. A.; Weilmuenster, K. J.; Braun, R. D.; and Cruz, C. I.: "Effect of Sonic Line Transition on Aerothermodynamics of the MESUR Pathfinder Probe." AIAA 95-1825. 29th AIAA Thermophysics Conference, San Diego, CA, June 19-22, 1995.
29. Braun, R. D. and Kroo, I.M.: "Use of the Collaborative Optimization Architecture in a Multidisciplinary Design Environment." Proceedings of the 3rd International Congress on Industrial and Applied Mathematics, Hamburg, Germany, July 3-7, 1995.
30. Tartabini, P. V.; Braun, R. D.; and Chowdry, R. S.: "A Comparison of Direct Trajectory Optimization Techniques: Collocation vs. Numerical Integration." AIAA 95-3481. AIAA Atmospheric Flight Mechanics Conference, Baltimore, MD, August 7-9, 1995.
31. Spencer, D. A. and Braun, R. D.: "Mars Pathfinder Entry Trajectory Design Using a Monte Carlo Approach." AAS 95-379. AAS/AIAA Astrodynamics Specialist Conference, Halifax, Nova Scotia, August 14-17, 1995.
32. Desai, P. N.; Braun, R. D.; Powell, R. W.; Engelund, W. C.; and Tartabini, P. V.: "Six Degree-of-Freedom Entry Dispersion Analysis for the METEOR Recovery Module." AIAA 96-0903. 34th Aerospace Sciences Meeting and Exhibit, Reno, NV, January 15-18, 1996.
33. Powell, R.W.; Striepe, S.A.; Desai, P.N.; and Braun, R.D.; "Program to Optimize Simulated Trajectories (POST), Utilization Manual, Version 5.0." September 1996.
34. Braun, R. D.; Kroo, I. M.; and Moore, A. A.: "Use of the Collaborative Optimization Architecture for Launch Vehicle Design." AIAA 96-4018. 6th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Bellevue, WA, September 4-6, 1996.
35. Braun, R. D.; Gage, P.; and Kroo, I. M.; and Sobieski, I.: "Implementation and Performance Issues in Collaborative Optimization." AIAA 96-4017. 6th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Bellevue, WA, September 4-6, 1996.
36. Moore, A. A.; Braun, R. D.; and Powell, R. W.: "Optimal Technology Investment Strategies for a Reusable Launch Vehicle." AIAA 96-4091. 6th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Bellevue, WA, September 4-6, 1996.
37. Rowell, L. F.; Braun, R. D.; Olds, J. R.; and Unal, R.: "Recent Experiences Applying Optimization Methods to Multidisciplinary Conceptual Design of Launch Vehicles." AIAA 96-4050. 6th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Bellevue, WA, September 4-6, 1996.
38. Spear, A. J.; Freeman, D. C.; and Braun, R. D.: "Mars Pathfinder Status at Launch." IAF-96-Q.3.02. 47th International Astronautical Congress and Exhibition, Beijing, China, October 7-11, 1996.

39. Unal, R.; Braun, R. D.; Moore, A. A.; and Lepsch, R. A.: "Design Optimization on Cost Basis Using Taguchi's Orthogonal Arrays." ASEM-1751. ASEM National Conference, Dallas, TX, pp. 17-21, October 10-13, 1996.
40. Braun, R. D.: "Multidisciplinary Optimization for Large-Scale Distributed Design." Proceedings of the International Conference on Macro Engineering in the 21st Century, Cambridge, MA, October 24-27, 1996.
41. Braun, R. D.; Mitcheltree, R. A.; and Cheatwood, F. M.: "Mars Microprobe Entry Analysis." IEEE Aerospace Conference, pp. 247-262, Snowmass, CO, February 2-6, 1997.
42. Unal, R.; Braun, R.D.; Moore, A.A.; and Lepsch, R.A.: "Response Surface Model Building Using Orthogonal Arrays for Computer Experiments." Proceedings of The International Society of Parametric Analysts 19th Annual Conference, May 1997, pp. 469-481.
43. Mitcheltree, R.; Moss, J.; Cheatwood, F.; Greene, F.; and Braun, R.: "Aerodynamics of the Mars Microprobe Entry Vehicles." AIAA 97-3658, AIAA Atmospheric Flight Mechanics Conference, New Orleans, LA, Aug. 11-13, 1997.
44. Braun, R.D.; Spencer, D.A.; Kallemeyn, P.H.; Vaughan, R.M.: "Mars Pathfinder Atmospheric Entry Navigation Operations." AIAA 97-3663. AIAA Atmospheric Flight Mechanics Conference, New Orleans, LA, Aug. 11-13, 1997.
45. Moss, J.N.; Blanchard, R.C.; Wilmoth, R.G.; and Braun, R.D.: "Mars Pathfinder Rarefied Aerodynamics: Computations and Measurements." AIAA 98-0298. 36th AIAA Aerospace Sciences Meeting & Exhibit, January 12-15, 1998, Reno, Nevada.
46. Mitcheltree, R.; DiFulvio M.; Horvath, T.J.; and Braun, R.D.: "Aerothermal Heating Predictions for Mars Microprobe." AIAA 98-0170. 36th AIAA Aerospace Sciences Meeting & Exhibit, January 12-15, 1998, Reno, Nevada.
47. Kallemeyn, P.H.; Vaughan, R.M.; Spencer, D.A.; and Braun, R.D.: "Mars Pathfinder Navigation Report." JPL Internal Memorandum 312.A/98-030. Jet Propulsion Laboratory, Pasadena, CA, Jan. 1998.
48. Braun, R.D.; et. al.: "Mars Surveyor 2001 Atmospheric Flight Team Report." JPL Internal Memorandum MSP-01/98-024. Jet Propulsion Laboratory, Pasadena, CA, Feb. 15, 1998.
49. Vaughan, R.M.; Kallemeyn, P.H.; Spencer, D.A.; and Braun, R.D.: "Navigation Operations for Mars Pathfinder." AAS 98-145. AAS/AIAA Spaceflight Mechanics Conference, Monterey, CA, Feb. 9-11, 1998.
50. Spencer, D.A.; Blanchard, R.A.; Braun, R.D.; and Thurman, S.W.: "Mars Pathfinder Atmospheric Entry Reconstruction." AAS 98-146. AAS/AIAA Spaceflight Mechanics Conference, Monterey, CA, Feb. 9-11, 1998.

51. Gnoffo, P.A.; Braun, R.D.; Weilmuenster, K.J.; Powell, R.W.; Mitcheltree, R.A.; and Engelund, W.C.: "Prediction and Validation of the Mars Pathfinder Aerodynamic Database." AIAA 98-2445. 32nd AIAA Thermophysics Conference, June 15-18, 1998, Albuquerque, NM.
52. Desai, P.N.; Braun, R.D.; and Engelund, W.C.: "Ascent Analysis of Mars Sample Return System." AIAA 98-2850. 32nd AIAA Thermophysics Conference, June 15-18, 1998, Albuquerque, NM.
53. Braun, R.D.; Greco, J.A.; Hughes, S.J.; Mitcheltree, R.A.; Simonsen, L.C.; and Turner, C.P.: "Earth Entry Vehicle for the Mars Sample Return Mission." Project Plan, NASA Langley Research Center, July 21, 1998.
54. Striepe, S.A.; Queen, E.M.; Braun, R.D.; and Powell, R.W.: "An Atmospheric Guidance Algorithm Testbed for the Mars Surveyor 2001 Orbiter and Lander." AIAA 98-4569. AIAA Atmospheric Flight Mechanics Conference, Aug. 10-12, 1998, Boston, MA.
55. Braun, R.D.; Powell, R.W.; Cheatwood, F.M.; Spencer, D.A.; and Mase, R.A.: "The Mars Surveyor 2001 Lander: A First Step Toward Precision Landing." IAF 98-Q.3.03. 49th International Astronautical Congress, Sept. 28 - Oct. 2, 1998, Melbourne, Australia.
56. Mase, R.A.; Spencer, D.A.; Smith, J.C.; and Braun, R.D.: "Navigation Strategy for the Mars 2001 Lander Mission." AAS 99-441. AAS/AIAA Astrodynamics Specialist Conference, Aug. 16-19, 1999, Girdwood, Alaska.
57. Mitcheltree, R.A.; Braun, R.D.; Hughes, S.J.; and Simonsen, L.C.: "Earth Entry Vehicle for Mars Sample Return." IAF 00-Q.3.04. 51st International Astronautical Congress, Oct. 2-6, 2000, Rio de Janeiro, Brazil.
58. Braun, R.D.; et al.: "NASA Intelligent Synthesis Environment Program Plan," NASA Langley Research Center, September 27, 2000.
59. Braun, R.D.: "NASA's Intelligent Synthesis Environment Program: Revolutionizing the Agency's Engineering and Science Practice," Integrated Enterprise, Vol. 2, No. 1, Winter 2001.
60. Levine, J.S.; Braun, R.D., et al.: "Aerial Regional-scale Environmental Survey," NASA OSS Mars Scout Proposal, NASA Langley Research Center, July 2002.
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