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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.

AWARDS AND HONORS:

- Air-Breathing Propulsion Award**, American Institute of Aeronautics and Astronautics, 2023,
Citation: For the turbine-burner engine innovation and other high-impact contributions
of computational methods for turbomachinery aerodynamics.
- Fellow, American Society of Mechanical Engineers (ASME)**, 2022,
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. 2000–2003.
- 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. 2010-2017.

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

Member of Editorial Board, *International Journal of Computational Fluid Dynamics*, Aug. 2008-2021.

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:

Intelligent 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:

MAE 112, **Propulsion**
MAE 130A, **Introduction to Fluid Mechanics**
MAE 130B, **Introduction to Viscous and Compressible Flows**
MAE 135, **Compressible Flow**
MAE 136, **Aerodynamics**
MAE 158, **Aircraft Performance**
MAE 170, **Introduction to Control Systems**
MAE 195, **Turbomachinery Aerodynamics and Design**

GRADUATE COURSES TAUGHT AT UC IRVINE:

MAE 200B, **Engineering Analysis II**
MAE 203, **Numerical Methods**
MAE 230C, **Compressible Fluid Dynamics**
MAE 231, **Fundamentals of Turbulence**
MAE 236, **Non-equilibrium Gas Dynamics**
MAE 237, **Computational Fluid Dynamics**
MAE 295, **Turbomachinery Aerodynamics and Design**
MAE 295, **Special Topics in Computational Aerodynamics**

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 Suppresion,” *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: 270–276 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, G., Xu, K., and Liu, F. “Simplification of the Flux Function for a High-order Gas-kinetic Scheme,” *Journal of Computational Physics*, 339 (2017) 146–162, doi: 10.1016/j.jcp.2017.03.023
- J75: Tang, Xiao, Luo, Jiaqi, and 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., and 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: Liu, Y., Luo, S., and Liu, F., “Multiple solutions and stability of the steady transonic small-disturbance equation,” *Theoretical and Applied Mechanics Letters*, Volume 7, 2017, Pages 292-300, doi: <https://doi.org/10.1016/j.taml.2017.09.011>
- J79: Zhou, G., Xu, K., and Liu, F., “Grid-Converged Solution and Analysis of the Unsteady Viscous Flow in a two-dimensional Shock Tube,” *Physics of Fluids*, 30, 016102, 2018, doi: 10.1063/1.4998300
- J80: Meng, X., Hu, H., Liu, F., and Luo, S., “Lift improvements using duty-cycled plasma actuation at low Reynolds numbers,” *Journal of Aerospace Science and Technology* Volume 72, Jan. 2018, pp123–133, doi: <https://doi.org/10.1016/j.ast.2017.10.038>
- J81: Tang, Xiao, Luo, Jiaqi, and Liu, F. “Adjoint aerodynamic optimization of a transonic fan rotor blade with a localized two-level mesh deformation method,” *Journal of Aerospace Science and Technology*, Volume 72, Jan. 2018, Pages 267-277, doi: <https://doi.org/10.1016/j.ast.2017.11.015>
- J82: 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*, Vol. 34, No. 4 (2018), pp. 878-892, doi: 10.2514/1.B36547.

- J83: Meng, X., Long, Y., Wang, J., Liu, F., and Luo, S., “Dynamics and control of the vortex flow behind a slender conical forebody by a pair of plasma actuators,” *Physics of Fluids*, vol. 30, No. 2, 024101 (2018), <https://doi.org/10.1063/1.5005514>.
- J84: Feng, C.; Liu, F.; Rusak, Z.; Wang, S. “Dynamics of a Perturbed Solid-body Rotation Flow in a Finite-length Straight Rotating pipe,” *Journal of Fluid Mechanics*, vol. 846, pp. 1114-1152, 2018. doi:10.1017/jfm.2018.245.
- J85: Zhan, L., Xiong, J., Liu, F., and Xiao, Z., “Fully Implicit Chebyshev Time-Spectral Method for General Unsteady Flows,” *AIAA Journal*, Vol. 56, No. 11, pp. 4474-4486, 2018, doi:10.2514/1.J056535.
- J86: Luo, J. and Liu, F., “Statistical evaluation of performance impact of manufacturing variability by an adjoint method,” *Aerospace Science and Technology*, Vol. 77, pp. 487-484, 2018, doi: 10.1016/j.ast.2018.08.030
- J87: Zhu, Y., Luo, J., and Liu, F., “Influence of blade lean together with blade clocking on the overall aerodynamic performance of a multi-stage turbine,” *Aerospace Science and Technology*, Vol. 80, pp. 329-336, 2018, doi: 10.1016/J.AST.2018.07.016
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- 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.
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- 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.
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- 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.
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