

ERIC LOTH

Professor, Willett Faculty Scholar and
Associate Head for Undergraduate Studies
Department of Aerospace Engineering, University of Illinois

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EDUCATION

University of Michigan, Ann Arbor, MI. Ph.D. in Aerospace Engineering with Prof. G.M. Faeth (1985 -1988);
Pennsylvania State University, University Park, PA. M.S. in Aerospace Engineering with Prof. B.W. McCormick (1984 - 1985);
West Virginia University, Morgantown, WV B.S. in Aerospace Engineering (1979-1983)

EMPLOYMENT (since PhD)

University of Illinois at Urbana-Champaign (UIUC), Aerospace Engineering*, Urbana IL
Professor, Assoc. Head for Undergrad. Studies & Willett Faculty Scholar: (2008–present)
& Affiliate of Mech. Sci. & Engineering (1996-present);
Professor & Willett Faculty Scholar: (2002–2008)
Associate Professor: (1995–2002); and Assistant Professor (1990-1995);
Naval Research Lab, Lab for Computational Physics & Fluid Dynamics, Washington. D.C.
Aerospace Engineer: Numerical methods & flowfields of spacecraft nozzles (1989 -1990)
Berkeley Research Associates, Springfield, VA
Staff Scientist: CFD of blast wave propagation & shock-vortex interactions (1988 - 1989)

VISITING APPOINTMENTS

Cambridge University (UK), Yip Fellow (May-June 2011)
University of Virginia, Visiting Professor, (August 2009-)
Cambridge University (UK), Visiting Scholar, Engineering Dept. (fall 2004 sabbatical)
National Energy Technology Lab, ORISE Summer Faculty, Morgantown WV (2002)
Brown University, Visiting Associate Prof. (fall 1997 sabbatical)
University of California at San Diego, Visiting Associate Prof. (fall 1997 sabbatical)
Molten Metal Technology, Sr. Research Engineer, Waltham MA (summers 1996 & 1997)
Naval Research Lab, Senior Fellow & ASEE Summer Faculty, Washington, D.C. (1995)
Arnold Engineering and Development Center, AFOSR Summer Faculty, TN (1993)
Science Applications Intl. Corp., Senior Research Engineer, VA (summers 1990, 1991)

* Department name was Aeronautical & Astronautical Engineering until 2003

RECENT ADMINISTRATIVE ACTIVITIES

Associate Head of Undergraduate Studies for Aerospace Engineering Dept. (2008-)
Search Committee for Faculty of AE Department (1999-2000, 2000-2001, 2001-2002, 2003-2004, 2005-2006, Chair in 2007-2008)
College of Engineering Executive Committee (2002-2008)
College of Engineering Research and Planning Committee (2004-)
Chair of AAE Department Planning Committee (2002-)
Chair of AAE Department Graduate Policy Committee (2002-)
Search Committee for Head of Computer Science Department (2000-2001)
Chair of AAE Department Faculty Meetings (1999-2001)
Chair of College of Engineering Awards Committee (1999-2001)
AAE Department Advisory Committee (2000-2002, 2005-2006)
Chair of AAE Department Awards Committee (2000-2002)

U.S. PATENTS and APPLICATIONS

- I. Bayer, E. Loth, A. Steele and I. Jasiuk "Composite Compositions and Methods for Compositing Materials" provisional application filed September, 2009.
- E. Loth, H. Babinsky and S. Lee "Vortex Generators to Control Boundary Layer Interactions" provisional application filed September, 2009.
- E. Hsiao-Wecksler, A. Shorter, E. Loth, G. Kogler, J. Thomas and J. Gilmer "Portable Active Fluid Powered Foot and Ankle Orthosis", provisional application filed October, 2009.
- I. Bayer, E. Loth, and A. Steele "Composite Material Compositions and Methods" Serial # 61/087,578 filed August 8, 2008.
- E. Loth, J.C. Dutton, P. Geubelle, S. White, A. Alleyene, D. Tortorelli, S. McIlwain, and D. Davis, " Methods and Apparatus for Control of Shock/Boundary-Layer Interactions" #6651935; filed June 12, 2002; received November 25, 2003.
- E. Loth "Mesoflap Passive Transpiration System and Method for Shock/Boundary Layer Interaction Control" #5971327; filed July 29, 1998; received October 26, 1999.
- J. Loth, E. Loth, and F. Loth "Isolated Combustion and Diluted Expansion Piston Engine" #5239959, filed June 22, 1992; received July 31, 1993.

CURRENT GRANTS AND CONTRACTS

- E. Loth "Methodology of a Computational Icing Research Tunnel" NASA Glenn Research Center, \$675,570, January 2009- December 2011.
- I. Jasuik, E. Loth and I. Bayer "Novel Biocompatible Bone Adhesion Technology" Grainger Foundation, \$100,000, January 2009- December 2009).
- E. Loth, M. Bragg, G. Elliott, & A. Broeren "Development of a Large-Scale Low-Boom Supersonic Inlet for Investigating Micro-Array Flow Control" NASA Glenn Research Center, \$787,292; March 2008 - December 2010.
- E. Loth, G. Elliott, & M. Bragg, ". μ VG's for Supersonic Inlets" Gulfstream/Rolls Royce, \$700,788; January 2008 – December 2010.
- M. Bragg, G. Elliott, & E. Loth ".Bypass Flow Analysis" Gulfstream/Rolls Royce, \$666,251; January 2008 – December 2010.
- E. Loth "Carbon Nano-Tube Additives to Reduce Volumetric and Pressure Losses" Center for Compact, Clean and Efficient Fluid Power, NSF Engineering Research Center, \$543,900; July 2006 - June 2010.
- E. Loth "SBLI Flow Control with μ VG's using LES" NASA Glenn Research Center, \$263,190; May 2007 - May 2010.
- E. Loth "Nano-Texturing for Fluid Power Efficiency" Center for Compact, Clean and Efficient Fluid Power, NSF Engineering Research Center, \$353,100 July 2006 - June 2010.

PREVIOUS GRANTS AND CONTRACTS

- E. Loth and H. Babinsky "Understanding Micro-ramp Control for Shock Boundary Layer Interactions" Air Force Office of Scientific Res., \$120,000; June 2006-June 2007.
- E. Loth, "Unstructured Multiphase Code Development" Arnold Engineering Development Center, \$142,000, June 2004 - September 2007.
- E. Loth "CFD for Refrigerated Display Cases" Carrier Corporation, \$50,000; June 2006 - May 2007
- E. Loth, "Optimization of the Icing Research Tunnel" NASA Glenn Research Center, NAG3-2623, \$75,000, October 2005 - October 2006.
- E. Loth & J.C. Dutton "Supersonic Bump Compression", Boeing, Phantom Works (St. Louis), \$165,115, August 2003 – March 2006.
- E. Loth, M. Bragg & A. Hamed "Simulation of Icing Technology on Turbo-machinery" Ohio Aerospace Institute, \$150,000, March 2004 – October 2005.
- E. Loth, "Virtual Icing Research Tunnel" NASA Glenn Research Center, NAG3-2623, \$261,880, June 2001 - December 2004.
- M. Bragg, P. Voulgaris, N. Sarter, E. Loth, M. Selig, K. Sivier, T. Baser, W. Perkins, and C. Wickens "Smart Icing Systems" NASA Lewis Research Center, NAG 3-2135, Phase I: \$2,196,181, January 1997- March 2004.
- E. Loth "Closed-Loop Control of Air Curtains" Air Conditioning Research Center, ACRC-136, \$67,000, Sept. 2001- Aug. 2003.
- E. Loth, S. White, P. Guebelle, D. Tortorelli, J. Dutton, A. Alleyne, D. Davis "Smart Mesoflaps for Aeroelastic Transpiration to Control Shock/Boundary-Layer Interactions" DARPA/AFOSR, F49620-98-1-0490, Phase I: \$268,914, July 1998 - June 1999; Phase II: \$2,069,595, July 1999 - September 2002.

- M. Bragg and E. Loth "Effect of Large-Droplet Ice Accretions on Airfoil and Wing Aerodynamics and Control", Federal Aviation Administration, DTFA 96-G-023, \$900,199, June 1996 – December 2002.
- E. Loth, "MEMS-based Microbubble Simulations for Ultra-Efficient Drag Reduction" DARPA, MDA-972-01-C-0042, \$119,345, March 2001 - September 2002.
- J. Molner and E. Loth "Contaminant Dispersion around Large Urban Buildings" National Center for Supercomputing Applications, \$39,766, August 2001 - July 2002.
- E. Loth "Bubble Dispersion in Non-Equilibrium Turbulent Boundary Layers" Office of Naval Research, N00014-96-1-0312, \$291,302, January 1996 - May 2000.
- E. Loth and P. Hrnjak "Understanding and Reducing Refrigerated Air Curtain Entrainment" Air Conditioning Research Center, ACRC-111, \$125,820, August 1999 - July 2001.
- E. Loth "Virtual Rendering of Multiphase Flows" National Center for Supercomputing Applications, \$26,000, August 2000 - July 2001.
- E. Loth and A. Alleyne "Defining Microsensor Capabilities for Supersonic Boundary Layer Control " NASA Glenn Research Center (Glennan Microsystems Initiative), \$24,000, July 1999 – Oct. 1999 .
- E. Loth, P. Guebelle, S. White, D. Tortorelli "Smart Microflaps for Aeroelastic Transpiration for SBLI Flow Control" Air Force Office of Scientific Research, F49620-98-1-0381, \$85,401, March 1998 - November 1998.
- E. Loth "Simulation of Icing Clouds and Droplet Impingement on Test Models" NASA Lewis Research Center, NAS 3-97011, \$124,072, Jan. 1997 - September 1999.
- E. Loth and D. Jeffers "UIUC Engineering Orientation for Students with Disabilities" PURSUIT (supported through NSF), \$12,078, April 1996 - April 1997.
- E. Loth "Interaction Between Turbulence Modulation and Bubble Dispersion" Office of Naval Research, N00014-92-J-1157, \$256,000, October 1991 - December 1995.
- E. Loth "Computational Methodology for Wind Tunnel Spray Bar Droplet Dispersion" Sverdrup (Arnold Engineering Development Center), AF SVERDRUP A955-11, \$52,000, August 1993 - November 1995.
- W. Schowalter, M. Bragg, M. Brewster, R. Buckius, R. Burton, J. Dutton, B. Jones, H. Krier, E. Loth, J. Peters, W. Solomon "Renovation Of Mechanical Engineering Laboratory" National Science Foundation, \$750,000, October 1992 - October 1993.
- E. Loth "Research Experience for Undergraduates" National Science Foundation Grant No. CTS-9010594x, \$8,000, April 1992 - August 1992.
- E. Loth "Experimental and Computational Study of Supersonic Mixing Layers" National Science Foundation Grant No. CTS-9010594, \$70,000, July 1990 - Dec. 1992.
- E. Loth "Investigation of Transient Compressible Flows Past 2-D and 3-D Objects" Science Applications International Corporation, DNA SAIC 21900208-82, \$90,886, January 1990 - July 1992.
- K. Kailasanath and E. Loth "Supersonic Nozzle and Test Body Computations." Strategic Systems Planning Office JON44-3310-0-9, \$250,000, January 1989 - January 1990 (granted to Naval Research Laboratory, Washington, D.C.).

AWARDS and HONORS (since PhD)

Yip Fellow, Cambridge University, U.K. for May-June 2010
Scientific Committee, International Conference of Multiphase Flow, 2009-2010
Fellow of ASME (December, 2008)
Academy of Distinguished Alumni of Aerospace Engineering at WVU (2008-)
UIUC List of Teachers Ranked Excellent by their Students
(1990, 1991, 1992, 1993, 1995, 1997, 2002, 2005)
Engineering Council Award for Excellence in Advising, UIUC ('07)
Willett Faculty Scholar, UIUC College of Engineering (2002-)
Faculty Fellow, National Center for Supercomputing Applications (2000, 2001, 2002)
NASA "Revolutionize Aviation" Team Award, 2001
Associate Fellow of AIAA, 2000-
Who's Who, 2000 –
Who's Who in Science and Engineering, 1996-
Senior Fellow, Naval Research Lab, Washington D.C., 1995
Teacher of the Year, AAE Department (UIUC), 1994
UIUC Campus Research Board Award, 1990, 1994
Finalist, UIUC Vice-Chancellor Teaching Scholars, 1994
UIUC College of Engineering Advisors List (for advising excellence), 1993
Men of Achievement, 1992-
International Paper Co. Undergraduate Instructional Support Award (UIUC), 1991
National Science Foundation Research Initiation Award, 1990
Department of Navy Exceptional Performance Award, 1989

PROFESSIONAL ACTIVITIES and AFFILIATIONS

Reviewer:

National Science Foundation, J. of Fluid Mechanics, Physics of Fluids, J. of Micromechanics and Microengineering, AIAA J., Experiments in Fluids, International J. of Multiphase Flow, ASME J. of Fluids Engineering, Computers & Fluids, AIAA J. of Aircraft, J. of Heat Transfer, AIAA J. of Heat Transfer & Thermophysics, Experimental & Thermal Fluid Sciences, Measurement Science and Technology, J. of Wind Engineering & Indust. Aero., Particles & Particle Systems Characterization, McGraw-Hill Books, etc.

Professional/Conference Committees:

Member, AIAA Propulsion Systems Integration Committee, 2009-
Associate Editor, Advances in Aerospace Science and Applications, 2008-
Program Committee, 2007 International Conference of Multiphase Flow
Organizing Committee, 2005 APS Fluid Dynamics
Organizing Committee, 2004 International Conference of Multiphase Flow
Fluid Dynamics Program Committee, 2004 AIAA Aerospace Sciences Meeting
Fluid Dynamics Program Chair, 2003 AIAA Aerospace Sciences Meeting
Organizing Committee, 2002 AIAA Theoretical Fluid Dynamics Conference
Fluid Dynamics Program Committee, 2002 AIAA Aerospace Sciences Meeting
Organizing Committee, 2001 International Conference of Multiphase Flow
Member, 26th Intl. Combustion Symposium Program Review Committee, 1995
Member, AIAA Fluid Dynamics Technical Committee, 1995-
Member, ASME Coordinating Group for Fluid Measurement, 1991-
Member, ASME Coordinating Group on Two-Phase Flow, 1991-

Conference Session Chair:

"Multiphase Flows", 2009 AIAA Fluids Dynamics Meeting
"International Symposium on Numerical Methods for Multiphase Flows", 2008 ASME
Fluid Engineering Division Summer Conference
"Fluid-Structure Interactions", 2007 AIAA Fluid Dynamics Meeting
"Fluid Dynamics in Honor of Prof. Faeth", 2006 AIAA Aerospace Sciences Meeting
"Turbulent Boundary Layer Modeling", 2004 AIAA Aerospace Sciences Meeting
"MEMS for Fluid Dynamics", 2003 ASME Fluids Engineering Meeting
"Virtual Reality for Flow Visualization", 2003 ASME Fluids Engineering Meeting
"Viscous Flows", 2002 AIAA Fluids Dynamics Meeting
"Multiphase Flows", 2002 AIAA Fluids Dynamics Meeting
"Transition and Receptivity", 2002 AIAA Aerospace Sciences Meeting
"Bubble Dynamics", 2001 International Conference of Multiphase Flow
"MEMS for Fluid Measurement", 2001 ASME Fluids Dynamics Meeting
"Gas Turbine Inlet Flow Controls", 2000 AIAA Fluids Dynamics Meeting
"Numerical Methods - Advances", 2000 AIAA Aerospace Sciences Meeting
"Boundary Layers", 2000 AIAA Aerospace Sciences Meeting
"Modeling Multiphase Flows", 1999 ASME Fluids Dynamics Meeting
"Flow Control", 1999 ASME Fluids Dynamics Meeting
"Multiphase Flows", 1999 AIAA Fluids Dynamics Meeting
"Numerical Methods for Multiphase Flows", 1998 ASME Fluids Engr. Meeting
"Shock Interaction Flows", 1997 AIAA Aerospace Sciences Meeting

TEACHING & ADVISING ACTIVITIES

Courses Taught (D=developed, R=major revision)

ME 404/AAE493GD (Graduate) Gas Dynamics
AE 513 (Graduate) Dispersed Multiphase Flows (D)
AAE 493FEM (Graduate) Finite Element Methods for Fluid Dynamics (D)
ME 433GT (Graduate) Gas Turbine Engines: Advanced Jet Engines
AAE 391 (Grad/Under.) Special Topics: Design of a Human Powered Helicopter (D)
AAE 270 (Undergrad.) Computational Methods in Aerospace Engineering (D)
AAE 233 (Undergrad.) Aerospace Propulsion: Rocket & Turbojet Aerothermodynamics (R)
AAE 241 (Undergrad.) Senior Design: Aircraft Design Theory and Practice
AAE 211 (Undergrad.) Aerodynamics II: Incompressible Inviscid and Viscous Flow
AAE 199 (Undergrad.) Fundamentals of Aerospace Engineering: Introduction (R)

Activities with Student Organizations

Faculty Advisor of UIUC Float'n Illini – the Microgravity Project (2001-2006)
Special Advisor, Accommodations for Students with Disabilities (1995-)
Faculty Advisor of UIUC Student Chapter of Amer. Inst. Aero. & Astro.,(1992-1995)
Mentor in UIUC Campus Honors Program (1991-)
Faculty Advisor of UIUC Student Chapter of American Helicopter Society (1990-1995)

Supervision of Graduate Students

Graduated 28 M.S. thesis students
Graduated 8 Ph.D. dissertation students
Currently Advising 4 M.S. thesis students
Currently Advising 3 Ph.D. dissertation students
Served on 30 Preliminary Doctoral Exam Committees
Served on 25 Final Doctoral Exam Committees

BOOKS

E. Loth, Computational Fluid Dynamics of Bubbles, Drops and Particles, Cambridge University Press (draft at www.ae.uiuc.edu/~loth/CUP/Loth , scheduled for 2010).

BOOK CHAPTERS

H. Babinsky and E. Loth “Gas Dynamics” in The Aerospace Engineering Handbook, editor R. Bishop, CRC Press (scheduled for 2010).

E. Loth “Overview of Multiphase Modeling” in Handbook on Multi-Phase Flows, editor C. Crowe, CRC Press, 2006.

JOURNAL ARTICLES

(* indicates students supervised by EL)

(! indicates the 11 articles which yield an H-index of 11 on Scopus)

- S. Lee*, M. K. Goettke, E. Loth, J. Tinapple, J. Benek, “Microramps Upstream of an Oblique-Shock Boundary Layer Interaction” AIAA Journal (to appear).
- S. Lee* & E. Loth, “SBLI Control using Various Micro-Vortex Generator Geometries” The Aeronautical Journal (to appear).
- R. Chin*, E. T. Hsiao-Wecksler, E. Loth, G. Kogler, S. D. Manwaring, S. N. Tyson, K. A. Shorter and J. N. Gilmer “A pneumatic power harvesting ankle-foot orthosis to prevent foot-drop” Journal of Neuro-Engineering and Rehabilitation (invited article), (to appear).
- B. Tillotson*, E. Loth, J.C. Dutton, J. Mace & B. Haeffele “Experimental Study of a Mach 3 Bump Compression Flowfield” AIAA J. of Propulsion and Power Vol. 25, pp. 545-554, 2009.
- I. Bayer, A. Steele*, P. Martorana*, Loth, E. & S. Robinson & D. Stevenson. "Biolubricant induced phase inversion and superhydrophobicity in rubber-toughened biopolymer/ organoclay nanocomposites," Applied Physics Letters Vol. 95, 2009; also in August 15, 2009 issue of Virtual Journal of Biological Physics Research.
- I. Bayer, A. Steele*, P. Martorana*, Loth, E. & Miller, L. "Superhydrophobic cellulose-based bio-nanocomposite films from Pickering emulsions," Applied Physics Letters Vol. 94, April 2009; and also in Virtual Journal of Biological Physics Research (published by the American Physical Society and the American Institute of Physics).
- Loth, E. and Dorgan, A.J.* “An equation of motion for particles of finite size and Reynolds number in a liquid,” Environmental Fluid Mechanics (invited article), Vol. 9, pp. 187-214, 2009.
- A. Steele*, I. Bayer & Loth, E. "Inherently Superoleophobic Nanocomposite Coatings by Spray Atomization," Nano Letters Vol. 9, pp.501-505 (2009).
- S. Lee* & E. Loth, “Simulation of Icing on a Cascade of Stator Blades” AIAA J. of Propulsion and Power Vol. 24, pp. 1309-1216 (2008).
- G. Martin*, E. Loth, & D. Lankford “Particle Host-Cell Determination in Unstructured Grids” Computers & Fluids Vol. 38, January 2009, pp. 101-110.
- E. Loth, “Compressibility and Rarefaction Effects on Drag of a Spherical Particle” AIAA J. Vol. 46, Number 9, Sept. 2008.
- E. Loth, “Quasi-Steady Shape and Drag of Deformable Bubbles and Drops” Intl. J. of Multiphase Flow Vol. 34, pp. 523-546, 2008.
- E. Loth, “Review: Lift of a Spherical Particle Subject to Vorticity and/or Spin” AIAA J. Vol. 46, pp. 801-809, April. 2008

- E. Loth, "Drag of Non-Spherical Solid Particles of Regular and Irregular Shape" Powder Technology Vol. 182, pp.342-353, March 2008.
- A. Dorgan* and E. Loth, "Efficient Calculation of the History Force at Finite Reynolds Number" Intl. J. of Multiphase Flow, Vol. 33, pp. 833-848, August 2007.
- R. Jaiman*, X. Jiao, P. Guebelle, and E. Loth, "Conservative Load Transfer Along Curved Fluid-Solid Interface with Non-matching Meshes", Journal of Computational Physics, Vol. 218, Pages 372-397, October 2006.
- T. Bocksell* and E. Loth, "Stochastic Modeling of Particle Diffusion in a Turbulent Boundary Layer" Intl. J. of Multiphase Flow, Vol. 32, pp. 1234-1253, 2006.
- K. Srinivasen*, E. Loth, & J.C. Dutton "Aerodynamics of Recirculating Flow Control Devices for Normal Shock/Boundary Layer Interactions" AIAA Journal Vol. 44, pp. 751-763, 2006.
- B. Field* & E. Loth "Entrainment of Refrigerated Air Curtains Down a Wall" Experimental Thermal and Fluid Science Vol. 30, pp. 175-184, 2006.
- R. Jaiman*, X. Jiao, P. Guebelle, and E. Loth, "Assessment of Conservative Load Transfer for Fluid-Solid Interface with Non-matching Meshes", Intl. Journal of Numerical Methods in Engineering Vol. 64, pp. 2014-2038, 2005.
- J. Pan* and E. Loth "Detached Eddy Simulations for Iced Airfoils", AIAA Journal of Aircraft Vol. 42, pp. 1452-1461, Nov-Dec. 2005.
- C. Bhargava*, E. Loth, and M. Potapczuk "Numerical Simulation of Icing Clouds in the NASA Glenn Icing Research Tunnel", AIAA Journal of Aircraft Vol. 42, pp. 1442-1451, Nov-Dec. 2005.
- A.J. Dorgan*, E. Loth, T.L. Bocksell, and P.K. Yeung "Boundary Layer Dispersion of Near-Wall Injected Particles of Various Inertias", AIAA Journal Vol. 43, pp. 1537-1548, July 2005.
- C. Bhargava*, E. Loth, and M. Potapczuk "Simulating the Aerodynamics of the NASA Glenn Icing Research Tunnel", AIAA Journal of Aircraft Vol. 42, pp. 671-684, May-June 2005.
- S. Lee*, E. Loth and C. Liu, "Micro-bubblers Generated on Electrolytic Arrays and Matrices and released in a water channel", Experiments in Fluids Vol. 38, May 2005, pp. 672-682.
- A.J. Dorgan*, E. Loth, and E. Frazzoli, "Autonomous Control of a Micro-Aircraft Vehicles Falling through an Atmospheric Boundary Layer", AIAA Journal Vol. 43, April, 2005, pp. 768-775.
- P. Bhattacharjee* and E. Loth "Entrainment by a Refrigerated Air Curtain Down a Wall", ASME Journal of Fluids Engineering Vol. 126, No. 5, pp. 871-879, September 2004.
- B. Field* & E. Loth "An Air Curtain Along a Wall with High Inlet Turbulence" ASME Journal of Fluids Engineering Vol. 126, No. 3, pp. 391-398, May 2004.
- A. Dorgan and E. Loth, "Simulation of Particles Released near the Wall in a Turbulent Boundary Layer ", Intl. Journal of Multiphase Flow Vol. 30, 2004, p. 649-673.
- J. Pan* and E. Loth, "RANS Simulations of Airfoils and Wings with Ice Shapes", AIAA Journal of Aircraft Vol. 41, No. 4, July 2004, p. 879-891.
- E. Loth, T.J. O'Brien, M. Syamlal, and M. Cantero "Effective Diameter for Group Motion of Polydisperse Particle Mixtures", Powder Technology Vol. 142, no. 2-3, pp. 209-218. 30 Apr. 2004.
- Y. Lee, E. Hafenricheter*, J.C. Dutton, and E. Loth, "Skin Friction Measurements for Recirculating Normal Shock/Boundary-Layer Interaction Control", AIAA Journal Vol. 42, No. 4, April 2004, p. 806-814.
- E. Loth, W. Sherman, A. Aumann, and C. Navarro*, "A Virtual Rendering of Multiphase Flows", International Journal of Computational Fluids Dynamics Vol. 18, No. 3, April 2004, pp. 265-275.

- R. Jaiman*, E. Loth, and J.C. Dutton, "Simulations of Normal Shock-Wave Boundary Layer Interaction Control using Mesoflaps", AIAA Journal of Propulsion and Power Vol. 20, no. 2, pp. 344-352. Mar. 2004.
- ! P. Bhattacharjee* and E. Loth "Simulations of Laminar and Transitional Cold Wall Jets", International Journal of Heat and Fluid Flow Vol. 25, no. 1, pp. 32-43. Feb. 2004.
- S. Kim, E. Loth and J.C. Dutton, "Simulations of Mesoflap Flow Control for Ramp-Generated Oblique Shock/Boundary-Layer Interactions", AIAA Journal of Aircraft Vol. 40, no. 6, pp. 1152-1160. Nov.-Dec. 2003.
- D. Gefroh*, E. Loth, J.C. Dutton, and E. Hafenrichter "Aeroelastically-Deflecting Flaps in a Shock/Boundary Layer Interaction," Journal of Fluids and Structures Vol. 17, No. 7, June 2003, Pages 1001-1016.
- E. Hafenrichter, Y. Lee, J.C. Dutton, and E. Loth "Normal Shock Boundary-Layer Interaction Control using Aeroelastic Mesoflaps," AIAA Journal of Propulsion and Power Vol. 19, No. 3, pp. 464-472, May-June 2002.
- B. Wood*, E. Loth, and P. Geubelle "Simulation of Aeroelastic Mesoflaps for Shock/Boundary Layer Interaction," Journal of Fluids and Structures Vol. 16, pp. 1127-1144, December 2002.
- D. Gefroh*, E. Loth, J.C. Dutton, and S. McIlwain "Control of an Oblique SBLI with Aeroelastic Mesoflaps," AIAA Journal Vol. 40, pp. 2456-2466, 2002.
- K. Felton* and E. Loth "Diffusion of Spherical Bubbles in a Turbulent Boundary Layer," International Journal of Multiphase Flow Vol. 28, pp. 69-92, 2002.
- ! K. Felton* and E. Loth "Spherical Bubble Motion in a Turbulent Boundary Layer," Physics of Fluids Vol. 13, No. 9, 2564-2577, September 2001.
- T. Bocksell* and E. Loth "Random Walk Models for Particle Diffusion in Free-Shear Flows," AIAA Journal, Vol. 39, No. 6, pp. 1086-1096, June 2001.
- E. Loth "An Eulerian Turbulent Diffusion Model for Particles and Bubbles," International Journal of Multiphase Flow Vol. 27, pp. 1051-1063, 2001.
- S. Kumar* and E. Loth "Aerodynamic Simulations of Airfoils with Upper-Surface Ice-Shapes," AIAA Journal of Aircraft , Vol. 38, No. 2, pp. 285-295, March-April 2001.
- ! E. Loth "Numerical Approaches to Dilute Two-Phase Flow," Review paper for Progress in Energy and Combustion Science Vol. 26, No. 3 June 2000, pp. 161-223.
- B. Ford* and E. Loth "Diffusion of Ellipsoidal Bubbles in a Turbulent Shear Layer," International Journal of Multiphase Flow Vol. 26, pp. 503-516, 2000.
- T. Dunn*, E. Loth, and M. Bragg "A Computational Investigation of Spanwise-Step Ice Shapes on Airfoil Aerodynamics," AIAA Journal of Aircraft , Vol. 36, No. 5, pp. 836-843, 1999.
- E. Loth and J. Stedl* "Taylor and Lagrangian Correlations in a Turbulent Free Shear Layer," Experiments in Fluids Vol. 26, pp. 1-6, Jan. 1999.
- E. Loth, S. Sivier*, J. Baum, "Adaptive Unstructured Finite Element Technique for Two-Dimensional Detonation Simulations," Shock Waves, Intl. J. Vol. 8, No. 1, pp. 47-54, Feb. 1998.
- ! B. Ford* and E. Loth "Forces on Ellipsoidal Bubbles in a Turbulent Free Shear Layer," Physics of Fluids Vol. 10, No. 1, pp. 178-188, Jan. 1998.
- E. Loth "An Eulerian Model for Turbulent Diffusion of Particles in Free Shear Layers," AIAA Journal Vol. 36, No. 1, pp. 12-17, Jan. 1998.
- R. Cedar, E. Loth and K. Zaman "Fluid Dynamics: The Year In Review," Aerospace America Vol. 35, No.12, pp. 17-18, December 1997.
- ! T. Oakley*, E. Loth, and R. Adrian "A Two-Phase Cinematic PIV Method for Bubbly Flows," ASME J. of Fluids Engineering Vol. 119, pp. 707-712, September 1997.

- ! E. Loth, M. Taebi-Rahni* and G. Tryggvason "Deformable Bubbles in a Free Shear Layer," Intl. Journal of Multiphase Flow Vol. 23, No. 56, pp. 977-1001, September 1997.
- E. Loth, S. Sivier*, J. Baum, "Dusty Detonation Simulations with Adaptive Unstructured Finite Elements," AIAA Journal Vol. 35, No.6, pp. 1018-1024, June 1997.
- B. DeAngelis*, E. Loth, D. Lankford, and C.S. Bartlett "Computations of Turbulent Droplet Dispersion for Wind Tunnel Icing Tests," AIAA Journal of Aircraft Vol. 34, No.2, pp. 213-219, March-April 1997.
- R. Mahadevan* and E. Loth "Tone Excitation of a Supersonic Bounded Shear Layer," AIAA Journal Vol. 34, No. 10, pp. 1997-2004, October 1996.
- E. Loth and B. DeAngelis* "Model for Two-Phase Turbulent Dispersion in a Planar Free Shear Layer," UIIU Report ENG 96-505, AAE Report 96-05 University of Illinois at Urbana-Champaign, Urbana, IL.
- M. Taebi-Rahni* and E. Loth "Forces on a Large Cylindrical Bubble in an Unsteady Rotational Flow ," Amer. Inst. of Chem. Eng. Journal Vol.42, No.3, pp. 638-648, March 1996.
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- C. Oh* and E. Loth "Unstructured Grid Simulations of Spatially Evolving Supersonic Shear Layers," AIAA Journal Vol. 33, No. 7, pp. 1229-1238, July 1995.
- E. Loth and M. Matthys* "Unsteady Low Reynolds Number Shock Boundary Layer Interactions," Physics of Fluids, Vol. 7, No. 5, pp. 1142-1150, May 1995.
- A. Cary*, T. Morthland* and E. Loth "The Systems Design of the Dragonfly : a Human Powered Helicopter," Human Power Vol. 12, No. 1, pp. 9-15, 1995.
- E. Loth "Vortex Formation in a Proposed Detonation Internal Combustion Engine," AIAA Journal of Power and Propulsion Vol. 11, No. 3, pp. 529-534, 1995.
- S. Sivier*, E. Loth, J. Baum and R. Lohner "Unstructured Adaptive Remeshing Finite Element Method for Dusty Shock Flows," Shock Waves, Intl. Journal , Vol. 4, No. 1, pp. 31-41, 1994.
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- E. Loth and G.M. Faeth "Structure of Plane Underexpanded Air Jets in Water," Amer. Inst. of Chem. Eng. Journal, Vol. 36, pp. 818-826, June 1990.
- ! E. Loth and G.M. Faeth "Structure of Underexpanded Round Air Jets Submerged in Water," Intl. J. of Multiphase Flow, Vol. 15, No. 4, pp. 589-603, 1989.
- J. Baum, E. Loth and R. Lohner "Numerical Simulation of Shock Interaction with Complex Geometry Canisters." Current Topics in Shock Waves, American Institute of Physics, Y. Kim, ed., New York, 1989, pp. 909-914.
- E. Loth and B.W. McCormick "A Numerical Solution of the Downwash Associated with a Blown-Flap System," Journal of Aircraft, Vol. 24, No. 3, pp. 176-180, 1987.

INVITED TALKS/PAPERS

- "Vortex Generators to Control Shock Boundary Layer Interactions," Department of Aerospace Engineering, University of Michigan, December 2009.
- "Micro-ramps and Turbulent Shock Boundary Layer Interactions," Department of Aerospace and Ocean Engineering, Virginia Tech, March 2009.
- "Accurate and Stable Fluid-Structure Simulations," Department of Mechanical Engineering, University of Virginia, October 2008.
- "Stable and Accurate Loosely-Coupled Scheme for Unsteady Fluid-Solid Interaction," Department of Aerospace and Ocean Engineering, Virginia Tech, March 2008.
- "High Accuracy and Stability Techniques for Fluid-Structure Simulation," Department of Mechanical Engineering, University of Illinois at Chicago, April 2007.
- "Electrolytic Micro-Bubbler Matrices," Department of Mechanical and Aerospace Engineering, Florida Institute of Technology, May 2006.
- "Particle Dispersion in a Turbulent Boundary Layer via DNS and RANS flows," Department of Engineering, University of Cambridge (U.K.), November 2004.
- "Random-Walk Simulation of Particle Diffusion," IUTAM Symposium on Computational Multiphase Flow, Argonne, Illinois, October 2004 (proceedings published by Kluwer Press, Fluid Mechanics and Its Applications, Vol. 81, 2006).
- "Micro-Fabrication for Generation of Bubbles and their Dispersion in Turbulent Flows," Combined seminar for Mechanical and Industrial Engineering and the Iowa Institute of Hydraulic Research, University of Iowa, Iowa City, IA, September 2003.
- "Boundary Layer Control for Supersonic Inlets," Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA October 2002.
- "Mesoflaps for Supersonic Inlet Flow Control," AIAA Fluid Dynamics Meeting, St. Louis, MO, June 2002.
- "Smart Materials for Mesoflap Bleed and Injection," ASME Summer Fluids Engineering Meeting, FEDSM2001-18277, New Orleans, May-June 2001.
- "Aeroelastic Control of Turbulent SBLI," ECOMASS 2000, Barcelona, Spain, September 2000.
- "Smart Mesoflaps for Control of Shock Boundary-Layer Interactions," AIAA Fluid Dynamics 2000, Denver, Co, June, AIAA-2000-2476.

- "Mesoflaps for Supersonic Engine Inlets," Department of Aero. & Astro. Engineering, Mass. Inst. of Tech., Cambridge MA, Feb. 2000.
- "Numerical Approaches for Motion of Dispersed Particles, Drops, and Bubbles," ASME Summer Fluids Engineering Meeting, San Francisco, CA, July 1999.
- "Mixing Layer Turbulence and Bubble Deformation," Division of Engineering and Applied Sciences, Harvard University, Boston MA, Nov. 5, 1997.
- "Free Shear Layer Turbulence and Ellipsoidal Bubble Forces," Center for Fluid Mechanics, Turbulence and Computation (Division of Applied Mathematics), Brown University, Providence RI, Sept. 9, 1997.
- "Dynamics and Dispersion of Bubbles in a Turbulent Free Shear Layer," Naval Undersea Warfare Center, Newport RI, July 1996.
- "Adaptive Grid Technology for Two-Phase Compressible Flow" Molten Metal Technology, Waltham, MA, May 1995.
- "Large Eddy Simulations of a Supersonic Shear Layer" University of Michigan, Mechanical Engineering Department, April 1993.
- "Dynamics of Compressible and Two-Phase Fluids" Virginia Polytechnical Institute and State University, Blacksburg, VA, February, 1992.
- "Vorticity and Mixing Layer Simulations" Naval Research Laboratory, Laboratory for Computational Physics, June 1991.
- "Study of Plane Turbulent Under-expanded Air Jets in Water." Dayton Research Institute, Dayton, OH, July 1988.

CONFERENCE PROCEEDINGS and other ARCHIVAL PUBLICATIONS

(* indicates students supervised by EL)

- S. Lee*, E. Loth, Georgiadis, N. & DeBonis, J. "Effect of Mach Number of Flow Past Micro-Ramps", AIAA Fluid Dynamics Conference, San Antonio, TX, AIAA-2009-4181, June 2009.
- S. Lee* & E. Loth "Supersonic Boundary Layer Interactions with Various Micro-Vortex Generator Geometries", AIAA Fluid Dynamics Conference, San Antonio, TX, AIAA-2009-4181, June 2009.
- M. Rybalko*, Loth, E., Chima, R.V., Hirt, S.M., DeBonis, J.R., "Micro-Ramps for External Compression Low-Boom Inlets," AIAA Fluid Dynamics Conference, San Antonio, TX, AIAA Paper 2009-4206, June, 2009.
- T. Coyne*, Davis, D., Koncsek, J., Howe, D., Loth, E., "Simulations of a Low-Boom Axisymmetric External-Compression Inlet," AIAA Fluid Dynamics Conference, San Antonio, TX, AIAA Paper 2009-4210, June, 2009.
- I. Chiles*, Loth, E., Yeong, Y.H., Bragg, M, Elliott, G., "Computations of Engine Bypass in a Wind Tunnel Configuration," AIAA Fluid Dynamics Conference, San Antonio, TX, AIAA Paper 2009-4208, June, 2009.
- Y.H.Yeong, Chiles, I*, Bragg, M, Elliott, G., Loth, E, Connors, T., "Wind Tunnel Testing of a Nacelle Bypass Concept for a Quiet Supersonic Aircraft," AIAA Fluid Dynamics Conference, San Antonio, TX, AIAA Paper 2009-4207, June, 2009.
- A. Steele*, Bayer, I. Allen*, K & Loth, E. "Effect of Carbon Nanotube Additives on Drag Reduction in Pipe Flows," ASME Engineering Fluids Division Summer Meeting FEDSM2009-78122, April 2009, Vail, Colorado.

- P. Martorana*, Bayer, I. Steele*, A. & Loth, E. "Effect of Nano-scale Additives on Gear Pump Performance," ASME Engineering Fluids Division Summer Meeting FEDSM2009-78149, April 2009, Vail, Colorado.
- M. Rybalko*, E. Loth, & D. Lankford "LES Sub-Grid Diffusion for Lagrangian Particles", ASME Fluids Engineering Conference, Jacksonville, FL, Aug. 2008, FEDSM2008-55207.
- E. Loth & H. Babinsky "Representative Flow Field of External Compression Inlets and Diffusers", AIAA Aerospace Sciences Meeting, Orlando, FL, AIAA-2009-0032, January 2009.
- A. Steele*, S. Moran*, A. Cannon, W. King, I. Bayer & E. Loth, "Conformal Nano-composite Spray Coatings on Micro-Patterned Surfaces for Super-hydrophobicity", ASME Fluids Engineering Conference, Jacksonville, FL, Aug. 2008, FEDSM2008-55051.
- R. Chin*, E. Hsiao-Wecksler & E. Loth "Fluid-Power Harvesting through the use of a Bellow with Application to Advanced Orthotic Braces", ASME Fluids Engineering Conference, Jacksonville, FL, Aug. 2008, FEDSM2008-55211.
- E. Loth, J. March* & K. Krishnan* "Predicting Droplet-Droplet Collision Regimes", AIAA Aerospace Sciences Meeting, Reno, NV, AIAA-2008-1022, January 2008.
- J. Kersey*, E. Loth, and D. Lankford "Effect of Evaporating Droplets on Shock Wave Attenuation", AIAA Aerospace Sciences Meeting, Reno, NV, AIAA-2008-0793, January 2008.
- J.P. Clarke*, K. Cerven*, J. March*, M. Olszewski*, B. Wheaton*, M. Williams*, J. Yu*, M. Selig, E. Loth, and R. Burton "Conceptual Design of a Supersonic Air-Launch System", AIAA Aerospace Sciences Meeting, Reno, NV, January 2008.
- S. Lee*, E. Loth, C. Wang & S. Kim "LES of Supersonic Turbulent Boundary Layers with μ VGs", AIAA Fluid Dynamics Meeting, Miami FL, June 2007, AIAA-2007-3916.
- E. Loth & P. Woo*, "Compressibility and Rarefaction Effects on Drag of a Spherical Particle", International Conference on Multiphase Flow, ICMF 2007, Leipzig, Germany.
- E. Loth & C. Wang*, "Quasi-Steady Shape and Drag of Deformable Bubbles and Drops", International Conference on Multiphase Flow, ICMF 2007, Leipzig, Germany.
- A. Dorgan* & E. Loth, "Efficient calculation of the history force at finite Reynolds numbers", International Conference on Multiphase Flow, ICMF 2007, Leipzig, Germany.
- V. Lee* & E. Loth, "Local Adaptive Timestepping for Lagrangian Particle Tracking", AIAA Aerospace Sciences Meeting, Reno NV, January 2007, AIAA-2007335.
- R. Jaiman*, P. Guebelle, E. Loth, & X. Jiao, "Stable and Accurate Loosely-Coupled Scheme for Unsteady Fluid-Structure Interaction", AIAA Aerospace Sciences Meeting, Reno NV, January 2007, AIAA-2007-334.
- G. Martin*, E. Loth, & D. Lankford, "Particle Host-Cell Determination in Unstructured Grids", AIAA Aerospace Sciences Meeting, Reno NV, January 2006, 2006-1084.
- B. Tilotson*, J.C. Dutton & E. Loth, "Experimental Study of a Mach 3 Bump Compression Flowfield", AIAA Aerospace Sciences Meeting, Reno NV, January 2006, AIAA-2006-11.
- D. Lankford, V. Lee*, E. Loth, "Development of a WIND-US Multiphase Capability", AIAA Aerospace Sciences Meeting, Reno NV, January 2006, AIAA-2006-635.
- S. Lee*, E. Loth, A. Broeren & M. Bragg, "Simulation of Icing on a Cascade of Stator Blades", AIAA Aerospace Sciences Meeting, Reno NV, January 2006, AIAA-2006-208.
- R. Jaiman*, J. Jiao, P. Guebelle, and E. Loth, "Assessment of Conservative Load Transfer for Fluid-Solid Interface with Non-matching Meshes", 8th U.S. National Congress on Computational Mechanics, Austin, TX, July 24-28, 2005.

- A.J. Dorgan*, E. Loth, and E. Frazzoli, "Autonomous Control of a Micro-Aircraft Network in an Atmospheric Boundary Layer", AIAA Aerospace Sciences Meeting, Reno NV, January AIAA-2004-0539.
- K. Srinivasan*, E. Loth, and J.C. Dutton "Aerodynamics of Recirculating Flow Control Devices for Normal/Shock Boundary Layer Interaction", AIAA Aerospace Sciences Meeting, Reno NV, AIAA-2004-0426, January 2004.
- C. Bhargava*, E. Loth, and M. Potapczuk "Numerical Simulation of Icing Clouds in the NASA Glenn Icing Research Tunnel", AIAA Aerospace Sciences Meeting, Reno NV, AIAA-2004-0563, January 2004.
- J. Pan* and E. Loth, "Detached Eddy Simulations for Airfoil with Ice Shapes", AIAA Aerospace Sciences Meeting, Reno NV, AIAA-2004-0564, January 2004.
- E. Loth, F. Roos, D. Davis, J. Mace, and R. Jaiman*, "SBLI Flow Control with Mesoflaps for a Mach 2 Inlet", AIAA Aerospace Sciences Meeting, AIAA-2004-0855, Reno NV, January 2004.
- S. Lee*, W. Sutomo, C. Liu, and E. Loth, "MEMS-based Electrolytical Microbubbler in a Water Channel", 4th ASME/JSME Fluids Engineering Conference, Honolulu HA, July 2003, FEDSM2003-45646.
- E. Loth and W. Sherman, "Multiphase Flow Rendered in Virtual Reality", 4th ASME/JSME Fluids Engineering Conference, Honolulu HA, July 2003, FEDSM2003-45200.
- A. J. Dorgan*, E. Loth, T. Bocksell*, and P.K. Yueng, "Boundary Layer Dispersion of Near-Wall Injected Particles of Various Inertias", 4th ASME/JSME Fluids Engineering Conference, Honolulu HA, July 2003, FEDSM2003-45492.
- C. Bhargava*, E. Loth, and M. Potapczuk, "Aerodynamic Simulations of the GRC Icing Research Tunnel", AIAA Aerospace Sciences Meeting, Reno NV, January 2003, AIAA-2003-0566.
- R. Jaiman*, E. Loth, and J.C. Dutton, "Numerical Simulations of Normal Shock-Wave Boundary Layer Interaction Control using Mesoflaps", AIAA Aerospace Sciences Meeting, Reno NV, AIAA-2003-0729, January 2003.
- J. Pan*, E. Loth & M. Bragg "Simulations of Airfoils with Ice-Shapes", AIAA Aerospace Sciences Meeting, Reno NV, January 2003, AIAA-2003-0729.
- S. Kim, E. Loth, and J.C. Dutton, "Simulations of Mesoflap Flow Control for Ramp Oblique Shock/Boundary Layer Interactions", AIAA Fluid Dynamics Meeting, St. Louis MO, June 2002, AIAA 2002-3117.
- Y. Lee, E. Hafenricheter*, R. Jaiman*, M. Orphanides, J.C. Dutton, and E. Loth, "Skin Friction Measurements in Normal Shock-Wave Boundary-Layer Interaction Control with Aeroelastic Mesoflaps", AIAA Aerospace Sciences Meeting, Reno NV, January 2002, AIAA 2002-0979.
- E. Loth, W. Sherman, A. Aumann, and T. Bocksell*, "Virtual Rendering of Multiphase Flows", Fourth International Conference on Multiphase Flows, New Orleans, LA, May-June 2001.
- T. Bocksell* & E. Loth, "Numerical Simulation of Bubble Diffusion in a Turbulent Boundary Layer", Fourth International Conference on Multiphase Flows, New Orleans, LA, May-June 2001.
- P. Bhattacharjee* & E. Loth, "Simulation of Air Curtain Entrainment", ASME Summer Fluids Engineering Meeting, New Orleans, LA, May-June 2001, FEDSM2001-18201.
- B. Field* & E. Loth, "Measurements of Air Curtain Entrainment", ASME Summer Fluids Engineering Meeting, New Orleans, LA, May-June 2001, FEDSM2001-18168.

- M. Orphanides, E. Hafenricheter*, Y. Lee, J.C. Dutton, E. Loth and S. McIlwain, "Shock Position Sensitivity and Performance of SBLI Passive-Control Methods", AIAA Fluid Dynamics Meeting, Anaheim, CA, June 2001, AIAA 2001-2439.
- E. Hafenricheter*, Y. Lee, S. McIlwain, J.C. Dutton, and E. Loth, "Experiments on Normal Shock/Boundary Layer Interaction Using Aeroelastic Mesoflaps", AIAA Aerospace Sciences Meeting, Reno NV, January 2001, AIAA 2001-0156.
- S. Kumar* and E. Loth, "Detached Eddy Simulations of an Iced-Airfoil", AIAA Aerospace Sciences Meeting, Reno NV, January 2001, AIAA 2001-0678.
- E. Loth, "An Eulerian Model for Free-Shear Multiphase Turbulent Diffusion", ASME IMECE Meeting, Orlando, FL, November 2000.
- K. Felton* & E. Loth, "Turbulent Bubble Dispersion in Boundary Layer", ASME Summer Fluids Engineering Meeting, Boston, MA, July 2000, FEDSM2000-11140.
- D. Gefroh*, E. Hafenricheter, J.C. Dutton, S. McIlwain, E. Loth, J. C. Dutton, and P. Geubelle "Simulation and Experimental Analysis of a Novel SBLI Flow Control System," AIAA Fluid Dynamics 2000, Denver CO, June, AIAA 2000-2237.
- B. Wood*, E. Loth, P. Geubelle, S. McIlwain "A Numerical Methodology for an Aeroelastic SBLI Control," AIAA Aerospace Sciences Meeting, Reno NV, January 2000, AIAA 2000-0552.
- S. Kumar* and E. Loth "Aerodynamic Simulations of Airfoils with Large-Droplet Ice-Shapes," AIAA Aerospace Sciences Meeting, Reno NV, January 2000, AIAA 2000-0238.
- P. Hancir*, A. Anderson* and E. Loth "Computations of Droplet Distribution in the NASA IRT," AIAA Aerospace Sciences Meeting, Reno NV, January 2000, AIAA 2000-0101.
- D. Gefroh*, E. Hafenricheter, J.C. Dutton, S. McIlwain, and E. Loth "Experiments of Aeroelastic Mesoflaps," AIAA Aerospace Sciences Meeting, Reno NV January 2000, AIAA 2000-0355.
- B. Wood*, E. Loth, and P. Geubelle "Shock/Boundary-Layer Interaction Control with Aeroelastic Transpiration," ASME Summer Fluids Engineering Meeting, San Francisco, CA, July 1999, FEDSM99-6924.
- T. Bocksell* and E. Loth "A Lagrangian CRW Model for Diffusion of Bubbles and Particles," ASME Summer Fluids Engineering Meeting, San Francisco, CA, July 1999, FEDSM99-7366.
- K. Felton* and E. Loth "Concentration Distribution of Spherical Bubbles in a Turbulent Boundary Layer," ASME Summer Fluids Engineering Meeting, San Francisco, CA, July 1999, FEDSM99-7360.
- P. Hancir* and E. Loth "Computations of Droplet Distribution in the IRT," AIAA Aerospace Sciences Meeting, Reno NV, January 1999, AIAA 99-0097.
- B. Wood*, E. Loth, and P. Geubelle "Mesoflaps for Aeroelastic Transpiration for SBLI Control," AIAA Aerospace Sciences Meeting, Reno NV, January 1999, AIAA 99-0614.
- T. Dunn* and E. Loth "Effects of Simulated-Spanwise-Ice Shapes on Airfoils: Computational Investigation" AIAA Aerospace Sciences Meeting, Reno NV, January 1999, AIAA 99-0093.
- B. Ford* and E. Loth "Diffusion of Ellipsoidal Bubbles in a Turbulent Shear Layer," International Conference on Multiphase Flow, Lyon, France, June 1998.
- K. Felton* and E. Loth "Sub-Millimetric Bubbly Flow in a Vertical Turbulent Boundary Layer," International Conference on Multiphase Flow, Lyon, France, June 1998.
- T. Bocksell* and E. Loth "An Enhanced DRW Turbulent Diffusion Model for Free Shear Flows," International Conference on Multiphase Flow, Lyon, France, June 1998.
- E. Loth, J. Boris and M. Emery "Very Large Bubble Cavitation in a Temporally-Evolving Free Shear Layer," ASME Summer Fluids Engineering Meeting, Washington, D.C., June 1998.

- T. Bocksell* and E. Loth "Stochastic Diffusion Models for Particles in Wakes and Jets," ASME Summer Fluids Engineering Meeting, Washington, D.C., June 1998.
- S. Lee, T. Dunn*, H. Gurbacki, M. Bragg, and E. Loth "An Experimental and Computational Investigation of Spanwise-Step-Ice Accretions on Airfoil Aerodynamics," AIAA Aerospace Sciences Meeting, Reno NV, January 1998, AIAA 98-0490.
- B. Ford* and E. Loth "Forces on Ellipsoidal Bubbles in a Turbulent Free Shear Layer," ASME Summer Fluids Engineering Meeting, FEDSM97-3524, Vancouver, Canada, June 1997.
- E. Loth "Dispersion of Particles, Droplets and Bubbles in a Turbulent Free Shear Layer," ASME Summer Fluids Engineering Meeting, FEDSM97-3607, Vancouver, Canada, June 1997.
- E. Loth "Model of Two-Phase Turbulent Dispersion in a Free Shear Layer," AIAA Aerospace Sciences Meeting, Reno NV, January 1997, AIAA 97-0759.
- E. Loth, S. Sivier* and J. Baum "Dusty Detonation with Unstructured Finite Elements," Aerospace Sciences Meeting, Reno NV, January 1997, AIAA 97-0805.
- B. DeAngelis*, E. Loth, D. Lankford, and C.S. Bartlett "Computations of Droplet Turbulent Droplet Dispersion for Wind Tunnel Icing Tests," AIAA Aerospace Sciences Meeting, Reno NV, AIAA 95-0634, January 1996.
- R. Mahadevan*, E. Loth, and K. Chand* "Tone Excitation of a Supersonic Bounded Jet," ASME/JSME Fluids Engineering Conference, Hilton Head, SC, August 1995.
- T. Oakley*, E. Loth, and R. Adrian "A Study of Bubble Dispersion in a Turbulent Free Shear Layer Using Cinematic PIV," ASME/JSME Fluids Engineering Conference, Hilton Head, SC, August 1995.
- M. Taebi-Rahni*, E. Loth, and G. Tryggvason "Unsteady Forces on Large Spherical and Ellipsoidal Bubbles," ASME/JSME Fluids Engineering Conference, Hilton Head, SC, August 1995.
- M. Cebrzynski* and E. Loth "Changes in Thickness of a Free Shear Layer Due to Large Bubbles," ASME/JSME Fluids Engineering Conference, Hilton Head, SC, August 1995.
- M. Matthys* and E. Loth "Unsteady Low Reynolds Number Shock Boundary Layer Interactions," ASME/JSME Fluids Engineering Conference, Hilton Head, SC, August 1995.
- R. Mahadevan*, E. Loth, and J.C. Dutton "Effect of an Expansion-Compression Wave Pair on Free Shear Layer Dynamics," AIAA Aerospace Sciences Meeting, Reno NV, AIAA 95-0475, January 1995.
- M. Taebi-Rahni*, E. Loth, G. Tryggvason "Direct Numerical Simulation of Large Bubbles in a Planar Free Shear Layer," 12th US National Congress of Theoretical and Applied Mechanics, Seattle, WA, June 1994.
- T. Oakley*, E. Loth, R. Adrian "Cinematic PIV of Bubble Dispersion in a Turbulent Free Shear Layer," 12th US National Congress of Theoretical and Applied Mechanics, Seattle, WA, June 1994.
- C. Oh* and E. Loth "A Numerical Investigation of Supersonic Turbulent Shear Layers: Effects of Compressibility," AIAA Fluid Dynamics, Plasma Dynamics and Lasers Conference, AIAA 94-2244, Colorado Springs, CO, June 1994.
- S. Sivier*, E. Loth, J. Baum, and R. Lohner "Dusty Shock Simulations with an Unstructured Grid and Adaptive Finite Elements," AIAA Fluid Dynamics, Plasma Dynamics and Lasers Conference, AIAA 94-2362, Colorado Springs, CO, June 1994.
- T. Oakley*, E. Loth, R. Adrian "Cinematic Particle Image Velocimetry of a Turbulent Free Shear Layer," AIAA Fluid Dynamics, Plasma Dynamics and Lasers Conference, AIAA 94-2298, Colorado Springs, CO, June 1994.

- J. Loth and E. Loth "A Novel Staged Internal Combustion Engine," AIAA/SAE/ASME/ ASEE Joint Propulsion Conference, AIAA 94-2723, Indianapolis, June 1994.
- E. Loth and J. Loth "Detonation Internal Combustion Engine Concept," ASME Conference on Alternate Fuels, Engine Performance and Emissions, Morgantown, WV, September 1993.
- J. Loth and E. Loth "Isolated Combustion and Diluted Expansion Engine Concept," ASME Conference on Alternate Fuels, Engine Performance and Emissions, Morgantown, WV, September 1993.
- C. Oh* and E. Loth "Simulation of Naturally Excited Supersonic Mixing Layers," 13th Turbulence Symposium, Rolla, MO, September 1992.
- F. Davis* and E. Loth "Visualization of Turbulence Modulation Due to Large Particles," 13th Turbulence Symposium, Rolla, MO, September 1992.
- M. Taebi-Rahni*, E. Loth and G. Tryggvason "Numerical Study of Turbulence Bubble Interaction in a Bubbly Mixing Layer," 13th Turbulence Symposium, Rolla, MO, September 1992.
- E. Loth, J. Loth and F. Loth "High Efficiency Detonation Internal Combustion Engine (DICE)," AIAA/SAE/ASME/ASEE Joint Propulsion Conference, AIAA 92-3171, Nashville, TN, July 1992 .
- R. Mahadevan*, R. Frank*, J. Guglielmo* and E. Loth "High-Speed Cinematography of Supersonic Mixing Layers," AIAA/SAE/ASME/ASEE Joint Propulsion Conference, AIAA 92-3443, Nashville, TN, July 1992.
- S. Sivier*, E. Loth, J. Baum and R. Lohner "Eulerian Methods in Two-Phase Flow," AIAA/SAE/ASME/ASEE Joint Propulsion Conference, AIAA 92-3438, Nashville, TN, July 1992.
- C. Oh* and E. Loth "Finite-Element Simulation of Supersonic Mixing Layers," AIAA/SAE/ASME/ASEE Joint Propulsion Conference, AIAA 92-3545, Nashville, TN, July 1992.
- S. Sivier*, J. Baum, E. Loth and R. Lohner "Simulations of Shock Wave Generated Vorticity," AIAA Fluid Dynamics, Plasma Dynamics and Lasers Conference, Honolulu HI, June 1991, AIAA 91-1668.
- J. Loth, S. Khalid, and E. Loth "Proposed Improved Natural Gas Engine Using a Separate Detonation Chamber," AIAA/SAE/ASME/ASEE Joint Propulsion Conference, Sacramento, CA, June 1991, AIAA 91-1882.
- S. Sivier*, J. Baum, E. Loth and R. Lohner "Vorticity produced by Shock Wave Diffraction," 18th International Symposium on Shock Waves, Sendai, Japan, July 1991.
- E. Loth, R. Ramamurti, F. Loth and S. Jones "Flow Downstream of an Ultrasound Catheter," Advances in Bioengineering, ASME, ed. S. A. Goldstein, pp. 197-200, 1990.
- E. Loth, K. Kailasanath, and R. Lohner "Supersonic Flow over an Axisymmetric Backward Facing Step," AIAA Fluid Dynamics, Plasma Dynamics and Lasers Conference, Seattle WA, June 1990, AIAA 90-1580.
- E. Loth, J. Baum, and R. Lohner "Formation of Shocks Within Axisymmetric Nozzles," AIAA Fluid Dynamics, Plasma Dynamics and Lasers Conference, Seattle WA, AIAA 90-1655, June 1990.
- E. Loth "Shocks Caused by Cross-Stream Pressure Gradients," Annual Fluid Dynamics Meeting of the American Physical Society, Palo Alto, CA, November 1989.
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