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Volume I

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Foreword

This report contains a listing of the NASA Langley Research Center's scientific and technical research output for C.Y. 1996.

The intent of this report is to provide a greater awareness of the broad scope of results and the importance of the research and development work conducted by scientists and engineers at Langley. This current awareness is mandated by the National Aeronautics and Space Act of 1958, which provides for the widest practical dissemination of NASA research.

During C.Y. 1996, Langley's contributions to NASA and non-NASA literature included 84 NASA Formal Reports, 5 High-Numbered Conference Publications, 82 High-Numbered Technical Memorandums, 202 Contractor Reports, 273 Journal Articles and Other Publications, 412 Meeting Presentations, 38 Technical Talks, 5 Computer Programs, 8 Tech Briefs, and 34 Patents.

Ronald L. Baker
Assistant Chief, Information Systems
and Services Division

Introduction

The NASA Langley Research Center is one of the Nation's leading laboratories for research and development in the sciences of aeronautics and space technology. Langley conducts basic and applied research in the areas of Airframe Systems, Aerodynamics, Atmospheric Science, and Structures and Materials.

This publication is a bibliography of Langley's scientific and technical research output for 1996 which is processed through the Center's Information Systems and Services Division, an integral part of NASA's Agency-wide Scientific and Technical Information (STI) system. The results of Langley's research are disseminated in a variety of NASA and non-NASA scientific and technical media and information systems. Details of the availability of the research references in this document are found in the section, "Availability," on page vii.

Many Langley reports are available electronically on the Langley Technical Report Server (LTRS) at <http://techreports.larc.nasa.gov/ltrs/ltrs.html> or the Institute for Computer Applications in Science and Engineering (ICASE) Technical Report Server (ITRS) at <http://www.icase.edu/docs/library/itrs.html> via the World Wide Web (WWW). The relative Uniform Resource Locators are noted below citations for reports available electronically.

The citations are grouped by the Scientific and Technical Aerospace Reports (STAR) subject categories and listed alphabetically by author or innovator. The Langley organization to which the senior author or innovator is assigned and the Research and Technology Objectives and Plans (RTOP) number are noted below citations when appropriate and included in the indexes.

Computer Programs cited are those which are listed on the Langley Software Server (LSS) on the WWW at <http://www.larc.nasa.gov/LSS>.

The NASA Tech Briefs cited were published in 1996 in "NASA Tech Briefs," a journal for United States industry, entrepreneurs, and academia. Subscriptions to this journal are available through the publisher, NASA Tech Briefs, 317 Madison Avenue, New York, New York 10017-5391, or on the WWW at <http://www.keds.com/ntb/subscribe.html>.

Patents listed are those which were issued in 1996 and owned by Langley Research Center.

Publication of some journal articles was not known at press time for the 1995 issue of this document. These articles are therefore listed in the 1996 issue.

Availability

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Computer Programs	World Wide Web URL: http://www.larc.nasa.gov/LSS
Langley Tech Briefs	Technology Transfer Team Mail Stop 200 NASA Langley Research Center Hampton, VA 23681-0001 (757) 864-4623
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Scientific and Technical Publications

Aeronautics

Category 01 Aeronautics (General)

- 1** Baize, D. G. (Compiler): 1995 NASA High-Speed Research Program Sonic Boom Workshop—Volume I. NASA CP-3335, July 1996, 393 p.
Organization BA RTOP 537-07-21

- 2** Barrick, J. D.; Ritter, J. A.; Watson, C. E.; Wynkoop, M. W.; Quinn, J. K.; and Norfolk, D. R.: Calibration of NASA Turbulent Air Motion Measurement System. NASA TP-3610, December 1996, 29 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tp3610.ps.Z>
Organization CA RTOP 464-54-13

- 3** Gorton, S. A.; Meyers, J. F.; and Berry, J. D.: Laser Velocimetry and Doppler Global Velocimetry Measurements of Velocity Near the Empennage of a Small-Scale Helicopter Model. Presented at 20th Army Science Conference, June 24-27, 1996, Norfolk, Virginia. In Proceedings.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-20asc-sag.ps.Z>
Organization DA RTOP 505-63-36

- 4** Gorton, S. A.; Meyers, J. F.; and Berry, J. D.: Velocity Measurements Near the Empennage of a Small-Scale Helicopter Model. Presented at American Helicopter Society Forum 52, June 4-6, 1996, Washington, DC. In Proceedings, Volume 1, p. 517-531.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-52ahaf-sag.ps.Z>
Organization DA RTOP 505-63-36

- 5** Holmes, B. J.: (Re)inventing Government-Industry R&D Collaboration. NASA TM-110271, August 1996, 36 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm110271.ps.Z>
Organization KC RTOP 538-07-19

- 6** Holmes, B. J.: (Re)inventing Government-Industry R&D Collaboration. Presented at Managing R&D in the 90's, September 11-12, 1996, Newport News, Virginia. Published as NASA TM-110271.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm110271.ps.Z>
Organization KC RTOP 538-07-19

- 7** Hopson, P., Jr.: Method of Forming Multi-Element Thin Hot Film Sensors on Polyimide Film. U. S. Patent 5,484,517. Issued January 16, 1996.
Organization GJ

- 8** Huebner, L. D.; Asbury, S. C.; Lamar, J. E.; McKinley, R. E., Jr.; Scott, R. C.; Small, W. J.; and Torres, A. O. (Compilers): Transportation Beyond 2000: Technologies Needed for Engineering Design. NASA CP-10184, Part 2, February 1996, 238 p.
 Organization A RTOP 282-10-01
- 9** Huebner, L. D.; Asbury, S. C.; Lamar, J. E.; McKinley, R. E., Jr.; Scott, R. C.; Small, W. J.; and Torres, A. O. (Compilers): Transportation Beyond 2000: Technologies Needed for Engineering Design. NASA CP-10184, Part 1, February 1996, 533 p.
 Organization A RTOP 282-10-01
- 10** Lance, M. B.: CLMNANAL: A C++ Program for Application of the Coleman Stability Analysis to Rotorcraft. (NAS1-19000 Lockheed Martin Engineering & Sciences Company.) NASA CR-201592, August 1996, 71 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-cr201592.ps.Z>
 Organization DA RTOP 505-63-36
- 11** Roback, V. E.; Van Dam, C. P.; Los, S. M.; Yip, L. P.; and Banks, D. W.: Attachment-Line Transition and Boundary-Layer Relaminarization on a High-Lift Wing in Flight. Presented at First AIAA/SAE World Aviation Congress and Exposition, October 22-24, 1996, Los Angeles, California. AIAA/SAE Paper No. 96-5564.
 Organization DA RTOP 242-20-08

Category 02 Aerodynamics

- 12** Abarbanel, S. A.; Gottlieb, D. I.; and Carpenter, M. H.: On the Removal of Boundary Errors Caused by Runge-Kutta Integration of Non-Linear Partial Differential Equations. *Journal of Scientific Computing*, Volume 17, No. 3, May 1996, p. 777.
 Organization DF RTOP 505-59-53
- 13** Abid, R.; Morrison, J. H.; Gatski, T. B.; and Speziale, C. G.: Prediction of Complex Aerodynamic Flows With Explicit Algebraic Stress Models. Presented at 34th AIAA Aerospace Sciences Meeting and Exhibit, January 15-18, 1996, Reno, Nevada. AIAA Paper No. 96-0565.
 Organization DF RTOP 505-59-53
- 14** Albright, A. E.; Dixon, C. J.; and Hegedus, M. C.: Modification and Validation of Conceptual Design Aerodynamic Prediction Method HASC95 With VTXCHN. (NAS1-19000 Lockheed Martin Tactical Aircraft Systems.) NASA CR-4712, March 1996, 302 p.
 Organization BA RTOP 505-68-70
- 15** Alcenius, T.; Schneider, S. P.; Beckwith, I. E.; White, J. A.; and Korte, J. J.: Development of Square Nozzles for Supersonic Low-Disturbance Wind Tunnels. *Journal of Aircraft*, Volume 33, No. 6, November–December 1996, p. 1131-1138.
 Organization DF RTOP 509-10-11

- 16** Alexandrov, N.: Multilevel and Multiobjective Optimization in Multidisciplinary Design. Presented at Sixth AIAA/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, September 4-6, 1996, Bellevue, Washington. AIAA Paper No. 96-4122.
Organization DF RTOP 505-10-11
- 17** Alexandrov, N.: A Trust Region Framework for Managing Approximation Models in Engineering Optimization—Part II. Presented at Sixth AIAA/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, September 4-6, 1996, Bellevue, Washington. AIAA Paper No. 96-4102.
Organization DF RTOP 505-10-11
- 18** Alexandrov, N.: Multilevel Optimization for Decision Making. Presented at INFORMS 1996 National Meeting, May 5-8, 1996, Washington, DC.
Organization DF RTOP 505-10-11
- 19** Allison, D. O.; and Mineck, R. E.: Assessment of Dual-Point Drag Reduction for an Executive-Jet Modified Airfoil Section. NASA TP-3579, July 1996, 117 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tp3579.ps.Z>
Organization DA RTOP 505-59-10
- 20** Anderson, W. K.; Rausch, R. D.; and Bonhaus, D. L.: Implicit/Multigrid Algorithms for Incompressible Turbulent Flows on Unstructured Grids. *Journal of Computational Physics*, Volume 128, No. 2, October 15, 1996, p. 391-408.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-jcp-wka.ps.Z>
Organization DF RTOP 505-59-53
- 21** Anderson, W. K.; and Thomas, J. L.: Convergence Acceleration. In *Handbook of Fluid Dynamics and Fluid Machinery*, Joe Schetz and Allen Fuhs, eds., John Wiley & Sons, 1996, p. 1325-1340.
Organization DF RTOP 505-59-93
- 22** Anderson, W. K.; and Thomas, J. L.: Finite Volume Methods. In *Handbook of Fluid Dynamics and Fluid Machinery*, Joe Schetz and Allen Fuhs, eds., John Wiley & Sons, 1996, p. 1282-1308.
Organization DF RTOP 505-59-53
- 23** Asbury, S. C.; Hunter, C. A.; and Gunther, C. L.: A Passive Cavity Concept for Improving the Off-Design Performance of Fixed-Geometry Exhaust Nozzles. Presented at 32nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July 1-3, 1996, Lake Buena Vista, Florida. AIAA Paper No. 96-2541.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-aiaa-96-2541.ps.Z>
Organization DA RTOP 538-05-13

- 24** Barthelemy, J-F.: Multidisciplinary Design Optimization: Methodologies for Integrating the Multiple Aspects of the Design Process. Presented at 1996 AANMS-SIAM Summer Seminar, June 17-21, 1996, Williamsburg, Virginia.
Organization DF RTOP 522-31-31
- 25** Berrier, B. L.: Description of Test Cases for 3-D Aircraft Afterbody “Design”. In *AGARD-AR-318: Aerodynamics of 3D Aircraft*, AGARD, September 1996, p. 181-198.
Organization DA RTOP 505-62-30
- 26** Blanchard, A. E.; Lachowicz, J. T.; and Wilkinson, S. P.: Performance of the NASA-Langley Mach 6 Quiet Wind Tunnel. Presented at 34th AIAA Aerospace Sciences Meeting and Exhibit, January 15-18, 1996, Reno, Nevada. AIAA Paper No. 96-0441.
Organization DF RTOP 505-59-50
- 27** Blanchard, A. E.; and Selby, G. V.: An Experimental Investigation of Wall-Cooling Effects on Hypersonic Boundary-Layer Stability in a Quiet Wind Tunnel. (NCC1-180 Old Dominion University.) NASA CR-198287, February 1996, 115 p.
Organization DF RTOP 505-59-50
- 28** Bushnell, D. M.: Frontiers of the “Responsibly Imaginable” in Aeronautics. Proceedings of Aero India ’96, December 3-6, 1996, Bangalore, India.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-ai96p-dmb-ps.Z>
Organization A RTOP 282-10-01
- 29** Capone, F. J.; Asbury, S. C.; and Deere, K. A.: Experimental and Computational Induced Aerodynamics From Missile Jet Reaction Controls at Angles of Attack to 75 Degrees. Presented at 14th AIAA Applied Aerodynamics Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2479.
Organization DA RTOP 505-59-70
- 30** Carlson, H. W.; McElroy, M. O.; Lessard, W. B.; and McCullers, L. A.: Improved Method for Prediction of Attainable Wing Leading-Edge Thrust. NASA TP-3557, April 1996, 63 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tp3557.ps.Z>
Organization BA RTOP 505-68-70
- 31** Carlson, J. R.: High Reynolds Number Analysis of Flat Plate and Separated Afterbody Flow Using Non-Linear Turbulence Models. Presented at 32nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July 1-3, 1996, Lake Buena Vista, Florida. AIAA Paper No. 96-2544.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-aiaa-96-2544.ps.Z>
Organization DA RTOP 505-59-70

- 32** Carlson, J. R.; and Reubush, D. E.: High Reynolds Number Analysis of an Axisymmetric Afterbody With Flow Separation. Presented at 19th AIAA Advanced Measurement and Ground Testing Technology Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2274.
Organization DA RTOP 537-07-20
- 33** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 2—Small-Radius Leading Edge. NASA TM-4645, Volume 2 Appendixes, February 1996, 493 p.
Organization DA RTOP 505-59-54
- 34** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 3—Medium-Radius Leading Edge. NASA TM-4645, Volume 3 Appendixes, February 1996, 606 p.
Organization DA RTOP 505-59-54
- 35** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 4—Large-Radius Leading Edge. NASA TM-4645, Volume 4 Appendixes, February 1996, 572 p.
Organization DA RTOP 505-59-54
- 36** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 1—Sharp Leading Edge. NASA TM-4645, Volume 1 Appendixes, February 1996, 263 p.
Organization DA RTOP 505-59-54
- 37** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 2—Small-Radius Leading Edge. NASA TM-4645, Volume 2, February 1996, 31 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm4645vol2.ps.Z>
Organization DA RTOP 505-59-54
- 38** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 4—Large-Radius Leading Edge. NASA TM-4645, Volume 4, February 1996, 31 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm4645vol4.ps.Z>
Organization DA RTOP 505-59-54
- 39** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 3—Medium-Radius Leading Edge. NASA TM-4645, Volume 3, February 1996, 37 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm4645vol3.ps.Z>
Organization DA RTOP 505-59-54

- 40** Chu, J.; and Luckring, J. M.: Experimental Surface Pressure Data Obtained on 65° Delta Wing Across Reynolds Number and Mach Number Ranges, Volume 1—Sharp Leading Edge. NASA TM-4645, Volume 1, February 1996, 28 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm4645vol1.ps.Z>
Organization DA RTOP 505-59-54
- 41** Cockrell, C. E., Jr.; Huebner, L. D.; and Finley, D. B.: Aerodynamic Characteristics of Two Waverider-Derived Hypersonic Cruise Configurations. NASA TP-3559, July 1996, 73 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tp3559.ps.Z>
Organization DA RTOP 466-02-01
- 42** Compton, W. B., III: Comparison of Turbulence Models for Nozzle-Afterbody Flows With Propulsive Jets. NASA TP-3592, September 1996, 117 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tp3592.ps.Z>
Organization DA RTOP 505-59-70
- 43** Deere, K. A.; and Asbury, S. C.: An Experimental and Computational Investigation of a Translating Throat Single Expansion-Ramp Nozzle. Presented at 32nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July 1-3, 1996, Lake Buena Vista, Florida. AIAA Paper No. 96-2540.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-aiaa-96-2540.ps.Z>
Organization DA RTOP 505-59-30
- 44** Doggett, G. P.; and Chokani, N.: Hypersonic Boundary-Layer Stability Experiments on a Flared-Cone Model at Angle of Attack in a Quiet Wind Tunnel. (NCC1-183 North Carolina State University.) NASA CR-201617, October 1996, 130 p.
Organization DF RTOP 505-59-50
- 45** Everhart, J. L.: Calibration Improvements to Electronically-Scanned Pressure Systems and Preliminary Statistical Assessment. Presented at 19th AIAA Advanced Measurement and Ground Testing Technology Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2217.
Organization DA RTOP 763-01
- 46** Finley, D. B.; and Karman, S. L., Jr.: Euler Technology Assessment for Preliminary Aircraft Design—Compressibility Predictions by Employing the Cartesian Unstructured Grid SPLITFLOW Code. (NAS1-19000 Lockheed Martin Tactical Aircraft Systems.) NASA CR-4710, March 1996, 95 p.
Organization DA RTOP 505-68-30
- 47** Follett, W.; Hadid, A.; Korte, J. J.; Alexandrov, N.; Dunn, H. J.; and Salas, A. O.: Multidisciplinary Optimization of an Aerospike Nozzle. Presented at 1996 NASA Computational Aerosciences Workshop, August 13-15, 1996, Moffett Field, California.
Organization DF RTOP 505-59-53

- 48** Frink, N. T.: Assessment of an Unstructured-Grid Method for Predicting 3-D Turbulent Viscous Flows. Presented at 34th AIAA Aerospace Sciences Meeting and Exhibit, January 15-18, 1996, Reno, Nevada. AIAA Paper No. 96-0292.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-aiaa-96-0292.ps.Z>
Organization DA RTOP 505-59-53
- 49** Gatlin, G. M.; and McGhee, R. J.: Study of Semi-Span Model Testing Techniques. Presented at 14th AIAA Applied Aerodynamics Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2386.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-aiaa-96-2386.ps.Z>
Organization DA RTOP 538-05-14
- 50** Gatlin, G. M.; and Neuhart, D. H.: Water Tunnel Flow Visualization Study Through Post Stall of Twelve Novel Planform Shapes. NASA TM-4663, March 1996, 126 p.
Organization DA RTOP 505-68-70
- 51** Gatski, T. B.: Prediction of Airfoil Characteristics With Higher Order Turbulence Models. NASA TM-110246, April 1996, 21 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm110246.ps.Z>
Organization DF RTOP 505-59-50
- 52** Green, B. E.; Whitesides, J. L.; Campbell, R. L.; and Mineck, R. E.: A Method for the Constrained Design of Natural Laminar Flow Airfoils. Presented at 14th AIAA Applied Aerodynamics Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2502.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-aiaa-96-2502.ps.Z>
Organization DA RTOP 505-59-53
- 53** Green, L. L.; Newman, P. A.; and Haigler, K. J.: Applications of Automatic Differentiation in Multidisciplinary Design Optimization. Presented at Second International SIAM Workshop on Computational Differentiation, February 12-15, 1996, Santa Fe, New Mexico.
Organization DF RTOP 505-59-53
- 54** Green, L. L.; Newman, P. A.; and Haigler, K. J.: Sensitivity Derivatives for Advanced CFD Algorithm and Viscous Modeling Parameters via Automatic Differentiation. *Journal of Computational Physics*, Volume 125, No. 2, May 1996, p. 313-324.
Organization DF RTOP 509-10-12
- 55** Hazlewood, R. N.: An Investigation of Cavity Vortex Generators in Supersonic Flow. (NCC1-172 University of Kansas Center for Research, Inc.) NASA CR-198202, February 1996, 127 p.
Organization DA RTOP 307-50-14

- 56** Hefner, J. N.; Sellers, W. L., III; Thomas, J. L.; Wlezien, R. W.; and Antcliff, R. R.: Challenges and Opportunities in Fluid Mechanics Research. Presented at 20th Congress of the International Council of the Aeronautical Sciences, September 8-13, 1996, Sorrento, Italy. ICAS Paper No. 96.2.1.1.
Organization DF RTOP 505-59-50
- 57** Hill, J. S.: The National Transonic Facility (NTF) Operation Status. Presented at AGARD-VKI Special Course on Advances in Cryogenic Wind Tunnels, May 20-24, 1996, Köln, Germany.
Organization DA RTOP 505-59-85
- 58** Huebner, L. D.; Rock, K. E.; Voland, R. T.; and Wieting, A. R.: Calibration of the Langley 8-Foot High Temperature Tunnel for Hypersonic Airbreathing Propulsion Testing. Presented at 19th AIAA Advanced Measurement and Ground Testing Technology Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2197.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-aiaa-96-2197.ps.Z>
Organization DA RTOP 505-70-62
- 59** Hussaini, M. M.; and Korte, J. J.: Investigation of Low-Reynolds-Number Rocket Nozzle Design Using PNS-Based Optimization. NASA TM-110295, November 1996, 13 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tm110295.ps.Z>
Organization DF RTOP 522-31-31
- 60** Inger, G. R.; and Gnoffo, P. A.: Hypersonic Entry Heating With Discontinuous Surface Catalycity: A Combined Analytic/CFD Approach. Presented at First AIAA Theoretical Fluid Mechanics Meeting, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2150.
Organization DA RTOP 242-80-01
- 61** Joslin, R. D.: Simulation of Three-Dimensional Symmetric and Asymmetric Instabilities in Attachment-Line Boundary Layers. *AIAA Journal*, Volume 34, No. 11, November 1996, p. 2432-2434.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-aiaaj-rdj-ps.Z>
Organization DF RTOP 505-59-50
- 62** Joslin, R. D.: Simulation of Nonlinear Instabilities in an Attachment-Line Boundary Layer. *Fluid Dynamics Research*, Volume 18, No. 2, October 1996, p. 81-97.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-fdr-rdj.ps.Z>
Organization DF RTOP 505-59-50
- 63** Joslin, R. D.; Erlebacher, G.; and Hussaini, M. Y.: Active Control of Instabilities in Laminar Boundary-Layers—Overview and Concept Validation. *Journal of Fluids Engineering*, Volume 118, September 1996, p. 494-497.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-jfe-rdj.ps.Z>
Organization DF RTOP 505-59-10

- 64** Joslin, R. D.; Gunzburger, M. D.; Nicolaides, R. A.; Erlebacher, G.; and Hussaini, M. Y.: A Methodology for the Automated Optimal Control of Flows Including Transitional Flows. Presented at 1996 ASME Fluids Engineering Division Summer Meeting, July 7-11, 1996, San Diego, California.
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