

Feng Liu

Professor

Department of Mechanical and Aerospace Engineering
University of California
Irvine, CA 92697-3975

E-mail: fliu@uci.edu
Phone/Fax: (949) 824-1750
<http://fliu.eng.uci.edu>

EDUCATION:

- Ph.D.** 1991, Princeton University, Princeton, New Jersey
M.S. 1984, Beijing Institute of Aeronautics and Astronautics, Beijing, China
B.S. 1981, Northwestern Polytechnic University, Xi'an, China

PROFESSIONAL APPOINTMENTS:

- July, 2003 – present **Professor,**
July, 1997 – June, 2003 **Associate Professor,**
July, 1991 – June, 1997 **Assistant Professor**
Department of Mechanical and Aerospace Engineering
University of California, Irvine, CA 92697-3975.
July, 2011 – present **Chair Professor (Adjunct),**
Beijing University, Beijing China
Sept., 1984 – June, 1986 **Teaching and Research Staff Member**
Department of Aeronautical Propulsion and Thermal Engineering
Northwestern Polytechnical University, Xi'an, China.

AWARDS AND HONORS:

- Fellow, American Institute of Aeronautics and Astronautics (AIAA),** 2013,
Citation: for gas turbine-burner innovations including the development of high-impact,
widely-used CFD codes applicable to turbomachinery aerodynamics, aircraft aeroelasticity
and advanced optimization techniques.
Outstanding UCI Mechanical Engineering Professor,
Alpha Beta Chapter of Pi Tau Sigma International Honor Society, 2008.
Changjiang Distinguished Lecture Professor, Ministry of Education of China, 2005-2008.
Outstanding Professor of the Year, Class 2000, University of California, Irvine, 2000.
Advisory Professor, Beijing University of Aeronautics and Astronautics, Dec. 2000–present.
ASEE/NASA Summer Faculty Fellowship, NASA Langley Research Center, 2001.
Guest Professor, Institute of Mechanics, the Chinese Academy of Sciences, Mar. 2003.
Distinguished Guest Professor, Northwestern Polytechnical University, Mar. 2003–2004.
The Grumman Prize, Princeton University, 1987.

PROFESSIONAL AND UNIVERSITY SERVICES:

Associate Editor, *AIAA Journal of Propulsion and Power*, Jan. 2003-present.

Associate Editor, *ASME Journal of Fluids Engineering*, Oct. 2014-present.

Member of Editorial Board, *Acta Mechanica Sinica, English Version*, Jan. 2005–2009.

Member of Editorial Board, *International Journal of Computational Fluid Dynamics*, Aug. 2008-2013.

Member of the AIAA Air-Breathing Propulsion Technical Committee, Jan. 2001-2005.

Member of the ASME Turbomachinery Technical Committee, June 1997–present.

**Member of the Planning Committee for the Department of Aeronautics
and Astronautics of Peking University**, May, 2005–Dec., 2006.

**Faculty Chair and Chair of The Executive Committee of the Henry Samueli School of
Engineering**, University of California, Irvine, 2007-2008 Academic Year.

Director of Graduate Student Admissions, Department of Mechanical and Aerospace
Engineering, University of California, Irvine, 2008–2010.

**Chair of the Workgroup and Vice Chair of the International Workshop on “The Future of
Commercial Aircraft,”** The Joint Institute of Aeronautical Science and Engineering,
24-27 May 2011, Hong Kong

External Reviewer, Undergraduate Program Review Committee, Department of Mechanical
and Aerospace Engineering, University of California, San Diego, April, 2013.

**Organizer and Co-Chair, International Symposium on Mathematics, Computing and Design
— where Analysis and Creativity Combine**, Stanford, Nov. 20-21, 2014.

Organizers and Session Chairs, various other national and international conferences.

Referee, for proposals for NSF, NRC, etc. and regularly for journals including *AIAA Journal*,
Journal of Fluid Mechanics, *Journal of Fluids Engineering*, *Journal of Turbomachinery*,
Physics of Fluids, *Computers and Fluids*, *Computer Modeling in Engineering and Sciences*,
Journal of Computational Physics, *Journal of Propulsion and Power*, and others.

MAJOR RESEARCH INTERESTS AND EXPERTISE:

Computational Fluid Dynamics and Combustion, Propulsion, Gas-turbine Engines,
Aerodynamics and Aeroelasticity, flow control, and Multi-disciplinary Optimization.

CONSULTING ACTIVITIES:

Interlligent Aerodynamics, 1992–present.

Spytek Aerospace Corporation, 2009-2011.

Zona Technologies, Scottsdale, Arizona, 2006-2011.

Alstom Power, Baden, Switzerland, 2003-2004.

Innovative Scientific Solutions, Inc., Dayton, Ohio, 2001-2004.

Stanford University, Stanford, California, 1998-1999.

ABB Corporate Research Center, Baden, Switzerland, 1995-1998.

ABB Power Generation, Baden, Switzerland, 1995-1998.

General Electric Aircraft Engines, Cincinnati, Ohio, 1994.

UNDERGRADUATE COURSES TAUGHT AT UC IRVINE:

Propulsion, MAE 112; **Introduction to Fluid Mechanics**, MAE130A;
Compressible Flow, MAE 135; **Aerodynamics**, MAE 136;
Aircraft Performance, MAE 158; **Introduction to Control Systems**, MAE 170.

GRADUATE COURSES TAUGHT AT UC IRVINE:

Engineering Analysis II, MAE 200B;
Compressible Fluid Dynamics, MAE 230C;
Computational Fluid Dynamics, MAE 237. Turbomachinery Aerodynamics and Design, MAE 295.

PATENT:

“Quiet Bleed Valve for Gas Turbine Engine,” US Patent No. US9175577B2, Nov. 3, 2015.

PUBLICATIONS

Refereed Journal Articles

- J1: Liu, F. and Wei, Y., “Research on an Implicit Approximate-Factorization Finite-Difference Method for the Euler Equations,” *Acta Aerodynamica Sinica*, No. 3, Sept. 1985. pp. 54-62.
- J2: Cen, R. Y., Jameson, A., Liu, F., and Ostriker, J.P., “The Universe in a Box I: Thermal Effects in the Standard Cold Dark Matter Scenario,” *The Astrophysical Journal*, 362: L41-L45, October 20, 1990.
- J3: Liu, F. and Jameson, A., “Cascade Flow Calculations by a Multigrid Euler Method,” *Journal of Propulsion and Power*, Volume 9, No. 1, 1993, pp. 90-97.
- J4: Liu, F. and Jameson, A., “Multigrid Navier-Stokes Calculations for Three-dimensional Cascades,” *AIAA Journal*, Vol. 31, No. 10, October, 1993, pp. 1785-1791.
- J5: Liu, F. and Zheng, X., “Staggered Finite Volume Scheme for Cascade Flow with a $k-\omega$ Turbulence Model,” *AIAA Journal*, Vol. 32, No. 8, August, 1994, pp. 1589-1597.
- J6: Chen, W., Haroun, M.A., and Liu, F., “Large Amplitude Liquid Sloshing in Seismically Excited Tanks”, *Journal of Earthquake Engineering and Structural Dynamics*, July, 1996, V25 N7:653-669.
- J7: Zheng, X. and Liu, F., “Staggered Upwind Method for Solving Navier-Stokes and $k-\omega$ Turbulence Model Equations,” *AIAA Journal*, Vol. 33, No. 6, June 1995. pp. 991-998.
- J8: Liu, F. and Ji, S., “Unsteady Flow Calculations with a Multigrid Navier-Stokes Method,” *AIAA Journal*, Vol. 34, No. 10, October, 1996.
- J9: Liu, F. and Zheng, X., “A Strongly-Coupled Time-Marching Method for Solving the Navier-Stokes and $k-\omega$ Turbulence Model Equations with Multigrid,” *Journal of Computational Physics*, Vol. 128, No. 2, pp. 289-300, 1996.

- J10: Liu, F., Ji, S., and Liao, G., "An Adaptive Grid Method and Its Application to Steady Euler Flow Calculations," *SIAM Journal on Scientific Computing*, vol. 20, No. 3, pp. 811-825, 1998.
- J11: Zheng, X., Liu, C., Liu, F., and Yang, C., "Turbulent Transition Simulation Using the $k-\omega$ Model," *International Journal for Numerical Methods in Engineering*, 42, pp. 907-926, 1998.
- J12: Sirignano, W.A. and Liu, F., "Performance Increases for Gas-Turbine Engines Through Combustion Inside the Turbine," *Journal of Propulsion and Power*, Vol. 15, No. 1, pp. 111-118, January-February, 1999.
- J13: Ji, S., and Liu, F., "Flutter Computation of Turbomachinery Cascades Using a Parallel Unsteady Navier-Stokes Code," *AIAA Journal*, Volume 37, No. 3, pp. 320-327, March, 1999.
- J14: Liao, G., Liu, F., de la Pena, G.C., Peng, D., and Osher, S., "Level-Set-Based Deformation Methods for Adaptive Grids," *Journal of Computational Physics*, 159, pp. 103-122, 2000.
- J15: Sadeghi, M., and Liu, F., "Computation of Mistuning Effects on Cascade Flutter," *AIAA Journal*, Vol. 39, No. 1, pp. 22-28, Jan., 2001.
- J16: Liu, F. and Sirignano, W.A., "Turbojet and Turbofan Engine Performance Increases Through Turbine Burners," *Journal of Propulsion and Power*, Vol. 17, No. 3, pp. 695-705, May-June, 2001.
- J17: Liu, F., Cai, J., Zhu, Y., Wong, A.S.F., and Tsai, H.M., "Calculation of Wing Flutter by a Coupled Fluid-Structure Method," *Journal of Aircraft*, Vol. 38, No. 2, pp. 334-342, March-April, 2001.
- J18: Yao, J., Jameson, A., Alonso, J. J., and Liu, F., "Development and Validation of a Massively Parallel Flow Solver for Turbomachinery Flows," *Journal of Propulsion and Power*, Vol. 17, No. 3, pp. 659-668, May-June, 2001.
- J19: Fang, X., Liu, F., and Sirignano, W. A., "Ignition and Flame Studies for an Accelerating Transonic Mixing Layer," *Journal of Propulsion and Power*, Vol. 17, No. 5, pp. 1058-1066, Sept.-Oct., 2001.
- J20: Tsai, H.M., Wong, A.S.F. , Cai, J. , Zhu, Y., and Liu, F., "Unsteady Flow Calculations with a Parallel Multiblock Moving Mesh Algorithm," *AIAA Journal*, Vol. 39, No. 6, pp. 1021-1029, Jun., 2001.
- J21: Cai, J., Liu, F., and Sirignano, W.A., "Three-Dimensional Flame Propagation Above Liquid Fuel Pools," *Combustion Science and Technology*, v. 174 (5-6) pp. 5-34, 2002.
- J22: Cai, J., Liu, F., and Luo, S., "Stability of Symmetric Vortices in Two-Dimensions and over Three-Dimensional Slender Conical Bodies," *Journal of Fluid Mechanics*, v. 480, 2003, pp. 65-94.

- J23: Xiao, Q., Tsai, H.M., and Liu, F., “Computation of Transonic Diffuser Flows by a Lagged $k-\omega$ Turbulence Model,” *Journal of Propulsion and Power*, May-June, 2003, pp. 473-483.
- J24: Gao, C. Luo, S., and Liu, F., “Solution of the Euler Equations with Approximate Boundary Conditions for Thin Airfoils,” *Journal of Northwestern Polytechnical University*, Vol. 21, No. 3, pp. 253-258, June, 2003.
- J25: Cai, J., Liu, F., and Sirignano, W.A., “Three-Dimensional Structures of Flames over Liquid Fuel Pools,” *Combustion Science and Technology*, Vol. 175, No. 11, pp. 2113-2139, Nov., 2003.
- J26: Gao, C. Luo, S., and Liu, F., “Numerical Solution of the Unsteady Euler Equations for Airfoils Using Approximate Boundary Conditions,” *Acta Mechanica Sinica*, Vol. 19, No.5, pp. 427-436, Oct., 2003.
- J27: Cai, J., Luo, S., and Liu, F., “Stability of Symmetric and Asymmetric Vortices over Slender Conical Wings and Bodies,” *Physics of Fluids*, Vol. 16, No. 2, pp. 424-432, 2004.
- J28: Kirshman, D.J., and Liu, F., “A Gridless Boundary Condition Method for the Solution of the Euler Equations on Embedded Cartesian Meshes with Multigrid,” *Journal of Computational Physics*, Vol. 201, No. 1, pp. 119-147, Nov., 2004.
- J29: Koh, E.P.C., Tsai, H.M., and Liu, F., “Euler Solution Using Cartesian Grid with a Gridless Least Squares Boundary Treatment,” *AIAA Journal*, Vol. 43, No. 2, pp.246-255, 2005.
- J30: Gao, C., Yang, S., Luo, S., Liu, F., and D.M. Schuster, “Calculation of Airfoil Flutter by an Euler Method with Approximate Boundary Conditions,” *AIAA Journal*, Vol. 43, No. 2, pp. 295-305, 2005.
- J31: Xiao, Q., Tsai, H.M, and Liu, F., “Computation of Turbulent Separated Nozzle Flow by a Lag Model,” *Journal of Propulsion and Power*, vol. 21 no. 2 pp.368-371, 2005.
- J32: Kirshman, D.J., and Liu, F., “Flutter Prediction by a Cartesian mesh Euler Method with Small Perturbation Gridless Boundary Conditions,” *Computers and Fluids*, Vol. 35, no. 6, pp. 571-586, 2006.
- J33: Cai, J., Tsai, H.M., and Liu, F., “A Parallel Viscous Flow Solver On Multi-block Overset Grids,” *Computers and Fluids*, Vol. 35, no. 10, pp. 1290-1301, 2006.
- J34: McBean, I., Hourigan, K., Thompson, M., and Liu, F., “Prediction of Flutter of Turbine Blades in a Transonic Annular Cascade,” *Journal of Fluids Engineering*, Vol. 127, No. 6, pp.1053-1058, Nov. 2005.
- J35: Xiao, Q., Tsai, H.M, and Liu, F., “Numerical Study of Transonic Buffet on a Supercritical Airfoil,” *AIAA Journal*, Vol. 44, no. 3, pp. 620-628, 2006.
- J36: Sadeghi, M. and Liu, F., “Computation of Cascade Flutter by Uncoupled and Coupled Methods,” *International Journal of Computational Fluid Dynamics*, Vol. 19, No. 8, pp. 559-569, November 2005.

- J37: Cai, J., Luo, S., and Liu, F., “Stability of Symmetric and Asymmetric Vortices over Slender Conical Wing-body Combinations,” *AIAA Journal*, Vol. 44, No. 7, pp. 1601-1608, 2006.
- J38: Zhang, J., He, G., and Liu, F., “Electro-osmotic Flow and Mixing in Heterogeneous Microchannels,” *Physical Review E*, Vol. 73, No. 5, 2006.
- J39: Sadeghi, M. and Liu, F., “Investigation of Mistuning Effects on Cascade Flutter Using a Coupled Method,” *Journal of Propulsion and Power*, Vol. 23, No. 2, pp. 266-272, 2007.
- J40: Cheng, F.C., Liu, F., and Sirignano, W.A., “Nonpremixed Combustion in an Accelerating Transonic Flow Undergoing Transition,” *AIAA Journal*, Vol. 45, No. 12, pp. 2935-2946, 2007.
- J41: Cai, J., Tsai, H.M., Luo, S., and Liu, F., “Stability of Vortex Pairs over Slender Conical Bodies — Analysis and Numerical Computation,” *AIAA Journal*, Vol. 46, No. 3, pp. 712-722, 2008.
- J42: Papamoschou, D. and Liu, F., “Aerodynamics of Fan Flow Deflectors for Jet Noise Suppression,” *Journal of Propulsion and Power*, Vol. 24, No. 3, pp. 437-445, 2008.
- J43: Cheng, F.C., Liu, F., and Sirignano, W.A., “Nonpremixed Combustion in an Accelerating Turning Transonic Flow Undergoing Transition,” *AIAA Journal*, Vol. 46, No. 5, pp. 1204-1215, 2008.
- J44: Liu, F., Luo, S., Gao, C., Meng, X., Hao, J., Wang, J., and Zhao, Z., “Flow Control over a Conical Forebody Using Duty-cycled Plasma Actuators,” *AIAA Journal*, Vol. 46, No. 11, pp. 2969-2973, 2008.
- J45: Cheng, F.C., Liu, F., and Sirignano, W.A., “Reacting Mixing-Layer Computations in a Simulated Turbine-stator Passage,” *Journal of Propulsion and Power*, Vol. 25, No. 2, pp. 322-334, 2009, (doi: 10.2514/1.37739)
- J46: Zhang, W., Ye, Z., Zhang, C. and Liu, F., “Supersonic Flutter Analysis Based on a Local Piston Theory,” *AIAA Journal* vol.47 No. 10 pp. 2321-2328, 2009, doi: 10.2514/1.37750
- J47: Cai, J., Tsai, H.M., and Liu, F., “Numerical Simulation of Vortical Flows in the Near Field of Jets from Notched Circular Nozzles,” *Computers and Fluids*, 39 (2010), pp. 539-552, doi: 10.1016/j.compfluid.2009.10.006
- J48: Liao, W., Koh, E.P.C., Tsai, H.M., and Liu, F., “Euler Calculations with Embedded Cartesian Grids and Small Perturbation Boundary Conditions” *Journal of Computational Physics*, Vol. 229 No. 9, May, 2010. doi:10.1016/j.jcp.2010.01.014.
- J49: Xiong, J., Nielsen, P., Liu, F., and Papamoschou, D., “Computation of High-Speed Coaxial Jets with Fan Flow Deflection,” *AIAA Journal* vol. 48 No. 10, pp. 2249-2262, 2010, doi: 10.2514/1.51645.
- J50 Meng, X., Qiao, Z., Gao, C., Luo, S., and Liu, F., “Effect of Dorsal Fin on the Stability of Vortices over a Delta Wing,” *Modern Physics Letters B*, vol. 24, no. 13, pp. 1389-1392, 2010, doi: 10.1142/S0217984910023694.

- J51 Wang J., Li H., Liu, F., and Luo, S., “Characteristics of Fore-body Separate Flow at High Angle of Attack under Plasma Control,” *Modern Physics Letters B*, vol. 24, no. 13, pp. 1401-1404, 2010, doi: 10.1142/S0217984910023724.
- J52 Zhao, Z., Gao C., Liu F., and Luo, S., “Plasma Flow Control over Forebody at High Angles of Attack,” *Modern Physics Letters B*, vol. 24, no. 13, pp. 1405-1408, 2010, doi: 10.1142/S0217984910023736
- J53: Luo, J., Xiong, J., Liu, F., and I. McBean, “Three-dimensional Aerodynamic Design Optimization of a Turbine Blade by Using an Adjoint Method,” *ASME Journal of Turbomachinery*, Vol. 133, No. 1, (2011), doi:10.1115/1.4001166
- J54: Cai, J., Tsai, H.M., Luo, S., and Liu, F., “Design of Optimal Wing-Body Configuration to Delay the Onset of Vortex Asymmetry,” *AIAA Journal*, Vol. 49, No. 1, (2011), doi:10.1115/1.4001166
- J55: Cleckler, J., Elghobashi, S., and Liu, F., “On the motion of inertial particles by sound waves,” *Physics of Fluids*, Vol. 24, Issue 3, 033301, 2012, doi: 10.1063/1.3696243.
- J56: Sirignano, W.A, Dunn-Rankin, D., Liu, F., Colcord, B., and Puranam, S., “Turbine Burners: Performance Improvement and Challenge of Flameholding,” *AIAA Journal*, vol. 50, No. 8, pp. 1645-1669, 2012, doi: 10.2514/1.J051562.
- J57: Xiong, J., Liu, F., and Papamoschou, D., “Aerodynamic Performance of Fan Flow Deflectors for Jet Noise Reduction,” *Journal of Propulsion and Power*, vol. 28, No. 4, 2012, pp 728-738, doi: 10.2514/1.B34489.
- J58: Xiong, J., Johnson, A., Liu, F., and Papamoschou, D., “Body Force Model for the Aerodynamics of Inclined Perforated Surfaces,” *AIAA Journal* Vol. 50, No. 11, pp. 2525-2535, 2012. doi: 10.2514/1.J051699
- J59: Colcord, B., Sirignano, W.A., and Liu, F., “Flameholding in Converging and Turning Channels over Cavities with Slot Injection,” *Combustion Science and Technology*, Volume 185, Issue 7, July 2013, pages 1016-1043.
- J60: Chen, S., Chen, Y., Xia, Z., Qu, K., Shi, Y., Xiao, Z., Liu, Q., Cai, Q., Liu, F., Lee, C., Zhang, R., and Cai, J., “Constrained Large-eddy Simulation and Detached Eddy Simulation of Flow Past a Commercial Aircraft at 14 Degrees Angle of Attack,” *Science China, Physics, Mechanics and Astronomy*, February 2013 Vol. 56 No. 2: 270276 doi: 10.1007/s11433-013-4990-z.
- J61: Colcord, B., Sirignano, W.A., and Liu, F., “Flameholding in Converging and Turning Channels over Cavities with Periodic Port Injection,” *AIAA Journal*, 2013, Vol.51: 1621-1630, doi: 10.2514/1.J051890.
- J62: Luo, J., Zhou, C., Liu, F., “Multi-Point Design Optimization of a Transonic Compressor Blade by Using an Adjoint Method,” *ASME Journal of Turbomachinery*, May, Vol. 136, (2014), doi: 10.1115/1.4025164.

- J63: Luo, J., Xiong, J., and Liu, F., “Aerodynamic Design Optimization by Using a Continuous Adjoint Method,” *Science China, Physics, Mechanics and Astronomy*, Vol. 57, No. 7, pp. 1363-1375, 2014, DOI: 10.1007/s11433-014-5479-0.
- J64: Zheng, B., Wang, Z., Gao, C., Fang, H., Xiong, J., Liu, F., and Luo, S., “Computational Analysis of Conical Forebody Flow at High Alpha with Transitional Model,” *J. of Aircraft*, Vol. 52, No. 1 (2015), pp. 357-366. doi: 10.2514/1.C032469.
- J65: Luo, J. and Liu, F., “Multi-Objective Optimization of a Transonic Compressor Rotor by Using an Adjoint Method,” *AIAA Journal*, Vol. 53, No. 3, pp. 797-801. DOI: 10.2514/1.J053436, 2015.
- J66: Luo, J. and Liu, F., McBean, I., “Turbine Blade Row Optimization through Endwall Contouring by an Adjoint Method,” *Journal of Propulsion and Power*, 31(2): 505-518,2015, DOI: 10.2514/1.B35152.
- J67: Zhan, L., Liu, F., and Papamoschou, D., “Fourier Time Spectral Method for Subsonic and Transonic Flows,” *Acta Mechanica Sinica*, 2016, DOI 10.1007/s10409-015-0547-x.
- J68: Wang, S., Rusak, Z., Rui, G., and Liu, F., “On the three-dimensional stability of a solid-body rotation flow in a finite-length rotating pipe,” *J. of Fluid Mechanics*, vol. 797, pp. 284-321, 2016, DOI: 10.1017/jfm.2016.223
- J69: Meng, X., Qiao, Z., Gao, C., Liu, F., and Luo, S., “Effect of Dorsal Fin on the Symmetry of Vortices over a Slender Delta Wing” *AIAA Journal*, July 2016, doi: 10.2514/1.J054675.
- J70: Zhan, L. and Liu, F., A Space-Time Lower-Upper Symmetric Gauss-Seidel Scheme for the Time Spectral Method, *International Journal of Computational Fluid Dynamics*, Aug. 2016. DOI:10.1080/10618562.2016.1220551.
- J71: Long, Y., Li, H., Meng, X., Liu, F., and Luo, S., Influence of Actuating Position on Asymmetric Vortex Control with Nanosecond Pulse DBD Plasma Actuators,’ *IEEE Transactions on Plasma Science*, Vol. 44, No. 11, Nov. 2016. DOI:10.1109/TPS.2016.2583543
- J72: Yang, J., Xiong, J., McBean, I., Havakechian, S., Liu, F., and Luo, J., “Performance Impact of Manufacturing Variations for Multi-stage Steam Turbines,” *Journal of Propulsion and Power*, 2017, doi: 10.2514/1.B36022.
- J73: Feng, C., Liu, F., Rusak, Z., and Wang, S., “The Energy Transfer Mechanism of a Perturbed Solid-Body Rotation Flow in a Rotating Pipe,” *Acta Mechanica Sinica*, Vol. 33, Issue 2, pp274-283, doi: 10.1007/s10409-017-0642-2
- J74: Zhou, Guangzhao, Xu, Kun, Liu, F. “Simplification of the Flux Function for a High-order Gas-kinetic Scheme,” *Journal of Computational Physics*, 339 (2017) 146162, doi: 10.1016/j.jcp.2017.03.023

- J75: Tang, Xiao, Luo, Jiaqi, Liu, F. “aerodynamic Shape Optimization of a Transonic Fan by an Adjoint Response Surface Method,” *Journal of Aerospace Science and Technology*, Volume 68, September 2017, Pages 26-36, <http://dx.doi.org/10.1016/j.ast.2017.05.005>.
- J76: Luo, J., Zhu, Y., Tang, X., Liu, F. “Flow Reconstructions and Aerodynamic Shape Optimization of Turbomachinery Blades by POD-based Hybrid Models,” *Science China (Technological Sciences)*, Vol. 60, No. 11, pp.1658-1673, 2017, doi: 10.1007/s11431-016-9093-y.
- J77: Feng, C, Liu, F., Rusak, Z., and Wang, S., ”Instability modes on a solid-body-rotation flow in a finite-length pipe,” *AIP Advances* 7, 095112, 2017, doi: <https://doi.org/10.1063/1.4993643>
- J78: Cirigliano, D, Frisch, A., Liu, F., and Sirignano, WA., ”Engine-type and Propulsion-configuration Selections for Long-duration UAV Flights”, *Journal of Propulsion and Power*, in press.

Invited Book Chapters

- B1: Liu, F., “Multigrid Solution of the Navier-Stokes Equations with a Two-equation Turbulence Model,” in *Frontiers of Computational Fluid Dynamics–1998*, ed. D.A. Caughey and M.M. Hafez, John Wiley & Sons, 1994. pp. 339-359.
- B2: Cai, J., Tsai, H-M., Luo, S., and Liu, F., “Study of Stability of Vortex Pairs over a Slender Conical Body by Euler Computations,” in *Frontiers of Computational Fluid Dynamics–2006*, ed. D.A. Caughey and M.M. Hafez, World Scientific, 2006, pp. 297-323.

Archived Conference Papers

- C1: Jameson, A. and Liu, F., “Multigrid Calculations for Cascades”, in *Eleventh International Conference on Numerical Methods for Fluid Dynamics, Lecture Notes in Physics 323*, edited by D.L. Dwoyer, M.Y. Hussaini, and R.G. Voigt, pp. 318-323, Springer-Verlag, NY., 1989.
- C2: Liu, F. and Jameson, A., “Multigrid Euler Calculations for Three-Dimensional Cascades,” AIAA Paper 90-0688, presented at the 28th AIAA Aerospace Sciences Meeting, January 8-11, 1990, Reno, NV.
- C3: Liu, F. and Jameson, A., “Cascade Flow Calculation by a Multigrid Vertex Scheme for the Navier-Stokes Equations,” presented at the 4th International Symposium on Computational Fluid Dynamics, Sept. 9-12, 1991, Davis, CA.
- C4: Liu, F. and Jameson, A., “Multigrid Navier-Stokes Calculations for Three-Dimensional Cascades,” AIAA Paper 92-0190, presented at the 30th AIAA Aerospace Sciences Meeting, January 6-9, 1992, Reno, NV.

- C5: Liu, F. and Zheng, X., "A Staggered Finite Volume Scheme for Solving Cascade Flow with a two-equation Model of Turbulence," AIAA 93-1912, presented at the 29th AIAA/SAE/ASME/ASEE Joint Propulsion Conference, June 28-July 1, 1993, Monterey, CA.
- C6: Zheng, X. and Liu, F., "Numerical Solution of Navier-Stokes Equations and $k-\omega$ Turbulence Model Equations Using a Staggered Upwind Method," AIAA 93-2968, presented at the 24th AIAA Fluid Dynamics Conference, July 6-9, 1993, Orlando, FL.
- C7: Liu, F. and Zheng, X., "A Strongly-Coupled Time-Marching Method for Solving the Navier-Stokes and $k-\omega$ Turbulence Model Equations with Multigrid," AIAA paper 94-2389, presented at AIAA 25th Fluid Dynamics Conference, June 20-23, 1994, Colorado Springs, CO.
- C8: Liu, F. and Ji, S., "Unsteady Flow Calculations with a Multigrid Navier-Stokes Method," AIAA paper 95-2205, presented at AIAA 26th Fluid Dynamics Conference, June 19-22, 1995, San Diego, CA.
- C9: Liu, F. and Wang, L., "A Solution Adaptive Unstructured Mesh Method for Cascade Flow Calculations," ASME AD-vol. 49, presented at the ASME Symposium on Computational Fluid Dynamics for Aeropropulsion, Nov., 1995, San Francisco, CA.
- C10: Ji, S. and Liu, F., "Computation of Self-excited Oscillation of Transonic Flow Around an Airfoil in a Channel," AIAA Paper-96-0063, presented at 34th AIAA Aerospace Sciences Meeting, Jan. 15-18, 1996, Reno, NV.
- C11: Ji, S. and Liu, F., "Computation of Unsteady Flows around Oscillating Blades and Aeroelasticity Behavior," AIAA Paper-97-0161, presented at 35th AIAA Aerospace Sciences Meeting, Jan. 6-10, 1997, Reno, NV.
- C12: Sirignano, W.A., Delplanque, J.P., and Liu, F. "Selected Challenges in Jet and Rocket Engine Combustion Research," AIAA Paper-97-2701, invited talk at the 33rd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July, 1997, Seattle, WA.
- C13: Yao, J., Ji, S., Liu, F., and Jennions, I.K., "Computation of Steady Flow in a Turbomachinery Stage by a Third-Order Accurate Scheme," AIAA Paper 98-0920, presented at the 36th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 12-15, 1998, Reno, NV.
- C14: Liu, F., Jennions, I.K., and Jameson, A., "Computation of Turbomachinery Flow by a Convective-Upwind-Split-Pressure (CUSP) Scheme," AIAA Paper 98-0969, presented at the 36th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 12-15, 1998, Reno, NV.
- C15: Ji, S. and Liu, F. "Computation of Flutter of Turbomachinery Cascades Using a Parallel Unsteady Navier-Stokes Code," ASME 98-GT-043, presented at the ASME TURBO'98, June 2-5, 1998, Stockholm, Sweden.
- C16: Sadeghi, M. and Liu, F., "A Method for Calculating Mistuning Effects on Cascade Flutter," Proceedings of the 8-th International Symposium on Computational Fluid Dynamics, Sept. 5-10, 1999, Bremen, Germany.

- C17: Sadeghi, M. and Liu, F., "Computation of Mistuning Effects on Cascade Flutter," AIAA Paper 2000-0230, presented at the 38th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 10-13, 2000, Reno, NV.
- C18: Fang, X., Liu, F., and Sirignano, W.A., "Ignition and Flame Studies for an Accelerating Transonic Mixing Layer," AIAA Paper-2000-0437, presented at the 38th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 10-13, 2000, Reno, NV.
- C19: Liu, F., and Sirignano, W.A., "Turbojet and Turbofan Engine Performance Increases Through Turbine Burners," AIAA Paper-2000-0741, presented at the 38th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 10-13, 2000, Reno, NV.
- C20: Yao, J., Jameson, A., Alonso, J. J., and Liu, F., "Development and Validation of a Massively Parallel Flow Solver for Turbomachinery Flows," AIAA Paper-2000-0882, presented at the 38th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 10-13, 2000, Reno, NV.
- C21: Wong, A.S.F., Tsai, H.M., Cai, J., Zhu, Y., and Liu, F., "Unsteady Flow Calculations with a Multi-Block Moving Mesh Algorithm," AIAA Paper-2000-1002, presented at the 38th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 10-13, 2000, Reno, NV.
- C22: Liu, F., Cai, J., Zhu, Y., Wong, A. S. F., and Tsai, H. M., "Calculation of Wing Flutter by a Coupled CFD-CSD Method," AIAA Paper-2000-0907, presented at the 38th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 10-13, 2000, Reno, NV.
- C23: Liu, F., Cai, J., and Tsai, H.M., "Flutter Predictions by a Filtered Impulse Method," AIAA Paper-2000-4230, presented at the 18th AIAA Applied Aerodynamics Conference, Aug. 14-17, 2000, Denver, CO.
- C24: Sadeghi, M., Liu, F., "Computation of Cascade Flutter with a Coupled Aerodynamic and Structural Model," Proceedings of the 9th International Symposium on Unsteady Aerodynamics, Aeroacoustics, and Aeroelasticity of Turbomachines, Sept. 4-8, 2000, Lyon, France.
- C25: McBean, I.W., Liu, F., and Thompson, M.C. "A Three Dimensional Navier-Stokes Code for Aeroelasticity in Turbomachinery," Proceedings of the 9th International Symposium on Unsteady Aerodynamics, Aeroacoustics, and Aeroelasticity of Turbomachines, Sept. 4-8, 2000, Lyon, France.
- C26: Cai, J., Icoz, O., Liu, F., and Sirignano, W.A., "Ignition and Flame Studies for Turbulent Transonic Mixing in a Curved Duct Flow," AIAA Paper-2001-0189, presented at the 39th AIAA Aerospace Sciences Meeting and Exhibit, January 8-11, 2001, Reno, NV.
- C27: Mehring, C., Liu, F., and Sirignano, W.A., "Ignition and Flame Studies for a Turbulent Accelerating Transonic Mixing Layer," AIAA Paper-2001-0190, presented at the 39th AIAA Aerospace Sciences Meeting and Exhibit, January 8-11, 2001, Reno, NV.

- C28: Sadeghi, M., and Liu, F., "Investigation of Non-Linear Flutter by a Coupled Aerodynamics and Structural Dynamics Method," AIAA Paper-2001-0573, presented at the 39th AIAA Aerospace Sciences Meeting and Exhibit, January 8–11, 2001, Reno, NV.
- C29: Cai, J., Liu, F., and Tsai, H.M., "Static Aero-elastic Computation with a Coupled CFD and CSD Method," AIAA Paper-2001-0717, presented at the 39th AIAA Aerospace Sciences Meeting and Exhibit, January 8–11, 2001, Reno, NV.
- C30: Cai, J., Liu, F., and Sirignano, W.A., "Three-Dimensional Flame Propagation Above Liquid Fuel Pools," Proceedings of the 2nd Joint Meeting of the US Sections of the Combustion Institute, Oakland, March 25-28, 2001.
- C31: Cai, J., Icoz, O., Liu, F., and Sirignano, W.A., "Combustion in a Transonic Flow with Large Axial and Transverse Pressure Gradients," Proceedings of the 2nd Joint Meeting of the US Sections of the Combustion Institute, Oakland, March 25-28, 2001.
- C32: Cai, J., Liu, F., and Luo, S., "Stability of a Vortex Pair Behind Two-Dimensional Bodies," AIAA Paper-2001-2844, presented at the 31th AIAA Fluid Dynamics Conference and Exhibit, June 11–14, 2001, Anaheim, CA.
- C33: Cai, J., Liu, F., and Luo, S., "Stability of Symmetric Vortices over Slender Conical Bodies at High Angles of Attack," AIAA Paper-2001-2845, presented at the 31th AIAA Fluid Dynamics Conference and Exhibit, June 11–14, 2001, Anaheim, CA.
- C34: Sadeghi, M., and Liu, F., "Investigation of Mistuning Effects on Cascade Flutter Using a Coupled Method," AIAA Paper-2002-0952, presented at the 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14–17, 2002, Reno, NV.
- C35: Cai, J., Liu, F., and Sirignano, W.A., "Opposed Flow Impact on Flame Spread Above Liquid Fuel Pools," Proceedings of the US Western States Section of the Combustion Institute 2002 Spring Meeting, March 25 and 26, 2002, San Diego, CA
- C36: McBean, I., Liu, F., Hourigan, K., and Thompson, M., "Simulations of Aeroelasticity in an Annular Cascade Using a Parallel Three-dimension Navier-Stokes Solver," ASME GT-2002-30366, Proceedings of ASME Turbo Expo 2002, June 03, 2002, Amsterdam, Netherlands.
- C37: Xiao, Q., Tsai, H.M., and Liu, F., "Viscous Computation of Steady/Unsteady Transonic Diffuser Flows," AIAA Paper-2002-2859, presented at the 32nd AIAA Fluid Dynamics Conference, June 23-26, 2002, St. Louis, MO.
- C38: Kirshman, D.J., Liu, F., "Gridless Boundary Condition Treatment for a Non-Body-Conforming Mesh," AIAA Paper-2002-3285, presented at the 32nd AIAA Fluid Dynamics Conference, June 23-26, 2002, St. Louis, MO.
- C39: Yang, S., Wu, H-Y, Liu, F., and Tsai, H.M., "Aerodynamic Design of Cascades by Using an Adjoint Equation Method," AIAA Paper-2003-1068, presented at the 41st AIAA Aerospace Sciences Meeting and Exhibit, January 6–9, 2003, Reno, NV.

- C40: Cai, J., Luo, S., and Liu, F., “Stability of Symmetric and Asymmetric Vortex Pairs over Slender Conical Wings and Bodies,” AIAA Paper-2003-1101, presented at the 41st AIAA Aerospace Sciences Meeting and Exhibit, January 6–9, 2003, Reno, NV.
- C41: Koh, E.P.C., Tsai, H.M., and Liu, F., “Euler Solution Using Cartesian Grid with Least Squares Technique,” AIAA Paper-2003-1120, presented at the 41st AIAA Aerospace Sciences Meeting and Exhibit, January 6–9, 2003, Reno, NV.
- C42: Gao, C., Luo, S., Liu, F., and Schuster, D.M., “Calculation of Unsteady Transonic Flow by an Euler Method with Small Perturbation Boundary Conditions,” AIAA Paper-2003-1267, presented at the 41st AIAA Aerospace Sciences Meeting and Exhibit, January 6–9, 2003, Reno, NV.
- C43: Sadeghi, M., Yang, S., Liu, F., and Tsai, H.M., “Parallel Computation of Wing Flutter with a Coupled Navier-Stokes/CSD Method,” AIAA Paper-2003-1347, presented at the 41st AIAA Aerospace Sciences Meeting and Exhibit, January 6–9, 2003, Reno, NV.
- C44: Xiao, Q., Tsai, H.M., and Liu, F., “Computation of Shock Induced Separated Flow with a Lagged $k-\omega$ Turbulence Model,” AIAA Paper-2003-3463, presented at the 33rd AIAA Fluid Dynamics Conference, June 23-26, 2003, Orlando, Florida.
- C45: Lai, K., Tsai, H.M., and Liu, F., “Application of Spline Matrix for Mesh Deformation with Dynamic Multi-Block Grids,” AIAA Paper-2003-3514, presented at the 21st AIAA Applied Aerodynamics Conference, June 23-26, 2003, Orlando, Florida.
- C46: Cai, J., Luo S., and Liu, F., “Stability of Symmetric and Asymmetric Vortex Pairs over Slender Conical Wing-Body Combinations,” AIAA Paper-2003-3598, presented at the 33rd AIAA Fluid Dynamics Conference, June 23-26, 2003, Orlando, Florida.
- C47: Gao, C., Luo, S., Liu, F., and Schuster, D.M., “Calculation of Airfoil Flutter by an Euler Method with Approximate Boundary Conditions,” AIAA-2003-3830, presented at the 16th Computational Fluid Dynamics Conference, June 23-26, 2003, Orlando, Florida.
- C48: Kirshman, D. and Liu, F., “Cartesian Grid Solution of the Euler Equations Using a Gridless Boundary Condition Treatment,” AIAA-2003-3974, presented at the 16th Computational Fluid Dynamics Conference, June 23-26, 2003, Orlando, Florida.
- C49: Wu, H., Yang, S., Liu, F., and Tsai, H.M., “Comparisons of Three Geometric Representations of Airfoils for Aerodynamic Optimization,” AIAA-2003-4095, presented at the 16th Computational Fluid Dynamics Conference, June 23-26, 2003, Orlando, Florida.
- C50: Cai, J., Tsai, H.M., and Liu, F., “An Overset Grid Solver for Viscous Computations with Multigrid and Parallel Computing,” AIAA-2003-4232, presented at the 16th Computational Fluid Dynamics Conference, June 23-26, 2003, Orlando, Florida.
- C51: Sadeghi, M., Yang, S., and Liu, F., “Computation of Uncoupled and Coupled Aeroelasticity of Three-Dimensional Blade Rows,” AIAA Paper-2004-0192, presented at the 42nd AIAA Aerospace Sciences Meeting and Exhibit, January 5–8, 2004, Reno, NV.

- C52: Kirshman, D. and Liu, F., “Flutter Prediction By a Cartesian Mesh Euler Method with Small Perturbation Gridless Boundary Conditions,” AIAA Paper-2004-0584, presented at the 42nd AIAA Aerospace Sciences Meeting and Exhibit, January 5–8, 2004, Reno, NV.
- C53: Yang, S., Liu, F., Luo, S., Tsai, H.M., and Schuster, D.M., “Time-Domain Aeroelastic Simulation on Stationary Body-Conforming Grids with Small Perturbation Boundary Conditions,” AIAA Paper-2004-0885, presented at the 42nd AIAA Aerospace Sciences Meeting and Exhibit, January 5–8, 2004, Reno, NV.
- C54: Xiao, Tsai, H.M., and Liu, F., “A Numerical Study of Transonic Buffet on a Supercritical Airfoil,” AIAA Paper-2004-1056, presented at the 42nd AIAA Aerospace Sciences Meeting and Exhibit, January 5–8, 2004, Reno, NV.
- C55: Cai, J., Tsai, H.M., Luo, S., and Liu, F., H.M., “Stability of Vortex Pairs over Slender Conical Bodies — Theory and Numerical Computations,” AIAA Paper-2004-1072, presented at the 42nd AIAA Aerospace Sciences Meeting and Exhibit, January 5–8, 2004, Reno, NV.
- C56: Yang, S., Liu, F., and Luo, S., “Three-Dimensional Aeroelastic Computation Based on Stationary Body-Conforming Grids with Small Perturbation Boundary Conditions,” AIAA-2004-2235, presented at the 34th AIAA Fluid Dynamics Conference and Exhibit, Portland, Oregon, June 28-July 1, 2004.
- C57: Cai, J., Tsai, H.M., Luo, S., and Liu, F., H.M., “Control of Vortices over Slender Conical Bodies – A Theoretical and Computational Study,” AIAA-2004-2416, presented at the 2nd AIAA Flow Control Conference, Portland, Oregon, June 28-July 1, 2004.
- C58: Zhang, Z., Liu, F., and Schuster, D.M., “Calculations of Unsteady Flow and Flutter by an Euler and Integral Boundary-Layer Method on Cartesian Grids,” AIAA-2004-5203, presented at the 22nd Applied Aerodynamics Conference and Exhibit, Providence, Rhode Island, Aug. 16-19, 2004.
- C59: Sadeghi, M., Liu, F., Lai, K.L., Tsai, “Application of three-dimensional interfaces for data transfer in aeroelastic computations,” AIAA Paper-2004-5376, presented at the 22nd Applied Aerodynamics Conference and Exhibit, Providence, Rhode Island, Aug. 16-19, 2004.
- C60: Yang, Shuchi, Zhang, Zhichao, Liu, Feng, Luo, Shijun, Tsai, Her-Mann, and Schuster, David M. “Time-domain aeroelastic simulation by a coupled euler and integral boundary-layer method,” AIAA Paper-2004-5377, presented at the 22nd Applied Aerodynamics Conference and Exhibit, Providence, Rhode Island, Aug. 16-19, 2004.
- C61: Sadeghi, M. and Liu, F., “Coupled Fluid-Structure Simulation for Turbomachinery Blade Rows,” AIAA-2005-0018, invited talk at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.

- C62: Cai, J., Tsai, H.M., Luo, S., and Liu, F., "Vortex Core and Its Effects on the Stability of Vortex Flow over Slender Conical Bodies," AIAA-2005-0062, presented at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
- C63: Zhang, Z., Yang, S., Liu, F., and Schuster, D.M., "Prediction of Flutter and LCO by an Euler Method on Non-moving Cartesian Grids with Boundary-Layer Corrections," AIAA-2005-0833, presented at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
- C64: Murayama, T., Papamoschou, D., and Liu, F., "Aerodynamics of Fan Flow Deflectors For Jet Noise Suppression," AIAA-2005-0994, presented at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
- C65: Wu, H., Liu, F., and Tsai, H.M., "Aerodynamic Design of Turbine Blades Using an Adjoint Equation Method," AIAA-2005-1006, presented at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
- C66: Meng, X., Qiao, Z., Gao, C., Luo, S., and Liu, F., "Visualization of Vortex Flow over Delta Wing with Dorsal Fin," AIAA-2005-1058, presented at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
- C67: Yang, S., Luo, S., Liu, F., and Tsai, H.M., "Computation of the Flows over Flapping Airfoils by the Euler Equations," AIAA-2005-1404, presented at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
- C68: Cheng, F., Liu, F., and Sirignano, W., "Nonpremixed Combustion in an Accelerating Transonic Flow Undergoing Transition," AIAA-2005-1417, presented at the 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
- C69: Won, K., Tsai, H.M., Sadeghi, M., and Liu, F., "Non-Linear Impulse Methods for Aeroelastic Simulations," AIAA-2005-4845, presented at the 23rd AIAA Applied Aerodynamics Conference, Toronto, Ontario, June 6-9, 2005.
- C70: Yang, S., Luo, S., Liu, F., and Tsai, H.M., "Supercritical Flow over Unstalled Plunging Airfoil Computed by Euler Method," AIAA-2006-0293, presented at the 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
- C71: Yang, S., Luo, S., Liu, F., and Tsai, H.M., "Optimization of Unstalled Pitching and Plunging Motion of an Airfoil," AIAA-2006-1055, presented at the 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
- C72: Zhang, Z., S., Liu, F., and Schuster, D.M., "An Efficient Euler Method on Non-Moving Cartesian Grids with Boundary-Layer Correction for Wing Flutter Simulations," AIAA-2006-0884, presented at the 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.

- C73: Yang, S., Luo, S., Liu, F., and Tsai, H.M., "Trailing-Edge Flow About Unstalled Plunging Airfoil Computed by Euler Method," AIAA-2006-3209, presented at the 36th AIAA Fluid Dynamics Conference and Exhibit, San Francisco, CA, June 5-8, 2006.
- C74: Cai, J., Tsai, H.M., Luo, S., and Liu, F., "Design of Wing-Body Configurations to Delay the Onset of Vortex Asymmetry," AIAA-2006-3319, presented at the 24th AIAA Applied Aerodynamics Conference, San Francisco, CA, June 5-8, 2006.
- C75: Yang, S., Luo, S., Liu, F., and Tsai, H.M., "Subsonic Flow over Unstalled Pitching Airfoil Computed by Euler Method," AIAA-2006-3914, presented at the 36th AIAA Fluid Dynamics Conference and Exhibit, San Francisco, CA, June 5-8, 2006.
- C76: Yang, S., Luo, S., Liu, F., and Tsai, H.M., "Euler Solutions of Flow Around a Rectangular Wing with Square Tip," AIAA-2007-0896, presented at the 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 8-11, 2007.
- C77: Cheng, F., Liu, F., and Sirignano, W.A., "Nonpremixed Combustion in an Accelerating Turning Transonic Flow Undergoing Transition," AIAA-2007-0983, presented at the 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 8-11, 2007.
- C78: Meng, X., Jia, C., Qiao, Z., Gao, C., S. Luo and Liu, F., "Aerodynamic Characteristics of Slender Delta Wing with Low Dorsal Fin," AIAA-2007-1272, presented at the 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 8-11, 2007.
- C79: Meng, X., Jia, C., Qiao, Z., Gao., C., S. Luo, and Liu, F., "Development of Flow Asymmetry with Angle of Attack Over a 20-Degree Circular Cone at Low Speed," AIAA-2007-4118, presented at the 37th AIAA Fluid Dynamics Conference and Exhibit, Miami, FL, June 25-28, 2007.
- C80: Jia, C., Meng, X., Qiao, Z., Gao., C., S. Luo, and Liu, F., "Pressure around a 20-degree Circular Cone at 35-degree Angle of Attack and Low Speed," AIAA-2007-4453, presented at the 25th AIAA Applied Aerodynamics Conference and Exhibit, Miami, FL, June 25-28, 2007.
- C81: Carolina, L., Tsai, H.M., and Liu, F., "An Embedded Cartesian Grid Euler Solver with Radial Basis Function," AIAA-2008-0532, presented at the 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 7-10, 2008.
- C82: Meng, X., Qiao, Z., Gao., C., S. Luo, and Liu, F., "Reynolds Number Effects on Cone Forebody Side Force," AIAA-2008-4303, presented at the 38th AIAA Fluid Dynamics Conference, Jun 23-26, 2008, Seattle, Washington.
- C83: Meng, X., Qiao, Z., and Gao, C., Luo, S., and F. Liu, "Flow Over Delta Wing with Low Dorsal Fin- PIV Study", AIAA-2009-0541, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.
- C84: Zhao, Z., Li, H., Liu, F., and Luo, S., "Forward- Blowing Plasma Actuation Over Forebody Asymmetric Vortex," AIAA-2009-0752, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.

- C85: Culver, R., and Liu, F., "Mixing- Plane Method for Flutter Computation in Multistage Turbomachines," AIAA-2009-0862, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.
- C86: Zhang, C., Liu, F., Ye, Z., "Numerical Researches on Aeroelastic Problem of a Rotor due to IGV/Fan Interaction," AIAA-2009-0865, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.
- C87: Wang, J., Li, H., Liu, F., and Luo, S., "Asymmetric Forebody Load Manipulated by a Horseshoe-Shaped Plasma Actuator," AIAA-2009-0904, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.
- C88: Meng, X., Qiao, Z., Gao, C., and Liu, F., "Asymmetry Features Independent of Roll Angle for Slender Circular Cone," AIAA-2009-0905, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.
- C89: Liu, F., Luo, S., Gao, C., Meng, M., Hao, J., and Wang, J., "Flow Control Over a Conical Forebody Using Duty- Cycled Plasma Actuators," AIAA-2009-1082, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.
- C90: Lai, A., and Liu, F., "Computation of a Rigid Airfoil in Plunging Motion with a Flexible Trailing Beam," AIAA-2009-0726, presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, FL, Jan. 5-8, 2009.
- C91: Liu, D.D., Chen, P.C., Mignolet, M., F. Liu, Lindsley, N., and Beran, P., "Morphing Wing Aeroelasticity by Continuous Dynamic Simulation using Nonlinear Aerodynamic/Nonlinear Structure Interaction (NANSI) methodology," NATO RTO-AVT-168, presented at the NATO Research and Technology Organization (RTO) Applied Vehicle (AVT) Panel Symposium held in Evora, Portugal on 20-24 April 2009.
- C92: Liu, D., Chen, P.C., Zhang, Z., Wang, Z., Yang, S., Lee, D., Mignolet, M., F. Liu, Lindsley, N., and Beran, P., "Continuous Dynamic Simulation for Morphing Wing Aeroelasticity," AIAA-2009-2572, 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference 17th AIAA/ASME/AHS Adaptive Structures Conference 11th AIAA No, Palm Springs, California, May 4-7, 2009.
- C93: Xiong, J., Nielsen, P., Liu, F., Papamoschou, D., "Computational and Experimental Investigation of Fan Flow Deflection for Supersonic Turbofan Engines," AIAA-2009-3254, presented at the 15th AIAA/CEAS Aeroacoustics Conference (30th AIAA Aeroacoustics Conference), Miami, Florida, May 11-13, 2009.
- C94: Luo, J., Xiong, J., Liu, F., and I. McBean, "Three-dimensional Aerodynamic Design Optimization of a Turbine Blade by Using an Adjoint Method," ASME-GT2009-60115, Presented at the 2009 ASME IGTI Turbo Expo, June 8-11, Orlando, FL.

- C95: Xiong, J., Liu, F., and Papamoschou, D., “Computation of the Flow of a Dual-Stream Jet With Fan Flow Deflectors for Noise Reduction”, AIAA-2009-4212, 39th AIAA Fluid Dynamics Conference, San Antonio, Texas, June 22-25, 2009
- C96: Liu, F., Luo, S., Gao, C., Zhao, Z., Li, Y., and Hao, J. “Mechanisms for Conical Forebody Flow Control Using Plasma Actuators,” AIAA-2009-4284, 39th AIAA Fluid Dynamics Conference, San Antonio, Texas, June 22-25, 2009.
- C97: Culver, Roy, Montgomery, Matthew, and Liu, Feng, “Computational Study of Asynchronous Vibrations in a 1.5 Stage Transonic Compressor” AIAA-2009-5373, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Denver, Colorado, Aug. 2-5, 2009
- C98: Sirignano, W., Dunn-Rankin, D., Liu, F., and Puranam, S., “Turbine Burners: Flameholding in Accelerating Flow”, AIAA-2009-5410, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Denver, Colorado, Aug. 2-5, 2009.
- C99: Meng, X., Guo, Z., Liu, F., and Luo, S., “Ensemble and Phase-Locked Averaged Loads Controlled by Plasma Duty Cycles,” AIAA-2010-878, 48th AIAA Aerospace Sciences Meeting Including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2010.
- C100: Zhao, Z., Gao, C., Liu, F., and Luo, S., “Influence of Plasma Actuations on Forebody Side Forces and Wakes,” AIAA-2010-1041, 48th AIAA Aerospace Sciences Meeting Including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2010.
- C101: Wang, J., Li, H., Liu, F., and Luo, S., “PIV Study on Forebody Vortex Cores under Plasma Actuations,” AIAA-2010-1087, 48th AIAA Aerospace Sciences Meeting Including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2010.
- C102: Luo, J., Xiong, J., Liu, F., and I. McBean, “Secondary Flow Reduction by Blade Redesign and Endwall Contouring Using an Adjoint Optimization Method,” ASME-GT2010-22061, ASME 2010 International Gas Turbine Institute Conference, June 14-18, 2010, Glasgow, UK.
- C103: Xiong, J., Liu, F., and Papamoschou, D., “Computation of the Flow of a Dual-Stream Jet with External Solid and Perforated Wedge Deflectors for Noise Reduction,” AIAA-2010-4863, 40th Fluid Dynamics Conference and Exhibit, Chicago, Illinois, June 28-1, 2010
- C104: Xiong, J., Liu, F., and Papamoschou, D., “Aerodynamic Shape Optimization of Fan-Flow Deflectors for Noise Reduction Using Adjoint Method,” AIAA-2010-4675, 28th AIAA Applied Aerodynamics Conference, Chicago, Illinois, June 28-1, 2010
- C105: Xiong, J., Taghavi-Nezhad, S., and Liu, F., “Computation of Self-Excited Unsteady Transonic Flow of An Airfoil in a Channel Using URANS and DES,” AIAA-2010-5109, 40th Fluid Dynamics Conference and Exhibit, Chicago, Illinois, June 28-1, 2010
- C106: Meng, X., Cai, J., Qiao, Z., Luo, S., and Liu, F., “Experimental Investigations on Stability of Vortex Flow over Slender Delta Wing with Dorsal Fin,” AIAA-2011-0486 49th AIAA

Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2011

- C107: Zheng, B., Gao, C., Li, Y., Wang, J., Liu, F., and Luo, S., "Momentum Transfer in Millisecond Periodic-Pulsed Dielectric-Barrier-Discharge Plasma Actuator," AIAA-2011-0739 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2011
- C108: Xiong, J., Johnson, A., Liu, F., Papamoschou, D., "Modeling of Wedge-Shaped Porous Flaps for Jet Noise Reduction," AIAA-2011-0910, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2011
- C109: Johnson, A., Xiong, J., Rostamimonjezi, S., Liu, F., and Papamoschou, D., "Aerodynamic and Acoustic Optimization for Fan Flow Deflection," AIAA-2011-1156, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2011
- C110: Ma, C., Li, H., Liu, F., and Luo, S., "PIV Study on Steady and Periodic-Pulsed Dielectric-Barrier-Discharges," AIAA-2011-1303, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Orlando, Florida, Jan. 4-7, 2011
- C111: Luo, J., Xiong, J., Liu, F., and I. McBean, "Optimization of Endwall Contours of a Turbine Blade Row Using an Adjoint Method," ASME-GT2011-46163, ASME 2011 International Gas Turbine Institute Conference, June 6-10, 2011, Vancouver, Canada.
- C112: Zhang, Z., Qian, J., Luo, S., and Liu, F., "Numerical Study of the Aerodynamic Characteristics of a Plunging Rigid Airfoil with Elastic Trailing-Edge Plate, AIAA-2011-3062, 20th AIAA Computational Fluid Dynamics Conference, Honolulu, Hawaii, June 27-30, 2011.
- C113: Wang, J., Li, H., Meng, X., Liu, F., and Luo, S., "Plasma Flow Control over Slender Wing and Low Dorsal Fin Combination, In *Recent Progresses in Fluid Dynamics Research*, AIP Conference Proceedings Volume: 1376, Pages: 518-20, doi: 10.1063/1.3651964, Sixth International Conference on Fluid Mechanics Guangzhou, China, 30 June-3 July 2011.
- C114: Meng, X., Cai, J., Luo, S., and Liu, F., "Control of Unsteady Plasma Flows over Conical Forebody, In *Recent Progresses in Fluid Dynamics Research*, AIP Conference Proceedings Volume: 1376, Pages: 524-6, doi: 10.1063/1.3651966. Sixth International Conference on Fluid Mechanics Guangzhou, China, 30 June-3 July 2011.
- C115: Meng, X., Wang, J., Cai, J., Liu, F., and Luo, S., "Effect of plasma actuation on asymmetric vortex flow over a slender conical forebody," AIAA-2012-0287, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012.

- C116: Zheng, B., Gao, C., Li, Y., F. Liu, and Luo, S., "Pulsed-Discharge Flow Control over a Conical Forebody," AIAA-2012-0288, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012.
- C117: Tian, B., Li, H., Meng, X., Liu, F., and Luo, S., "Flow Control over Conical Forebody with Port Pulsed Plasma Actuator," AIAA-2012-0289, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012
- C118: Si, J., Zheng, B., Zheng, S., Gao, C., Liu, F., and Luo, S., "Body Force Produced by a SDBD Plasma Actuator Using PIV Measurement," AIAA-2012-0410, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012
- C119: Phong, V., Taghavi-Nazhad, S., Liu, F., and Papamoschou, D., "Noise Reduction of a Turbofan Bleed Valve," AIAA-2012-0681, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012.
- C120: Xiong, J., Liu, F., and Luo, S., "Computation of NACA0012 Airfoil Transonic Buffet Phenomenon with Unsteady Navier-Stokes Equations," AIAA-2012-0699, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012.
- C121: Ren, X., Zhao, Z., Gao, C., Xiong, J., Liu, F., and Luo, S., "Boundary-Layer Transition Effects on Aerodynamic Characteristics of AGARD-B Mode," AIAA-2012-1217, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012.
- C122: Yang, Y., Zheng, B., Yang, W., Gao, C., Liu, F., and Luo, S., "Numerical computation of Pressure Distributions over Conical Forebody at High Angles of Attack," AIAA-2012-1237, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012.
- C123: Colcord, B., Sirignano, W.A., and Liu, F., "Turbine-Burner Model: Cavity Flameholding in a Converging, Turning Channel Flow," AIAA-2012-3778, 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, 2012
- C124: Wang, J., Li, H., Meng, X., Liu, F., and Luo, S., "PIV Study of Conical Forebody Flow Control Using Plasma Actuators," AIAA-2013-0104, 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 2013.
- C125: Meng, X., Wang, J., Cai, J., Liu, F., and Luo, S., "Optimal DBD Duty-Cycle for Conical Forebody Side-Force Proportional Control," AIAA-0347, 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 2013.

- C126: Meng, X., Wang, Y., Wang, J., Cai, J., Liu, F., and Luo, S., “Body Force Produced by Plasma Actuator Using PIV and Pressure Measurements,” AIAA-0396, 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 2013.
- C127: Zhao, Z., Ren, X., Gao, C., Xiong, J., Liu, F., and Luo, S., “Experimental Study of Shock Wave Oscillation on SC(2)-0714 Airfoil,” AIAA 2013-0537, 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 2013.
- C128: Jin, J., Ren, X., Gao, C., Xiong, J., Liu, F., and Luo, S., “Analysis of the Effects of Wall Interference on 0.40.8-Meter Transonic Wind Tunnel Airfoils Tests,” AIAA-2013-0641 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 2013.
- C129: Ren, X., Zhao, Z., Gao, C., Xiong, J., Liu, F., and Luo, S., “Investigation of NACA 0012 Airfoil Periodic Flows in a Transonic Wind Tunnel,” AIAA-2013-0791, 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 2013.
- C130: Luo, J., and Liu, F., “Multi-Objective Design Optimization of a Transonic Compressor Rotor Using an Adjoint Equation Method,” AIAA 2013-2732, 43rd Fluid Dynamics Conference, 2013.
- C131: Liu, Y., Xiong, J., Liu, F., and Luo, S., “Non-unique Numerical Solutions and Their Stability of the Euler Equations for Transonic Flow over Airfoils,” AIAA 2013-2965, 21st AIAA Computational Fluid Dynamics Conference, 2013
- C132: Xiong, J., Liu, Y., Liu, F., Luo, S., Zhao, Z., Ren, X., and Gao, C., “Multiple Solutions and Buffet of Transonic Flow over the NACA0012 Airfoil,” AIAA 2013-3026, 31st AIAA Applied Aerodynamics Conference, 2013.
- C133: Xiong, J., and Liu, F., “Numerical Simulation of Transonic Buffet on Swept Wing of Supercritical Airfoils,” AIAA 2013-3205, 43rd Fluid Dynamics Conference, 2013
- C134: Chen, Q., Meng, X., Wu, B., Li, H., Luo, S., and Liu, F., “Comparison of Pressures Driven by Repetitive Nanosecond Pulses to AC Result,” AIAA 2014-0094, 52nd Aerospace Sciences Meeting, 2014.
- C135: Wu, B., Gao, C., Wang, Y., Wang, Y., Zheng, B., Liu, F., and Luo, S., “Establishment of Mapping Relationship between Plasma Actuator Parameters and Body Force based on Neural Networks,” AIAA 2014-0200, 52nd Aerospace Sciences Meeting, 2014.
- C136: Li, J., Wang, J., Meng, X., Li, H., Liu, F., and Luo, S., “Comparison of Velocities Driven by Repetitive Nanosecond Pulses to AC Result,” AIAA 2014-0327, 52nd Aerospace Sciences Meeting, 2014.
- C137: Long, Y., Li, H., Meng, X., Liu, F., and Luo, S., “Flow Control over a Conical Forebody Using Pulsed Nanosecond Discharge Actuators,” AIAA 2014-0933, 52nd Aerospace Sciences Meeting, 2014.

- C138: Jin, J., Gao, C., Zhao, Z., Zhang, Z., Xiong, J., Liu, F., and Luo, S., “Numerical Investigation of Effects of Transonic Wind Tunnel Porous Walls on Two-Dimensional Airfoil Tests,” AIAA 2014-0950, 52nd Aerospace Sciences Meeting, 2014.
- C139: Papamoschou, D., Xiong, J., and Liu, F., “Reduction of Radiation Efficiency in High-Speed Jets,” AIAA 2014-2619, 20th AIAA/CEAS Aeroacoustics Conference, 2014.