DANIEL J. BODONY

University of Illinois at Urbana-Champaign
Department of Aerospace Engineering   Telephone: 217-244-3844
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Urbana, IL 61801   E-mail: bodony@illinois.edu

EDUCATION

Ph.D., Aeronautics & Astronautics, 2004, Stanford University, Stanford, California.
     Thesis: *Aeroacoustic Prediction of Turbulent Free-Shear Flows*
M.S., Aeronautics & Astronautics, 1999, Purdue University, West Lafayette, Indiana.
     Thesis: *Turbulence Model Computations of an Axial Vortex.*
B.S., Aeronautics & Astronautics, 1997, Purdue University, West Lafayette, Indiana.

PROFESSIONAL EXPERIENCE ("*" denotes current)

*Associate Dean for Graduate, Professional, and Online Programs   August 2021 – Present
     Grainger College of Engineering
     University of Illinois at Urbana-Champaign, Urbana, Illinois
*Professor   August 2020 – Present
     Department of Aerospace Engineering
     University of Illinois at Urbana-Champaign, Urbana, Illinois
*Blue Waters Professor   January 2014 – Present
     College of Engineering
     University of Illinois at Urbana-Champaign, Urbana, Illinois
*Donald Biggar Willett Faculty Scholar in Engineering   April 2016 – Present
     Department of Aerospace Engineering
     University of Illinois at Urbana-Champaign, Urbana, Illinois
*Visiting Professor   June 2022 – December 2022
     Department of Mechanical Engineering
     Stanford University, Stanford, California
*Professor (by courtesy)   August 2020 – Present
     Department of Mechanical Science and Engineering
     University of Illinois at Urbana-Champaign, Urbana, Illinois
*Professor (by courtesy)   September 2022 – Present
     Materials Research Laboratory
     University of Illinois at Urbana-Champaign, Urbana, Illinois
Associate Head and Director of Graduate Studies   January 2019 – August 2021
     Department of Aerospace Engineering
     University of Illinois at Urbana-Champaign, Urbana, Illinois
Research Aerospace Engineer and Joint Faculty Fellow   October 2018 – September 2021
     Vehicle Technology Directorate
     Army Research Laboratory, Aberdeen Proving Grounds, Aberdeen, Maryland
Visiting Professor   June 2018 – December 2018

Department of Mechanical Engineering
Stanford University, Stanford, California
Visiting Professor   June 2016 – December 2016
Department of Mechanical Engineering
Stanford University, Stanford, California
Visiting Professor   May 2015 – July 2015
Department of Mechanics
KTH Royal Institute of Technology, Stockholm, Sweden
Visiting Professor   January 2015 – March 2015
Department of Mechanical and Civil Engineering
California Institute of Technology, Pasadena, California
Associate Professor   August 2013 – August 2020
Department of Aerospace Engineering
University of Illinois at Urbana-Champaign, Urbana, Illinois
*President and CEO   May 2012 – Present
Aeroacoustics and Flow Physics Technologies, Inc.
Urbana, Illinois
Consultant, IllinoisRocstar, Inc.   2008 –2011
Champaign, Illinois
Assistant Professor   October 2006 – August 2013
Department of Aerospace Engineering
University of Illinois at Urbana-Champaign, Urbana, Illinois
Engineering Research Associate   November 2005 – September 2006
Department of Mechanical Engineering
Stanford University, Stanford, California
Consultant, Cascade Technologies, Inc.   2005 –2008
Stanford, California
Post-doctoral Research Fellow   December 2004 – October 2005
Center for Turbulence Research
Stanford University, Stanford, California
ARCS Graduate Fellow   2001 – 2002
Department of Aeronautics & Astronautics
Stanford University, Stanford, California
National Defense Science and Engineering Graduate Fellow   1998 – 2001
Department of Aeronautics & Astronautics
Stanford University, Stanford, California
AFRL Summer Graduate Research Fellow   May 1998 – August 1998
Computational Aerosciences Directorate
Air Force Research Laboratory, WPAFB, Dayton, Ohio
Research Engineer, Innovative Aerodynamic Technologies, Inc.   May 1993 – August 1993
Hampton, Virginia
Research Engineer, Innovative Aerodynamic Technologies, Inc.   May 1992 – August 1992
Hampton, Virginia

PROFESSIONAL AND HONORARY ORGANIZATIONS

American Institute for Aeronautics and Astronautics (AIAA), Associate Fellow
American Physical Society (APS)
Acoustical Society of America (ASA)
Institute for Liquid Atomization and Spray Systems (ILASS)
Society of Industrial and Applied Mathematics (SIAM)
Sigma Gamma Tau
Tau Beta Pi
Experimental Aircraft Association

PROFESSIONAL AND LEADERSHIP DEVELOPMENT

FAST Start, UIUC Academy for Excellence in Engineering Education, 2006
Preventing Conflict and Setting Expectations: How to Get Your Message Across, UIUC
Graduate College, 2007
National Science Foundation CAREER Workshop, American Physical Society, 2007.
Engineering Faculty Leadership Forum, Grainger College of Engineering, 2017-2018.
Big Ten Academic Alliance, Academic Leadership Program, 2022-2023.
President's Executive Leadership Program, 2023-2024.

BEST PAPER AWARDS

2014 Best Paper Award, from the AIAA Fluid Dynamics Technical Committee, for the paper "Aeroelastic response of a panel under high speed turbulent boundary layers using direct numerical simulation," by Ostoich, C., Bodony, D. J., and Geubelle, P. H., Presented as AIAA Paper 2013-0096 at the 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 07 - 10 January 2013, Grapevine, Texas. Citation: "present[ed] ... to recognize such technical and scientific excellence."

RESEARCH AWARDS AND FELLOWSHIPS

Campus Distinguished Promotion Award, UIUC, 2020.
Dean's Award for Excellence in Research, UIUC College of Engineering, 2016.
Donald Biggar Willett Faculty Scholar, UIUC College of Engineering, 2015.
AIAA Associate Fellow, 2014.
Blue Waters Professorship, University of Illinois, 2014.
Tau Beta Pi Eminent Engineer Award, 2012.
NSF CAREER Award, 2012.
ARCS Research Fellowship, 2001 – 2002.
National Defense Science and Engineering Graduate Fellowship, 1998 – 2001.
AFRL Summer Graduate Research Fellowship, AFRL, WPAFB, 1998.

EDUCATION AWARDS AND FELLOWSHIPS

List of Teachers Ranked as Excellent by Their Students, AE 498 CFD: Applied CFD, UIUC, Fall 2022.

Rose Award for Teaching Excellence, College of Engineering, UIUC, 2022.

List of Teachers Ranked as Excellent by Their Students, AE 412/ME411: Viscous Flow and Heat Transfer, UIUC, Fall 2020.

List of Teachers Ranked as Excellent by Their Students, AE 312: Compressible Flow, UIUC, Spring 2020.

List of Teachers Ranked as Excellent by Their Students, AE 410: Computational Aerodynamics, UIUC, Spring 2019.

List of Teachers Ranked as Excellent by Their Students, AE 412/ME411: Viscous Flow and Heat Transfer, UIUC, Fall 2018.

William L. Everitt Teaching Award, College of Engineering, UIUC, 2018.

List of Teachers Ranked as Excellent by Their Students, AE 410: Computational Aerodynamics, UIUC, Spring 2018.

List of Teachers Ranked as Excellent by Their Students, AE 598 CAA: Aeroacoustics, UIUC, Spring 2017. [top 10% rating]

List of Teachers Ranked as Excellent by Their Students, AE 412/ME 411: Viscous Flow and Heat Transfer, UIUC, Fall 2016.

List of Teachers Ranked as Excellent by Their Students, AE 433: Aerospace Propulsion, UIUC, Fall 2015.

List of Teachers Ranked as Excellent by Their Students, AE 412/ME 411: Viscous Flow and Heat Transfer, UIUC, Fall 2014. [top 10% rating]

List of Teachers Ranked as Excellent by Their Students, AE 312: Compressible Flow, UIUC, Spring 2014.

List of Teachers Ranked as Excellent by Their Students, AE 598 CAA: Aeroacoustics, UIUC, Spring 2013.

AIAA Student Chapter, Teacher of the Year, AE Department, 2012.

List of Teachers Ranked as Excellent by Their Students, AE 412/ME 411: Viscous Flow and Heat Transfer, UIUC, Fall 2012.

List of Teachers Ranked as Excellent by Their Students, AE 410: Computational Aerodynamics, UIUC, Spring 2012. [top 10% rating]

List of Teachers Ranked as Excellent by Their Students, AE 311: Incompressible Flow, UIUC, Fall 2011.

List of Teachers Ranked as Excellent by Their Students, AE 598 CAA: Aeroacoustics, UIUC, Spring 2011. [top 10% rating]

AIAA Student Chapter, Teacher of the Year, AE Department, 2010.

List of Teachers Ranked as Excellent by Their Students, AE 412/ME 411: Viscous Flow and Heat Transfer, UIUC, Fall 2010.

List of Teachers Ranked as Excellent by Their Students, AE 312: Compressible Flow, UIUC, Spring 2010.

List of Teachers Ranked as Excellent by Their Students, AE 598 CAA: Aeroacoustics, UIUC, Spring 2009.

Engineering Council Award for Excellence in Advising, Illinois College of Engineering, 2009.

AIAA Student Chapter, Teacher of the Year, AE Department, 2008.

List of Teachers Ranked as Excellent by Their Students, AE 412/ME 411: Viscous Flow and Heat Transfer, UIUC, Fall 2008.

List of Teachers Ranked as Excellent by Their Students, AE 312: Compressible Flow, UIUC, Spring 2008.

List of Teachers Ranked as Excellent by Their Students, AE 433: Aerospace Propulsion, UIUC, Fall 2007.

List of Teachers Ranked as Excellent by Their Students, AE 312: Compressible Flow, UIUC, Spring 2007.

Magoon Teaching Award, Purdue University, 1998.

RESEARCH GRANTS ("*" denotes current)

*National Science Foundation (PI), 2022-2024, "UIUC Characteristic Science Applications for the Next Generation NSF LCCF: Multiphysics simulation of a full hypersonic vehicle." Characteristic Science Application for Next Generation Leadership Class Computing Facility.

*University Consortium for Applied Hypersonics (co-PI), 2022-2025, "Electrical Energy Deposition for Control of Hypersonic Air-breathing Engines."

*Air Force Office of Scientific Research (PI), 2022-2025. Title: "Measurement and modeling of an oblique shock grazing a compliant panel."

*Office of Naval Research (PI), 2021-2024. Title: "Fluid-thermal-structure Interaction of a Finned Model at Mach 6."

*Department of Energy (co-PI), 2020-2025. Title: "Center for Exascale-Enabled Scramjet Design"

*Federal Aviation Administration (PI), 2020-2023. Title: "Modeling Supersonic Jet Noise Reduction with Global Resolvent Modes."

*United States Office of Naval Research (PI), 2019-2023. Title: "Reducing Noise from Single and Twin Supersonic Jets Using Very-Low-Frequency Control."

NASA (via the Aeroacoustics Research Consortium) (PI), 2016-2021. Title: "Sources of Broadband Fan Noise in the NASA/GE Source Diagnostic Test Fan."

*United States Army Research Laboratory (PI), 2018-2023. Title: "Aeroelastic Resonances in Extreme-Speed Turbochargers in Unmanned Air Vehicles."

United States Air Force Office of Scientific Research (co-PI), 2017-2022. Title: "An experimental/computational investigation of the response of a compliant panel to turbulent and transitional shock-wave/boundary-layer interactions in hypersonic flow."

*United States Office of Naval Research (co-PI), 2016-2022. Title: "MURI: Multiphysics Control of Spray Formation and Dispersion."

United States Air Force Office of Scientific Research (co-PI), 2016-2017. Title: "Developing an experimental/computational methodology to investigate the response of flexible panels to shock-wave/boundary-layer interactions in hypersonic flow."

United States Air Force Office of Scientific Research (PI), 2014-2018. Title: "Direct Numerical Simulation of Compressible Turbulent Flows with Compliant Boundaries."

Department of Energy, (co-PI), 2014-2020. Title: "Center for the Exascale Simulation of Plasma-Coupled Combustion."

United States Office of Naval Research (PI), 2013-2016. Title: "Actuator Type and Placement for Jet Noise Reduction."

Aeroacoustics Research Consortium (PI), 2010-2016. Title: "Liner eduction methodology using large-eddy simulation."

Rolls-Royce North America (PI), 2012-2013. Title: "Actuator selection and placement for separation control in an S-Duct diffuser."

NASA, (co-PI), 2012-2016. Title: "Dynamic, Adaptive, and Robust High-Order Numerical Methods for the Prediction and Optimization of High Reynolds Number Turbulent Flows."

Rolls-Royce North America (co-PI), 2011-2012. Title: "A Comprehensive Power and Energy Systems Toolset for Air Vehicles."

National Science Foundation (PI), 2012-2017. Title: "CAREER: Adjoint-based Control of Human Phonation."

Rolls-Royce North America (co-PI), 2012-2013. Title: "Parallel Algorithms and Performance Modeling for Aircraft Gas Turbine Engine Prediction Codes."

NASA NRA (PI), 2011-2015. Title: "Measurement and Modeling of Entropic Noise Sources in a Single Stage Low-Pressure Turbine."

United States Office of Naval Research (co-PI), 2011-2014, Title: "Adjoint-based Optimization to Harness LES for Jet Noise Control."

United States Naval Air Systems Command (NAVAIR) Phase I STTR Grant (co-PI), 2010. Title: "Adaptive, Overset-Mesh Methodology for the Aeroacoustic Prediction of High-Speed Impinging Jets Using Large-Eddy Simulation."

Department of Energy Phase I SBIR Grant (co-PI), 2010. Title: "Turbine Trailing Edge Noise Reduction Using Adjoint-Based Shape Optimization."

Gulfstream Aerospace Corporation / Rolls-Royce North America (co-PI), 2009-2011. Title: "Simulations of Flow Through a High-Speed Bypass."

NASA Phase I SBIR Grant (co-PI), 2009. Title: "High Fidelity Simulation of Turbofan Noise."

United States Air Force Research Laboratory (co-PI), 2008-2012. Title: "Multi-Physics, Coupled Analysis of Spatially Tailored Aero-Thermal Structures."

University of Illinois Campus Research Board (PI), 2008. Title: "Computer Cluster for Computational Aeroacoustics of Engineering and Biological Systems."

United States Air Force Research Laboratory (co-PI), 2007-2011. Title: "Integrated Structural/Acoustic Interaction Simulation of Spatially Tailored Aero-Thermal Structures."

NASA NRA (co-PI), 2007-2012. Title: "Detailed Modeling of Combustion Noise Using a Combined Large-Eddy Simulation/Computational Aeroacoustics Model."

NASA NRA (co-PI), 2007-2010. Title: "Noise Prediction and Modeling of Supersonic Jet Noise Using Large-Eddy Simulation."

NASA NRA (co-PI), 2007-2010. Title: "Supersonic Jet Noise Control with Plasma Actuators."

COMPUTATIONAL ALLOCATION RESEARCH GRANTS ("*" denotes current)

*National Science Foundation, Frontera Leadership Resource Allocation (PI), 2023-2024. Title: "Reducing the Noise of Twin Supersonic Turbulent Jets."

*National Science Foundation, Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS) (PI), 2023-2024. Title: "Prediction and Control of Compressible Turbulent Flows."

National Science Foundation, Frontera Leadership Resource Allocation (PI), 2021-2023. Title: "Direct Numerical Simulation of Mach 6 Flow Over a 35 Degree Compression Ramp."

National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2020-2023. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
National Science Foundation, Frontera Leadership Resource Allocation (PI), 2020-2021. Title: "Direct Numerical Simulation of Mach 6 Flow Over a 35 Degree Compression Ramp."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2019-2020. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2018-2019. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
Department of Energy, Director's Discretionary Research Allocation, Argonne Leadership Computing Facility (PI), 2017-2018. Title: "Sources of Broadband Fan Noise in the NASA/GE Source Diagnostic Test Fan."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2016-2017. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2015-2016. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2014-2015. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2013-2014. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2012-2013. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
National Science Foundation, Extreme Science and Engineering Discovery Environment (PI), 2011-2012. Title: "XSEDE: Prediction and Control of Compressible Turbulent Flows."
Department of Defense High Performance Computing Modernization Office (PI), 2011-2012. Title: "Direct Numerical Simulation of Shock/Boundary Layer Interaction on a Thermo-Mechanically Compliant Panel."
National Science Foundation, Teragrid Resource Allocation (PI), 2011. Title: "RAC: Prediction and Control of Turbulent, Sound Generating Flows (Supplemental)."
National Science Foundation, Teragrid Resource Allocation (PI), 2010-2011. Title: "RAC: Prediction and Control of Turbulent, Sound Generating Flows."
National Science Foundation, Teragrid Resource Allocation (PI), 2009-2010. Title: "RAC: Prediction of Turbulence-Generated Sound."

EDUCATION GRANTS

University of Illinois Investment for Growth Program (PI), 2022-2025. Title: "Online Programs and Hy-Flex Classrooms"

KTH Royal Institute of Technology-University of Illinois Grant (PI), 2013. Title: "INSPIRE: Direct Numerical Simulation of Compressible Boundary Layer Transition and Acoustic Interaction (student/faculty exchange between UIUC and KTH, Stockholm, Sweden)"

BOOK CHAPTERS

Bodony, D. J. & Lele, S. K. (2006) "Applications and results: Jet noise" in *LES for Acoustics* (ed. C. Wagner, T. Huttl & P. Sagaut). Cambridge Univ. Press, pp. 289--310.

JOURNAL PUBLICATIONS (Advisees: Students in **bold**, Post-docs underlined)

1. **Fellows, D. W.** and Bodony, D. J., "Data-Driven Unsteady Aerodynamic Modeling for Fluid-Structure Interaction," accepted for publication in the *AIAA Journal.*

2. Padovan, A., **Vollmer, B.**, Panerai, F., Panesi., M., Stephani., K. A., and Bodony, D. J. (2024) "A Modified B' Formulation for Ablating-Surface Boundary Conditions," *International Journal of Heat and Mass Transfer*, Volume 218, January 2024, 124770.

3. **Fikl, A.** and Bodony, D. J. (2023) "Adjoint-based Control of Three Dimensional Stokes Droplets," *Journal of Computational Physics,* Volume 494, 1 December 2023, 112532.

4. Vu, L., **Fikl, A.**, Bodony, D. J., Desjardins, O. (2023) "An Adjoint Method for Control of Liquid-Gas Flows Using a Sharp Interface Model," *Journal of Computational Physics*, Vol. 484, 1 July 2023, 112057.

5. **Fellows, D.**, **Iskandar, V.**, Bodony, D. J., McGowan, R. C., Kang, S.-G., Pope, A. and Kweon, C.-B. M. (2023) "A Method for Predicting the Aeroelastic Response of Radial Turbomachines," *Journal of Turbomachinery,* Vol. 145(8): 081004 (12 pages). https://doi.org/10.1115/1.4057062

6. **Sashittal, P.**, Chiodi, R., Morgan, T., Desjardins, O., Heindel, T. and Bodony, D. J. "Modal Analysis and Interface Tracking of Multiphase Flows using Dynamic Mode Decomposition," *International Journal of Multiphase Flow*, Vol. 157, Dec. 2022, 104198.

7. **Dettenrieder, F.** and Bodony, D. J. (2022) "Stability analysis of compressible flat plate boundary layer flow over a mechanically compliant wall," invited paper for hypersonics-focused special issue of *Theoretical and Computational Fluid Dynamics, Vol. 36, pp. 141–153.* https://doi.org/10.1007/s00162-021-00600-z

8. **Sashittal, P.** and Bodony, D. J. (2021) "Data-Driven Sensor Placement for Fluid Flow," *Theoretical and Computational Fluid Dynamics,* Vol. 35(10), pp. 709-729.

9. **Fikl, A.** and Bodony, D. J. (2021) "Adjoint-based Interfacial Control of Viscous Drops", *Journal of Fluid Mechanics,* Vol. 911(A39).

10. **Bay, Y. Y.**, Bodony, D. J., and Freund, J. B. (2020) "Boundary-consistent B-spline filtering schemes and application to high-fidelity simulations of turbulence", *Journal of Computational Physics,* Vol. 419(109680).

11. **Sullivan, B.**, Whalen T., Laurence, S. and Bodony, D. J. (2020) "Simulation and modeling of the fluid-structure interaction of a compliant panel in a hypersonic compression ramp flow", *AIAA Journal,* Vol. 58(11), pp. 4848-4865.

12. Whalen, T., Schöneich, A., Laurence, A., **Sullivan, B.**, Bodony, D. J., Freydin, M., Dowell, E., and Buck, G. (2020) "Hypersonic Fluid-Structure Interactions in Compression Corner Shock-Wave/Boundary-Layer Interaction", *AIAA Journal*, Vol. 58(9), pp. 4090-4105.

13. Pulliam, T. H., Jespersen, D. C., Bodony, D. J., and Bidadi, S. (2020) "Improved Eigenvectors for Pulliam-Chaussee Diagonalized Approximate-Factorization Algorithm," *Journal of Computational Physics*, Vol. 412(109443), 11 pp.

14. **Fikl, A.** and Bodony, D. J. (2020) "Jump Relations of Certain Hypersingular Stokes Kernels on Regular Surfaces", *SIAM Journal of Applied Mathematics*, Vol. 80(5), pp. 2226–2248.

15. Diener, M., Bodony, D. J., and Kale, L. (2020) "Heterogeneous Computing with OpenMP and Hydra", *Concurrency and Computation: Practice and Experience*, Vol. 32(20), 14 pp.

16. **Murthy, S. R.**, Sayadi, T., Le Chenadec, V., Schmid, P. J., and Bodony, D. J. (2019) "Analysis of Degenerate Mechanisms Triggering Finite Amplitude Thermo-Acoustic Oscillations in Annular Combustors", *Journal of Fluid Mechanics*, Vol. 881, pp. 384-419.

17. **Sashittal, P.** and Bodony, D. J. (2019) "Reduced-order control using low-rank Dynamic Mode Decomposition", *Theoretical and Computational Fluid Dynamics*, Vol. 33(6), pp. 603-623.

18. **Mikida, C.**, Klöckner, A., and Bodony, D. J. (2019) "Multi-Rate Time Integration on Overset Meshes", *Journal of Computational Physics,* Vol 396, pp. 325-346.

19. Popov, P. P., Buchta, D. A., Anderson, M. J., Massa, L., Capecelatro, J., Bodony, D. J., and Freund, J. B. (2019) "Machine Learning-Assisted Early Ignition Prediction in a Complex Flow", *Combustion and Flame*, Vol. 206, pp. 451-466.

20. **Sashittal, P.** and Bodony, D. J., "Low-Rank Dynamic Mode Decomposition using Riemannian Manifold Optimization", (2018) 57th *IEEE Conference on Decision and Control*.

21. Diener, M., Bodony, D. J., and Kale, L. (2019) "Accelerating scientific applications on heterogeneous systems with HybridOMP", *Lecture Notes in Computer Science (Vol. 11333): High Performance Computing for Computational Science – VECPAR 2018,* pp. 174-187.

22. Capecelatro, J., Bodony, D. J., and Freund, J. B. (2018) "Adjoint-based sensitivity and ignition threshold mapping in a turbulent mixing layer", *Combustion Theory and Modeling* Vol. 23(1), pp. 147-179.

23. **Natarajan, M.**, Freund, J. B., and Bodony, D. J. (2018) "Global Mode-Based Control of Laminar and Turbulent High-Speed Jets", *Comptes Rendus Méchanique*, Vol. 346(10), pp. 978-996 (special issue on jet noise).

24. **Sharan, N.**, Pantano, C., and Bodony, D. J. (2018) "Time-Stable Overset Grid Method for Hyperbolic Problems using Summation-by-Parts Operators", *Journal of Computational Physics*, Vol. 361, pp. 199-230.

25. **Natarajan, M.**, Freund, J. B., and Bodony, D. J. (2016) "Actuator Selection and Placement for Localized Feedback Flow Control", *Journal of Fluid Mechanics*, Vol. 809, pp. 775-792.

26. **Shahriari, N.**, Bodony, D. J., Hanifi, A., and Henningson, D. S. (2016) "Acoustic receptivity simulations of flow past a flat plate with elliptic leading edge", *Journal of Fluid Mechanics*, Vol. 800, pp. R2-1-R2-11.

27. Bodony, D. J., Day, L., Friscia, A. R., Fusani, L., **Karon, A.**, Swenson Jr., G. W., Wikelski, M., Schlinger., B. (2016) "Determination of the Wingsnap Sonation Mechanism of the Golden-Collared Manakin (Manacus vitellinus)", *Journal of Experimental Biology*, Vol. 219, No. 10, pp. 1524-1534.

28. **Zhang, Q.** and Bodony, D. J., (2016) "Numerical Investigation of a Honeycomb Liner Grazed By Laminar and Turbulent Boundary Layers", *Journal of Fluid Mechanics*, Vol. 792, pp. 936-980.

29. **Vishnampet, R.**, Bodony, D. J., and Freund, J. B., (2015) "A practical and efficient discrete-adjoint method for high-fidelity compressible turbulence simulations", *Journal of Computational Physics*, Vol. 285, pp. 173-192.

30. **Kim, J.**, Bodony, D. J., and Freund, J. B. (2014) "Adjoint-based control of loud events in a turbulent jet," *Journal of Fluid Mechanics*, Vol. 741, pp. 28-59.

31. **Sucheendran, M. M.**, Bodony, D. J., and Geubelle, P. H. (2014) "Coupled structural-acoustic response of a duct-mounted elastic plate with grazing flow," *AIAA Journal*, Vol. 52(1), pp. 178-194.

32. **Ostoich, C.**, Bodony, D. J., and Geubelle, P. H. (2013) "Interaction of a Mach 2.25 turbulent boundary layer with a fluttering panel using direct numerical simulation," *Physics of Fluids*, Vol. 25(11), 110806, 27 pages.

33. **Mishra, A.**, Bodony, D. J. (2013) "Evaluation of actuator disk theory for predicting indirect combustion noise," *Journal of Sound and Vibration*, Vol. 332(4), pp. 821--838.

34. **Reichert, A.**, Heath M. T., Bodony, D. J. (2012) "Energy Stable Numerical Methods for Hyperbolic Partial Differential Equations Using Overlapping Domain Decomposition," *Journal of Computational Physics*, Vol. 231, pp. 5243-5265.

35. **Ostoich, C.**, Bodony, D. J., Geubelle, P. H. (2012) "Coupled fluid-thermal response of a spherical dome due to a Mach 6.59 laminar boundary layer," *AIAA Journal*, Vol. 50(12), pp. 2791--2808.

36. **Zhang, Q.**, Bodony, D. J. (2012) "Numerical investigation and modeling of acoustically-excited flow through a circular orifice backed by a hexagonal cavity," *Journal of Fluid Mechanics*, Vol. 693, pp. 367-401.

37. **Kim, J.**, Bodony, D.J., Freund, J.B.(2012) "Mechanisms of Jet Noise Reduction and Their Impact on Large-Eddy Simulations (invited)", *Journal of Propulsion and Power*, Vol. 28(2), pp. 259-268.

38. Austin, J. M., and Bodony, D. J., (2011) "Wave propagation in gaseous small-scale channel flows," *Shock Waves*, Vol. 21(6), pp. 547-557.

39. Bodony, D. J., **Zagaris, G.**, **Reichert, A.**, **Zhang, Q.**, (2011) "Provably stable overset grid methods for computational aeroacoustics," *Journal of Sound and Vibration*, Vol. 330, pp. 4161-4179.

40. **Zhang, Q.**, and Bodony, D. J., (2011) "Numerical simulation of two-dimensional acoustic liners with high-speed grazing flow," Vol 49(2), *AIAA Journal*, pp. 365-382.

41. **Kleinman, R. R.**, Bodony, D. J., Freund, J. B. (2010) "Shear-flow Excitation Mechanisms of Recessed Localized Arc-Filament Plasma Actuators," *Physics of Fluids*, Vol. 22(116103).

42. Bodony, D. J. (2010), "Accuracy of the simultaneous-approximation-term boundary condition for time-dependent problems," *Journal of Scientific Computing*, Vol. 43(1), pp. 118-133.

43. Bodony, D. J. (2009), "Scattering of an entropy disturbance into sound by a symmetric thin body," *Physics of Fluids*, Vol. 21, 096101.

44. Ihme, M., Pitsch, H., & Bodony, D. J. (2009), "Radiation of noise in turbulent non-premixed flames," *Proceedings of the Combustion Institute*, Vol. 32(1), pp. 1545-1553.

45. Bodony, D. J. & Lele, S. K. (2008), "Low Frequency Sound Sources in High-Speed Turbulent Jets," *Journal of Fluid Mechanics*, Vol. 617, pp. 231-253.

46. Bodony, D. J. & Lele, S. K. (2008), "On the current status of jet noise predictions using large-eddy simulation", *AIAA Journal*, Vol. 46, No. 2.

47. Bodony, D. J. (2006) "Analysis of Sponge Boundary Treatments for Computational Fluid Mechanics", *Journal of Computational Physics*, Vol. 212, pp. 681--702.

48. Bodony, D. J. & Lele, S. K. (2005) "On Using Large-Eddy Simulation for the Prediction of Noise from Cold and Heated Turbulent Jets". *Physics of Fluids*, Vol. 17, 085103.

PENDING JOURNAL PUBLICATIONS (Advisees: Students in **bold**, Post-docs <u>underlined</u>)

1. Capponi, L., <u>Padovan, A.</u>, Elliott, G. S., Panesi, M., Bodony, D. J., and Panerai, F., "Multi-domain analysis and prediction of the light emitted by an inductively coupled plasma jet," submitted to *Experiments in Fluids*.

2. <u>Padovan, A.</u>, **Vollmer, B.**, and Bodony, D. J. "Data-driven model reduction via non-intrusive optimization of projection operators and reduced-order dynamics," submitted to *SIAM Journal on Applied Dynamical Systems*.

CONFERENCE PAPERS AND PRESENTATIONS (Advisees: Students in **bold**, Post-docs <u>underlined</u>)

1. **Murthy, S.** and Bodony, D. J. "Reducing jet noise from an over-expanded biconical nozzle," to be presented at the Cambridge Unsteady Flow Symposium, March 2024, Cambridge University, Cambridge, UK.
2. **Upadhye, C.** and Bodony, D. J. "<u>Investigating Fluid-Thermal-Structure Interactions of Hypersonic Control Fins</u>," AIAA Paper 2024-0935, Presented at the AIAA SciTech 2024 Forum, Orlando, FL, 8-12 January 2024.
3. Kumar, S., Munafò, A., Stephani, K. A., Bodony, D. J., and Panesi, M. "<u>Modeling three-dimensional magneto-hydrodynamic phenomena in inductively coupled plasma discharges</u>," AIAA Paper 2024-1648, Presented at the AIAA SciTech 2024 Forum, Orlando, FL, 8-12 January 2024.
4. **Sirmalla, P. R.**, Munafò, A., Kumar, S., Bodony, D. J., and Panesi, M. "<u>Modeling the plasma jet in the Plasmatron X ICP facility</u>," AIAA Paper 2024-1685, Presented at the AIAA SciTech 2024 Forum, Orlando, FL, 8-12 January 2024.
5. **Woo, J.**, **Murthy, S. R.**, and Bodony, D. J. "<u>Resolvent-based framework for jet noise reduction of a low-bypass ratio coannular nozzle</u>," AIAA Paper 2024-2805, Presented at the AIAA SciTech 2024 Forum, Orlando, FL, 8-12 January 2024.
6. **Vollmer, B.** and Bodony, D. J. "<u>A procedure for obtaining steady-state solutions with WENO through sensitivity tuning and dynamic control</u>," AIAA Paper 2024-2863, Presented at the AIAA SciTech 2024 Forum, Orlando, FL, 8-12 January 2024.
7. **Murthy, S.** and Bodony, D. J. "Adjoint-based sensitivity of shock-laden flows," Presented at the 15th ERCOFTAC SIG 33 Workshop on Stability, Transition, and Flow Control, 27--30 June 2023, Alghero, Sardinia, Italy.
8. **Iskandar, V.**, **Fellows, D. W.**, Bodony, D. J., Kang, S.-G., Pope, A. J., and Kweon, C.-B. "A Piston Theory-Based Aeroelastic Stability Prediction Toolbox for Radial Turbomachinery," ASME Paper GT2023-102051, Presented at the 2023 ASME Turbo Expo.
9. Kumar, S., Jo, S. M., Munafo, A., Bodony, D. J. and Panesi, M., "Numerical study of radiative heat effects in inductively coupled plasma discharges," AIAA Paper 2023-3322, Presented at the 2023 AIAA Aviation Forum, June, 2023, San Diego, CA.
10. Schoneich, A. G., Laurence, S., **Dettenrieder, F.**, Bodony, D. J., Buck, G., Weisberger, J., and Bathel, J., "Hypersonic Fluid-Thermal-Structural Interactions on a Compression Ramp with an Embedded Compliant Panel," AIAA Paper 2023-3851, Presented at the 2023 AIAA Aviation Forum, June, 2023, San Diego, CA.
11. **Fellows, D.** and Bodony, D. J., "Data-Driven Unsteady Aerodynamic Modeling for Studying Subsonic Fluid-Structure Interaction," AIAA Paper 2023-3413, Presented at the 2023 AIAA Aviation Forum, June, 2023, San Diego, CA.
12. **Murthy, S.** and Bodony, D. J. "Resolvent analysis based jet-noise-reduction of a biconical tactical jet nozzle," AIAA Paper 2023-4518, Presented at the 2023 AIAA Aviation Forum, June, 2023, San Diego, CA.
13. Oldham, T., Capponi, L., Konnik, M., Stephani, K., Bodony, D. J., Panesi, M., Elliott, G. S., Panerai, F. "Aerothermal Characterization of the Plasmatron X Wind Tunnel: Optical Emission

Spectroscopy and Jet Temperature Reconstruction," AIAA Paper 2023-2516, Presented at the 2023 AIAA SciTech Forum and Exposition, January 2023.

14. **Sirmalla, P. R.**, Jo, S.-M., Chiodi, R., Munafò, A., Panesi, M., and Bodony, D. J. "Radiative Heat Transfer in Thermal Protection Systems using a One-Way Coupled Fluid-Solid Framework," AIAA Paper 2023-2715, Presented at the 2023 AIAA SciTech Forum and Exposition, January 2023.

15. Capponi, L., Oldham, T., Konnik, M. T., Stephani, K., Bodony, D. J., Panesi, M., Elliott, G. S., and Panerai, F. "Aerothermal characterization of the Plasmatron X Wind Tunnel: Heat flux, Stagnation Pressure and Jet Unsteadiness," AIAA Paper 2023-1338, Presented at the 2023 AIAA SciTech Forum and Exposition, January 2023.

16. Bodony, D. J. and **Fikl, A.** "Adjoint-based sensitivity of shock-laden flows," Proceedings of the 2022 Summer Program, Center for Turbulence Research, Stanford, CA, pp. 401-408.

17. **Sirmalla, P**., Chiodi, R., Bodony, D. J., and Panesi, M. "Fully Coupled Radiative Material Response Solver for Thermal Protection Systems," AIAA Paper 2022-4005, Presented at the 2022 AIAA Aviation Forum, Chicago, IL, 2022.

18. **Fikl, A.** and Bodony, D. J. "Adjoint-based optimal control of sharp interface multiphase flows," Presented at the 14th ERCOFTAC SIG 33 Workshop on Progress in Flow Instability, Transition and Control, June 15-17, 2022, Cadíz, Spain.

19. **Vollmer, B.**, **Murthy, S.**, and Bodony, D. J. "Revisiting the Boundary Conditions for Unsteady Flows Adjacent to Rigid and Dynamic Solid Walls," AIAA Paper 2022-2895, Presented at the 28th AIAA/CEAS Aeroacoustics Conference, June, 2022, Southampton, UK.

20. **Murthy, S.** and Bodony, D. J. "Resolvent analysis of a biconical tactical jet nozzle," AIAA Paper 2022-2969, Presented at the 28th AIAA/CEAS Aeroacoustics Conference, June, 2022, Southampton, UK.

21. Munafò, A., Chiodi, R., Kumar, S., Le Maout, V., Stephani, K.A., Panerai, F., Bodony, D. J., and Panesi, M. M., "A Multi-Physics Modeling Framework for Inductively Coupled Plasma Wind Tunnels", AIAA Paper 2022-1011, Presented at the 2022 AIAA SciTech Forum and Exposition, January 2022.

22. Chiodi, R., Stephani, K., Panesi, M., and Bodony, D. J. "CHyPS: A High-Order Material Response Solver for Ablative Thermal Protection Systems", AIAA Paper 2022-1501, Presented at the 2022 AIAA SciTech Forum and Exposition, January 2022.

23. **Sashittal, P.** and Bodony, D. J. "Data-Driven Sensor Placement for Fluid Flows," AIAA Paper 2021-2824, Presented at the AIAA Aviation Forum in the Special Session: Reduced-Complexity Modeling for Flow Control I, 2-6 August 2021.

24. **Fellows, D.**, McGowan, R. C., and Bodony, D. J., "Reduced-order Modeling of Aeroelasticity in Extreme Speed Turbochargers," AIAA Paper 2021-3466, Presented at the 2021 AIAA Propulsion and Energy Forum (Virtual), August 9-11, 2021.

25. **Fellows, D.**, McGowan, R. C., and Bodony, D. J., "Reduced-order modeling of extreme speed turbochargers," ASME Paper GT2021-58759, Presented at the 2021 ASME Turbo Expo.

26. Schöneich, A. G., Whalen, T. J., Laurence, S. J., **Sullivan, B.**, Bodony, D. J., Freydin, M., Dowell, E.H., Stacey, L. J., and Buck, G. M. "Fluid-Thermal-Structural Interactions in Ramp-Induced Shock-Wave Boundary-Layer Interactions at Mach 6," AIAA Paper 2021-0912, Presented at the AIAA Scitech 2021 Forum, January, 2021.

27. **Dettenrieder, F.**, **Sullivan, B.**, Schöneich, A. G., Laurence, S. J. and Bodony, D. J. "Direct Numerical Simulation of Boundary Layer Receptivity to Acoustic Radiation in a Hypersonic Compression Ramp Flow," AIAA Paper 2021-0368, Presented at the AIAA Scitech 2021 Forum, January, 2021.

28. Bodony, D. J., **Dettenrieder, F.**, and **Sullivan, B.** "Modeling hypersonic fluid-thermal-structural interactions using high-fidelity simulations," Presented in the 38th Airbreathing Propulsion Subcommittee Meeting at the JANNAF Interagency Propulsion Committee Meeting, December, 2020.

29. McGowan, R. C., Pieri, J. J., Mojica, J., Clerkin, P. J., Kruger, K. M., Gondol, D. J., Kim, K. S., Chol-Bum, M. Kweon, **Fellows, D. W.**, Bodony, D. J., Gibson, J. A., Meininger, R. D., Musser, M. R., "Effect of Altitude on Turbomachinery Vibration in an Aircraft Compression-Ignition Engine", ASME Paper GT2020-15661, presented at the 2020 ASME Turbo Expo, London, U.K., June 2020. (In-person meeting cancelled due to COVID-19; virtual meeting 21-25 September 2020.)

30. **Sashittal, P.** and Bodony, D. J., "Data-Driven Reduced Order Flow Control using Transfer Operator Approximation," to be presented at the 2020 AIAA AVIATION Forum and Exhibition, Reno, NV, June 15-19, 2020. (Paper cancelled due to COVID-19.)

31. Vu, L. X., **Fikl., A.**, Bodony, D. J., and Desjardins, O. "Solution methods for the liquid-gas adjoint equations with applications to spray control", to be presented at the ILASS-31st Annual Conference on Liquid Atomization and Spray Systems, Madison, WI, May 17-20, 2020. (Meeting cancelled due to COVID-19.)

32. **Sashittal, P.**, Morgan, T., Heindel, T. and Bodony, D. J. "Flapping instability of the liquid core within a swirling coaxial airblast atomizer," to be presented at the ILASS-31st Annual Conference on Liquid Atomization and Spray Systems, Madison, WI, May 17-20, 2020. (Meeting cancelled due to COVID-19.)

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34. Chauvat, C., Schmid, P. J., Bodony, D. J., Theofilis, V., and Hanifi, A., "Reduced order model of shock-boundary layers interactions", presented at the 2019 IUTAM Symposium on Laminar-Turbulent Transition, London, England, U.K.

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36. Whalen, T., Kennedy, R., Laurence, S., **Sullivan, B.**, Bodony, D. J., and Buck, G., "Unsteady Surface and Flowfield Measurements in Ramp-Induced Turbulent and Transitional Shock-Wave Boundary-Layer Interactions at Mach 6", AIAA Paper 2019-1127, Presented at the 2019 AIAA Aviation and Aeronautics Forum and Exposition, Dallas, TX.

37. **Banks, M.** and Bodony, D. J., "Control-informed Dynamic Mode Decomposition applied to two dimensional liquid jet breakup", Presented at the ILASS-30th Annual Conference on Liquid Atomization and Spray Systems, Tempe, AZ, May 12-15, 2019.

38. **Fikl, A.** and Bodony, D. J., "Adjoint-based interfacial control of axisymmetric viscous drops", Presented at the ILASS-30th Annual Conference on Liquid Atomization and Spray Systems, Tempe, AZ, May 12-15, 2019.

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40. Bodony, D. J., **Sashittal, P.,** and Towne, A., "Low-rank modeling of primary atomization", Proceedings of the 2018 Summer Program, Center for Turbulence Research, Stanford, CA, pp. 149-154.

41. Mehrabadi, M. and Bodony, D. J., "Wall-Modeled Large-Eddy Simulation and Direct Numerical Simulation of Broadband Trailing Edge Noise from a NACA0012 Airfoil", AIAA Paper 2019-2643, Presented at the 25th AIAA/CEAS Aeroacoustics Conference, Delft, The Netherlands.

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43. Bodony, D. J. and **Sullivan, B.**, "Fluid-Structure Coupling of a Compliant Panel Installed in a Compression Ramp at Mach 6: Numerical Simulations", Presented at the 2019 AIAA SciTech Meeting and Exhibit, San Diego, CA. (Invited).

44. **Banks, M.**, **Sashittal, P.** and Bodony, D. J., "Towards Data-driven Control of Multiphase Flows", ICLASS Paper, Presented at the 14th International Conference on Liquid Atomization and Spray Systems, Chicago, IL, July, 2018.

45. Bidadi, S. and Bodony, D. J., "Adjoint-based flow and electrostatic control of an isolated liquid drop", ICLASS Paper, Presented at the 14th International Conference on Liquid Atomization and Spray Systems, Chicago, IL, July, 2018.

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47. Diener, M., White, S., Kale, L. V., Campbell, M., Bodony, D. J. and Freund, J. B., "Improving the memory access locality of hybrid MPI applications", Presented at the EuroMPI '17 Proceedings of the 24th European MPI Users' Group Meeting.

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50. Bodony, D. J. "Instability and transition of a Mach-5.8 flat plate boundary layer over a thermo-mechanically compliant panel", *Proceedings of the 2016 Summer Program*, Center for Turbulence Research, Stanford, CA, pp. 185—191.

51. **Natarajan, M.**, Freund, J. B., and Bodony, D. J., "Control of Supersonic Jet Noise Using Linear Feedback," AIAA Paper 2016-3055, Presented at the 22nd AIAA/CEAS Aeroacoustics Conference, Lyon, France, June, 2016.

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59. **Natarajan, M.**, Freund, J. B., and Bodony, D. J., "Actuator and Sensor Placement for Flow Control", AIAA Paper 2014-2100, Presented at the 7th AIAA Flow Control Conference, Atlanta, GA, June, 2014.

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65. **Ostoich, C.**, Bodony, D. J., and Geubelle, P. H., "Aerothermoelastic response of a panel under a high speed turbulent boundary layer using direct numerical simulation," AIAA Paper 2013-1662, Presented at the 54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Boston, MA, April 8-11, 2013.

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69. **Sucheendran, M.**, Geubelle, P. H., and Bodony, D. J. "Effect of flow on the response of a duct-mounted elastic plate to acoustic-structural interaction," AIAA Paper 2012-2169,

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72. **Mishra, A.** and Bodony, D. J. "Evaluation of actuator disk theory to predict indirect combustion noise from a linear turbine cascade," AIAA Paper 2012-2086, Presented at the 18th AIAA/CEAS Aeroacoustics Conference (33rd AIAA Aeroacoustics Conference), Colorado Springs, CO, June, 4-6, 2012.

73. **Natarajan, M.** and Bodony, D. J. "Validation of an effective computational model for localized arc-filament plasma actuators and application to high subsonic boundary layer separation control," AIAA Paper 2012-189, Presented at the 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, Tennessee, Jan. 9-12, 2012.

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96. Cheung, L., Bodony, D. J., Lele, S. K. "Noise Radiation Predictions from Jet Instability Waves Using a Hybrid Nonlinear PSE-Acoustic Analogy Approach," AIAA Paper 2007-3638, 13th AIAA/CEAS Aeroacoustics Conference (28th AIAA Aeroacoustics Conference), Rome, Italy, May 21-23, 2007.

97. Eldredge, J., Bodony, D. J., Shoeybi, M. "Numerical investigation of the acoustic behavior of a multi-perforated liner," AIAA Paper 2007-3683, Presented at the 13th AIAA/CEAS Aeroacoustics Conference (28th AIAA Aeroacoustics Conference) , Rome, Italy, May 21-23, 2007.

98. Suzuki, T., Bodony, D.J., Ryu, J., & Lele, S.K. (2007) "Noise sources of high-Mach-number jets at low frequencies studied with a phased-array approach based on LES database," *Annual Research Briefs*, Center for Turbulence Research, Stanford, CA, pp. 2876301.

99. Bodony, D. J. and Lele, S. K. (2006) (Invited) "Review of the current status of jet noise predictions using large-eddy simulation," AIAA Paper 2006-0468, Presented at the 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 9-12, 2006.

100. Ihme, M., Bodony, D. J., Pitsch, H. "Prediction of Combustion-Generated Noise in Non-Premixed Turbulent Jet Flames Using LES," AIAA Paper 2006-2614, Presented at the 12th AIAA/CEAS Aeroacoustics Conference (27th AIAA Aeroacoustics Conference), Cambridge, Massachusetts, May 8-10, 2006.

101. Bodony, D. J., Ryu, J., Lele, S. K. "Investigating broadband shock associated noise of axisymmetric jets using large-eddy simulation," AIAA Paper 2006-2495, Presented at the 12th AIAA/CEAS Aeroacoustics Conference (27th AIAA Aeroacoustics Conference), Cambridge, Massachusetts, May 8-10, 2006.

102. Casalino, D. and Bodony, D. J. (2006) "Green's function discretization of Pridmore-Brown wave operator," *Proceedings of the 2006 Summer Program*, Center for Turbulence Research, Stanford, CA, pp. 547--558.

103. Eldredge, J., Shoeybi, M. and Bodony, D. J. (2006) "Numerical investigation of the acoustic behavior of a multi-perforated liner," *Proceedings of the 2006 Summer Program*, Center for Turbulence Research, Stanford, CA, pp. 511--517.

104. Vasilyev, O. V., Goldstein, D. E., Stefano, G., Bodony, D. J., You, D., and Shunn, L. (2006) "Assessment of local dynamic subgrid-scale models for stochastic coherent adaptive large eddy simulation," *Proceedings of the 2006 Summer Program*, Center for Turbulence Research, Stanford, CA, pp. 139--150.

105. Novikov, A. & Bodony, D. J. (2006) "Multi-scale modeling of subgrid scale stresses in the large-eddy simulation," *Proceedings of the 2006 Summer Program*, Center for Turbulence Research, Stanford, CA, pp. 99--109.

106. Khalighi, Y. & Bodony, D. J. (2006) "Improved near-wall accuracy for solutions of the Helmholtz equation using the boundary element method," *Annual Research Briefs*, Center for Turbulence Research, Stanford, CA, pp. 313--322.

107. Bodony, D. J. & Lele, S. K. (2006) "Low frequency sound sources in high-speed turbulent jets," *Annual Research Briefs*, Center for Turbulence Research, Stanford, CA, pp. 299--311.

108. Bodony, D. J., and Lele, S. K. "Generation of low frequency sound in turbulent jets," AIAA Paper 2005-3041, Presented at the 11th AIAA/CEAS Aeroacoustics Conference, Monterey, California, May 23-25, 2005.
109. Bodony, D. J. (2005) "The prediction and understanding of jet noise," Annual Research Briefs, Center for Turbulence Research, Stanford, CA, pp. 367--377.
110. Ihme, M., Bodony, D. J., & Pitsch, H. (2005) "Towards the prediction of com-bustion-generated noise in turbulent non-premixed flames using large-eddy simulation," Annual Research Briefs, Center for Turbulence Research, Stanford, CA, pp. 311--323.
111. Bodony, D. J. (2005) "Developing a subgrid scale noise model for use with large-eddy simulations," *Annual Research Briefs*, Center for Turbulence Research, Stanford, CA, pp. 249--256.
112. Novikov, A. & Bodony, D. J. (2005) "A multiscale, asymptotic model for the subgrid scale stresses in the large-eddy simulation of an incompressible fluid," *Annual Research Briefs*, Center for Turbulence Research, Stanford, CA, pp. 195--210.
113. Bodony, D. J., and Lele, S. K. "Jet Noise Prediction of Cold and Hot Subsonic Jets Using Large-eddy Simulation," AIAA Paper 2004-3022, Presented at the 10th AIAA/CEAS Aeroacoustics Conference , Manchester, United Kingdom, May 10-12, 2004.
114. Bodony, D. J. & Lele, S. K. (2003) A Stochastic Subgrid Scale Noise Model for Noise Predictions of Subsonic Jets. AIAA Paper 2003-3252, Presented at the 9th AIAA/CEAS Aeroacoustics Conference, Hilton Head, South Carolina.
115. Bodony, D. J., and Lele, S. K. "A Statistical Subgrid Scale Noise Model: Formulation," AIAA Paper AIAA-2003-3252, Presented at the 9th AIAA/CEAS Aeroacoustics Conference and Exhibit, Hilton Head, South Carolina, May 12-14, 2003.
116. Freund, J. B., Bodony, D. J. & Lele, S. K. (2002) "Turbulence interactions leading to far-field jet noise," *Proceedings of the 2002 Summer Program*, Center for Turbulence Research, Stanford, CA, pp. 15--25.
117. Bodony, D. J. & Lele, S. K. (2002) "Large Eddy Simulation of Turbulent Jets and Progress Towards a Subgrid Scale Noise Model," *Proceedings of International Workshop on "LES for Acoustics"*, DGLR Report-2002-03, October 7--8, 2002, Gottingen, Germany.

INVITED PRESENTATIONS AND SEMINARS

Invited Presentation, "Reducing jet noise from an underexpanded biconical nozzle," to be presented at the FS04: Compressible Flow focus session at ICTAM 2024, Daegu, South Korea, August 25-30, 2024.

Invited Presentation, "Reducing jet noise from an underexpanded biconical nozzle," to be presented at the Thirteenth International Symposium on Turbulence and Shear Flow Phenomena (TSFP13), Montréal, Canada, 25-28 June 2024.

Invited Presentation, "Direct Simulations of Turbulent, Multiphysics Hypersonic Flows at Extreme Scale," to be presented at the DFD/DCOMP focus session on "Extreme-Scale Computational Science Discovery in Fluid Dynamics and Related Disciplines," at the APS March Meeting, Minneapolis, MN, March 4-8, 2024.

Invited Seminar, "On the future of graduate engineering education," University of Illinois at Urbana-Champaign, March, 2023.

Invited Seminar, "Prediction and Control of High-Speed Jet Noise," University of Pennsylvania, October, 2022.

Invited Presentation, "Direct Numerical Simulation of Hypersonic Flows Using Frontera," presented at the National Science Foundation Frontera User Meeting, University of Texas at Austin, August 4-5, 2022.

Invited Presentation, "Numerical Simulations of Turbulent, Multiphysics Hypersonic Flows at Extreme Scales," presented at the DFD/DCOMP focus session on "Extreme-Scale Computational Science Discovery in Fluid Dynamics and Related Disciplines," at the APS March Meeting, Chicago, IL, March 14-18, 2022.

Invited Presentation, "Data-Driven Reduced Order Flow Control," presented at the 2021 AIAA AVIATION Forum and Exhibition (Virtual), August 2-6, 2021

Invited Seminar, "Fluid Mechanics of Hypersonic Fluid-Structure Interactions," University of Southern California (Virtual), March 24, 2021.

Invited Presentation, "Using Frontera for the Direct Numerical Simulation of Hypersonic Flows," presented at the 2021 National Science Foundation Frontera User Meeting (Virtual), January 28-29, 2021.

Invited Presentation, "Modeling Hypersonic Fluid-thermal-structural Interactions using High-fidelity Simulations," presented at the 2020 JANNAF 38th Air Breathing Propulsion Joint Subcommittee Meeting (Virtual), December 7-17, 2020.

Invited Presentation, "Data-Driven Reduced Order Flow Control using Transfer Operator Approximation," to be presented at the 2020 AIAA AVIATION Forum and Exhibition, Reno, NV, June 15-19, 2020. (Cancelled due to COVID-19 and rescheduled for 2021 AIAA AVIATION.)

Invited Presentation, "Modeling, Simulation and Analysis of Hypersonic Vehicles: A Grand Challenge Problem for Next Generation HPC Resources", Texas Advanced Computing Center Workshop on Next Generation Computers, January, 2020.

Invited Presentation, "Reducing noise from twin supersonic jets using very-low-frequency control," Acoustical Society of America, Special Session on Supersonic Jet Noise, December 2019.

Invited Seminar, "Predicting the Impact of Fluid-Structure Interactions on Hypersonic Flight", University of Arizona, Tucson, November 2019.

Invited Seminar, "Fluid-Structure Interactions in Hypersonic Flight", University of Washington, Seattle, October 2019.

Invited Seminar, "Unraveling the Impact of Fluid-Structure Interactions on Hypersonic Flight", George Washington University, February 2019.

Invited Presentation, "Fluid-Structure Coupling of a Compliant Panel Installed in a Compression Ramp at Mach 6: Numerical Simulations," AIAA SciTech 2019 Workshop on "Joint Experimental-Computational Efforts in High-Speed Fluid Structure Interactions", January 2019.

Invited Seminar, "Unraveling the Impact of Fluid-Structure Interactions on Hypersonic Flight", Iowa State University, November 2018.

Invited Presentation, "Linear Stability Analyses of Compressible, Laminar Boundary Layer Flow with Compliant Boundaries," TRANSEP Research program in Stability, Transition and Control, KTH Royal Institute of Technology, Stockholm, Sweden, June 2018.

Invited Presentation, "Fluid-structure coupling in high-speed flows: boundary layer stability and tunnel startup transients in Ludwieg tubes," AFOSR-UNSW Workshop on Fluid-Structure Interaction, University of New South Wales, Canberra, Australia, May 2018.

Invited Presentation, "Jet noise reduction and very-low-frequency global modes," Caltech-NAVAIR Workshop on Jet Noise Reduction, Caltech, Pasadena, CA, March 2018.

Invited Presentation, "Linear Stability Analysis of a Mach 5.8 Boundary Layer Over a Thermo-Mechanically Compliant Surface," United States Air Force Research Laboratory, December 2017.

Invited Presentation, "Prediction and Control of High-Speed Turbulent Flows," United States Army Research Laboratory, November 2017.

Invited Presentation, "Advances in adjoint-based methods: application towards multiphase systems (invited)," AIAA AVIATION Meeting and Exhibit, Special Session on Adjoint Methods, June, 2017.

Invited Seminar, "Global Mode-Based Control of Jet Noise," RWTH Aachen, Aachen, Germany, March 2017.

Invited Seminar, "Global Mode-Based Control of Jet Noise," University of Maryland, College Park, MD, November 2016.

Invited Seminar, "Hypersonic vehicles and the human voice: Prediction and modeling of fluid-structure systems," Stanford University, May 2016.

Invited Presentation, "Global Mode-Based Control of Supersonic Jet Noise," Global Mode Symposium VI, Crete, Greece, October 2015.

Invited Seminar, "Sneaking up on reliable and effective jet noise control," University of Poitiers, Poitiers, France, July 2015.

Invited Seminar, "Sneaking up on reliable and effective jet noise control," KTH Royal Institute of Technology, Stockholm, Sweden, June 2015.

Invited Seminar: "Advances in SBP-SAT-based methods for the prediction and control of compressible turbulent flows," Linkoping University, Linkoping, Sweden, May, 2015.

Invited Seminar: "Advances in SBP-SAT-based methods for the prediction and control of compressible turbulent flows," University of Southampton / Institute of Sound and Vibration Research, Southampton, United Kingdom, April, 2015.

Invited Seminar: "Understanding and modeling jet engine acoustic liners using direct numerical simulations," University of Southampton / Institute of Sound and Vibration Research, Southampton, United Kingdom, April, 2015.

Invited Seminar: "Sneaking up on reliable and effective jet noise control," Imperial College, London, United Kingdom, April 2015.

Invited Seminar: "Sneaking up on reliable and effective jet noise control," California Institute of Technology, Pasadena, CA, March 2015.

Invited Seminar: "Interaction of a Mach 2.25 turbulent boundary layer with thin elastic panels using direct numerical simulation," California Institute of Technology, Pasadena, CA, December 2014.

Invited Seminar: "Interaction of a Mach 2.25 turbulent boundary layer with thin elastic panels using direct numerical simulation," Texas A&M University, College Station, TX, September 2014.

Invited Presentation: "Advances in SBP-SAT-based methods for the prediction and control of compressible turbulent flows," NASA Ames, Mountain View, CA, July 2014.

Invited Presentation: "Efficient estimation of selecting and locating actuators and sensors for controlling compressible, viscous flows," SIAM Conference on Optimization, Special Topic on Efficient Optimization Techniques for Chaotic and Deterministic Large Scale Time-Dependent Problems, San Diego, CA, May 2014.

Invited Seminar: "Interaction of a Mach 2.25 turbulent boundary layer with thin elastic panels using direct numerical simulation," University of Michigan, Ann Arbor, MI, March 2014.

Invited Seminar: "Direct numerical simulation of a Mach 2.25 turbulent boundary layer with flexible metallic panels," University of Illinois at Urbana-Champaign (MechSE Fluid Mechanics Seminar), February 2014.

Invited Seminar: "Understanding and modeling jet engine acoustic liners using direct numerical simulations," Iowa State University, Ames, IA, February 2014.

Invited Presentation: "Foundational shifts in computing-enabled design & engineering," AIAA SciTech 2014 "Emerging technologies of importance to aerospace" panel, National Harbor, MD, January 2014.

Invited Seminar: "Direct numerical simulation of a Mach 2.25 turbulent boundary layer with flexible metallic panels," Sandia National Laboratory, Albuquerque, NM, December 2013.

Invited Seminar: "Interaction of a turbulent boundary layer and incident sound with a cavity-backed circular orifice," Syracuse University, Syracuse, NY, September 2013.

Invited Presentation: "High-order provably stable overset grid methods for block- structured adaptive mesh refinement," Special session on the future of CFD at the AIAA Fluid Dynamics Conference, San Diego, CA, June 2013.

Invited Seminar: Compressible turbulence interacting with complex surfaces," Boeing Commercial Aircraft, May 2013.

Invited Presentation: "Global modes for controller selection and placement in compressible turbulent flows," SIAM Conference on Computational Science & Engineering, Minisymposium on "Optimization and Control with Unsteady PDEs", Boston, MA, February 2013.

Invited Presentation: "Aeroelastic response of a panel under high speed turbulent boundary layers using direct numerical simulation," Special Session on "Multi-disciplinary Analysis of Hypersonic Vehicle Structures" at the 2013 AIAA Structural Dynamics & Materials Conference, Boston, MA, January 2013.

Invited Seminar: "Compressible turbulence interacting with complex surfaces," Ohio State University, Columbus, OH, November 2012.

Invited Presentation: "Controller selection and placement in compressible turbulent flows," Directions in computational flow physics: A symposium honoring Parviz Moin upon his 60th birthday, San Diego, CA, October 2012.

Invited Seminar: "Adjoint methods for aeroacoustic control and controller placement," Massachusetts Institute of Technology, Cambridge, MA, September 2012.

Invited Presentation: "Direct numerical simulation of acoustic liners," 9th European Fluid Mechanics Conference, Symposium on Aeroacoustics, Rome, Italy, September 2012.

Invited Tutorial: "Introduction to Computational Aeroacoustics," Chinese Academy of Sciences, State Key Laboratory of Non-linear Mechanics, Beijing, China, August 2012.

Invited Presentation: "Direct numerical simulation of acoustic liners," Chinese Academy of Sciences, State Key Laboratory of Non-linear Mechanics, Beijing, China, August 2012.

Invited Presentation: "On the linearity of the quieting of high speed jets by heating," Int. Congress of Theoretical and Applied Mechanics (ICTAM 2012), Beijing, China, August 2012.

Invited Seminar: "Direct numerical simulation of sound-induced flow in acoustic liners," University of California-San Diego, December 2011.

Invited Presentation: "Aeroacoustics of aeroengine liners," University of Southampton / Institute of Sound and Vibration Research, Southampton, United Kingdom, October, 2011.

Invited Keynote Presentation: "Direct Numerical Simulation of Acoustic Liners," Aeroacoustic Specialists' Committee (ASC) of the Council of the European Aerospace Societies (CEAS)

Workshop on aeroacoustics (in association with the European XNoise network), EPFL, Lausanne, Switzerland, October 2011.

Invited Presentation, "Adjoint-based methods for multi-physics systems, with applications for noise control," KTH Royal Institute of Technology, Department of Mechanics and the Linne Flow Centre, Stockholm, Sweden, May 2011.

Invited Seminar: "High-Fidelity Analysis of Coupled Fluid-Structure Systems for Sustained Hypersonic Flight", University of Colorado-Boulder, April 2011.

Invited Presentation: "Adjoint-based control of a supersonic impinging jets", United States Naval Air Systems Command, Naval Air Station Patuxent River, MD, January 2011.

Invited Presentation: "Mechanisms of Jet Noise Reduction and Their Impact on Large-Eddy Simulations (invited)," Special session at the 2011 AIAA Aerospace Sciences Meeting: Fluid Dynamics Technical Committee, Large-Eddy Simulation Working Group on predictive capability of chevron-nozzle flows, January 2011.

Invited Seminar: "Adjoint-Based Jet Noise Reduction With Plasma Actuators Using Large-Eddy Simulation," Syracuse University, Syracuse NY, September 2010.

Invited Presentation: "Provably Stable And Parallel Overset Grid-Based Algorithms for the Compressible Navier-Stokes Equations," Lawrence Livermore National Laboratory, Livermore, CA, July 2010.

Invited Presentation: "Adjoint-Based Jet Noise Reduction With Plasma Actuators Using Large-Eddy Simulation," 1st Annual Large-Eddy Simulation (LES) for Jet Flows Workshop, NASA Glenn Research Center, Cleveland, OH, June 2010.

Invited Presentation: "Aeroacoustic predictions in complex geometries," IUTAM Symposium on Computational AeroAcoustics (CAA) for Aircraft Noise Prediction, University of Southampton / Institute of Sound and Vibration Research, Southampton, United Kingdom, March, 2010.

Invited Presentation: "Combustion Noise and Acoustic Liners in High-speed Grazing Flow," Honeywell Aerospace, Phoenix, AZ, February 2010.

Invited Seminar: "Aeroacoustic predictions in complex geometries," KTH Royal Institute of Technology, Stockholm, Sweden, November 2009.

Invited Seminar: "Modeling and High-Fidelity Prediction of Aeroengine Noise," University of California, Los Angeles, Los Angeles, CA, October 2009.

Invited Seminar: "Modeling and High-Fidelity Prediction of Aeroengine Noise," University of Notre Dame, South Bend, IN, October 2009.

Invited Presentation: "A Collision Detection Approach to Chimera Grid Assembly for High Fidelity Simulations of a Compressible Fluid," WPAFB, Air Vehicles Directorate, Dayton, OH, August 2009.

Invited Presentation: "Modeling and High-Fidelity Prediction of Aeroengine Noise," GE Global Research Center, Niskayuna, NY, August 2009.

Invited Presentation: "The effects of heating on the sources of high-speed jet noise," ERCOFTAC Symposium on Sound Source Mechanisms in Turbulent Shear-Flow, Poitiers, France, July 2008.

Invited Seminar: "Sound generation and prediction in complex environments," Washington University, St. Louis, MO, May 2006.

Invited Presentation: "Aeroacoustic Prediction of Turbulent Jets Using Large-Eddy Simulation," 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 2006.

Invited Seminar: "Acoustics and Sound Generation," University of Michigan, Ann Arbor, MI, December 2005.

Invited Seminar: "On the Acoustic Prediction of Turbulent Flows," Center for Turbulence Research, Stanford University, Stanford, CA, March 2005.

Invited Seminar: "On the Acoustic Prediction of Turbulent Flows," University of Illinois Urbana-Champaign, Urbana, IL, January 2005.

M. S. THESES SUPERVISED AND JOB PLACEMENTS

M. S. Thesis: *Dynamic mode decomposition with application to optimal control*, Michael Banks, 2019. Continuing for a Ph.D. at University of California, Santa Barbara.

M. S. Thesis: *Direct simulation of the fluid-structure interaction of a compliant panel in a hypersonic compression ramp flow*, Bryson Sullivan, 2019. Continuing for a Ph.D.

M. S. Thesis: *Multi-rate Time Integration on Overset Meshes*, Cory Mikida, 2017. Calspan Corporation.

M. S. Thesis: *Performance Analysis and Optimization of a CFD Application*, Wentao Zhang, 2015. Amazon.

M. S. Thesis: *Multi-rate time advancement methods for coupled fluid-structure simulations*, Joshua Bromberg, 2014.

M. S. Thesis: *Modification of instability waves and radiated sound due to heating a compressible mixing layer*, Revathi Jambunathan, Ph.D. Program at Pennsylvania State University.

M. S. Thesis: *A Parallel Package for Conservative Data Transfer Between Non-Matching Planar Interfaces Using a Common Refinement*, R. S. Tomokiyo, 2013. Engineer, Boeing Commercial Aircraft Company.

M. S. Thesis: *Computational Assessment of Flow Through a High-Flow Nacelle Bypass*, Nishan Jain, 2011. Ph.D. Program at University of Maryland.

M. S. Thesis: *Scattering of an Entropy Disturbance into Sound by a Linear Cascase of Turbine Stator Blades*, Ashish Mishra, 2011. Ph.D. Program in Industrial Engineering.

DISSERTATIONS SUPERVISED AND JOB PLACEMENTS

Ph.D. Dissertation: *Adjoint-based Optimization of Multiphase Flows with Sharp Interfaces*, Alex Fikl, March 2022. Research scientist, Institute of Advanced Environmental Research, Romania.

Ph.D. Dissertation: *Flow Control and Sensing using data-driven Reduced-Order Modeling*, Palash Sashittal, August 2021. Post-doctoral fellow, Princeton University.

Ph.D. Dissertation: *An Energy-Conservative Cut-Cell Method and Advanced B-Spline-Based Filtering Method for Flow Simulation*, Yong Yi Bay, December 2019. Job placement unknown.

Ph.D. Dissertation: *Direct Numerical Simulation of the Human Voice*, Shakti Saurabh, August 2017. Member of Technical Staff, Cummins, Indiana.

Ph.D. Dissertation: *Controller selection and placement in compressible flows*, Mahesh Natarajan, December 2016. Postdoctoral Fellow, Cornell University. Currently at NASA Ames Research Center, Mountain View, California.

Ph.D. Dissertation: *Provably stable methods for the computation of high-Reynolds-number turbulent flows,* Nek Sharan, September 2016. Technical Fellow, Lawrence Livermore

National Laboratory. Then at Los Alamos National Laboratory, New Mexico. Currently Assistant Professor of Aerospace Engineering at Auburn University.

Ph.D. Dissertation: *Discrete adjoint methods for the control of compressible turbulence,* Ramanathan Vishnampet, October 2015. Staff Engineer, ExxonMobile, Houston, TX.

Ph.D. Dissertation: *Direct numerical investigation and reduced-order modeling of 3-D honeycomb acoustic liners,* Qi Zhang, March 2014. Data Scientist, Nielsen. Currently data scientist at Google.

Ph.D. Dissertation: *Acoustic structure interaction of sound with an elastic plate in a rectangular duct,* Mahesh Sucheendran, January 2013. Associate Professor, IIT Hyderabad.

Ph.D. Dissertation: *Methods for Hyperbolic Equations on Overlapped Grids*, Adam Reichart, May 2011. Technical Fellow, Mathworks.

Ph.D. Dissertation: *Aerothermoelastic Response Prediction of Aerospace Structures in Hypersonic Flows Using Direct Numerical Simulation*, Chris Ostoich, February 2013. Engineer, ATA Engineering.

Ph.D. Dissertation: *Adjoint-based Control of Turbulent Jet Noise*, Jeonglae Kim, February 2012. Assistant Professor, Arizona State University.

POST-DOCTORAL FELLOWS AND JOB PLACEMENTS

Dr. Alberto (Alby) Padovan, 2022 – Present.

Dr. Robert Chiodi, 2020 – 2022. Los Alamos National Lab, Sante Fe, NM.

Dr. Mohammad Mehrabadi, 2016 – 2019. Senior R&D Engineer at Ansys, Canonsburg, PA.

Dr. David Buchta (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2017 – 2019. Post-doctoral fellow at Johns Hopkins University.

Dr. Matthias Diener (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2017 – 2020. Currently research scientist with PSAAP3 Center for Exascale-Enabled Scramjet Design.

Dr. Jonathan MacArt (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2018 – 2019. Assistant Professor, University of Notre Dame.

Dr. Pavel Popov (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2017 – 2019. Assistant Professor, San Diego State University.

Dr. David Petty (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2017 – 2019.

Dr. Pooya Movahed (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2017 – 2019. Siemens, Michigan.

Dr. Spencer Bryngleson (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2017 – 2018. Post-doctoral fellow at Caltech.

Dr. Florimond Gueniat (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2016 – 2018. Lecturer at City University of Birmingham, U.K.

Dr. Shreyas Bidadi, 2016 – 2018. ANSYS Fluent.

Dr. Luca Massa (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2014 – 2016. Assistant Professor at Virginia Tech University.

Dr. Jesse Capecelatro (co-advisor as part of The Center for Exascale Simulation of Plasma-Coupled Combustion), 2014 – 2016. Assistant Professor at University of Michigan.

Dr. Qi Zhang, 2014 – 2016. Post-doctoral fellow at University of Texas, Austin.

Dr. Yu Liu, (co-advisor as part of The Center for the Simulation of Advanced Rockets), 2008 – 2009. University of Cambridge, U.K.

Dr. Asghar Afshari, (co-advisor as part of The Center for the Simulation of Advanced Rockets), 2007 – 2008. Associate Professor at University of Tehran (Tehran, Iran).

CURRENT GRADUATE STUDENTS

Graduate Students (11): Prathamesh Sirmalla (Ph.D., co-advised with Prof. Marco Panesi), Joseph Signorelli (Ph.D.), Blaine Vollmer (Ph.D.), Paul Poovakulam (Ph.D.), Sandeep Murthy (Ph.D.), Fabian Dettenrieder (Ph.D.), David Fellows (Ph.D.), Chinmay Upadhye (Ph.D.), Vincent Iskandar (M.S.), Jaywon "Jay" Woo (M.S.), Muhammad Alhussaini (M.S.)

GRADUATE COMMITTEES

Preliminary and Ph.D. Exam Committee: Nirmal Nair (Andres Goza, Chair), UIUC, 2021, 2022
Preliminary Exam Committee: Gyu-Sub Lee (Tonghun Lee, Chair), UIUC, 2022.
Preliminary and Ph.D. Exam Committee: SeungWhan Chung (Jonathan Freund, Chair), UIUC, 2020, 2021.
Preliminary Exam Committee: Sharanya Subramaniam (Kelly Stephani, Chair), UIUC, 2019.
Preliminary and Ph.D. Exam Committee: Timothy Smith (Carlos Pantano, Chair), UIUC, 2019.
Preliminary and Ph.D. Committee: David Buchta (Jonathan Freund, Chair), UIUC, 2015, 2016.
Preliminary and Ph.D. Committee: Ruben Hortensius (Greg Elliott, Chair), UIUC, 2014, 2017.
Preliminary and Ph.D. Committee: Galina Shpuntova (Joanna Austin, Chair), UIUC, 2014, 2018.
Preliminary and Ph.D. Committee: Subhabrata Banerjee (Anthony Jacobi, Chair), UIUC, 2013, 2014.
Preliminary and Ph.D. Committee: Venkatarama Bhargav Rallabandi (Sasha Hilgenfeldt, Chair), UIUC, 2014, 2015.
Preliminary and Ph.D. Committee: Yuya Matsumura (Thomas Jackson, Chair), UIUC, 2012, 2014.
Preliminary and Ph.D. Committee: Nachiket Kale (Greg Elliott, Chair), UIUC, 2011, 2013.
Preliminary and Ph.D. Committee: Blake Johnson (Ken Christensen, Chair), UIUC, 2010, 2012.
Ph.D. Committee: Marcello Ferrari (Jeff Eldredge, Chair), University of California, Los Angeles, 2011.
Preliminary and Ph.D. Committee: Craig Merrett (Harry Hilton, Chair), UIUC, 2009, 2011.
Preliminary and Ph.D. Committee: Randy Kleinman (Jonathan Freund, Chair), UIUC, 2008, 2010.
Preliminary and Ph.D. Committee: Arnab Samanta (Jonathan Freund, Chair), UIUC, 2007, 2009.
Preliminary and Ph.D. Committee: Victor Topalian (Jonathan Freund, Chair), UIUC, 2007, 2009.

ACADEMIC PROFESSIONAL SERVICE

Associate Editorships and Editorial Board Positions
    Associate Editor, *Theoretical and Computational Fluid Dynamics*, 2014 – 2020.

Symposium/Conference/Workshop Chair

Co-organizer of special sessions on "Joint Experimental-Computational Efforts in High-Speed Fluid Structure Interactions", AIAA SciTech 2022.

Co-organizer of the two special sessions on "Joint Experimental-Computational Efforts in High-Speed Fluid Structure Interactions", AIAA SciTech 2021.

Co-Chair, APS DFD Annual Meeting, Chicago, IL, November 22 – 24, 2020.

Co-organizer of the four special sessions on "Joint Experimental-Computational Efforts in High-Speed Fluid Structure Interactions", AIAA SciTech 2019.

Program Committee, IPDPS 2017 (31st IEEE International Parallel & Distributed Processing Symposium), Orlando, FL, May 29 – June 2, 2017.

Co-organizer of the special session "The view from above: the future of fluid dynamics research", AIAA AVIATION 2016 meeting, Washington, D.C. (June 2016).

Organizer of the invited Integration Tier panel session "Future of Supercomputing in Aerospace Engineering (tentative)", AIAA AVIATION 2015 meeting, Dallas, TX (June 2015). Co-organized with the "Future of Fluids" subcommittee of the AIAA Fluid Dynamics Technical Committee.

Organizer of the special session "New and revolutionary approaches in understanding compressible turbulence" for the AIAA SciTech Meeting and Exhibit, Kissimmee, FL (January 2015). Co-organized with Dr. "Pon" R. Ponnappan, Program Officer, Turbulence & Transition, AFOSR/RTA.

Organizer of two-part special session "High-Reynolds-number fluid-structure interaction" for the AIAA Fluid Dynamics Conference, Atlanta, GA. (June 2014). Co-organized with Professor Rodney Bowersox (Texas A&M University) and Dr. Katya Casper (Sandia National Labs).

Chair, AIAA Fluid Dynamics Meeting (held as part of AIAA AVIATION Meeting and Exhibit), Atlanta, GA, June 16 – 20, 2014.

Chair, AIAA Aeroacoustics Meetings (held as part of AIAA Aerospace Sciences Meeting and Exhibit), Orlando, GL, January 4 – 7, 2010.

Symposium/Conference Session Chair

Session Chair: Z-03, "Aerodynamics: Fluid-Structure Interactions, Membranes, Flutter III," American Physical Society Division of Fluid Dynamics Meeting, Indianapolis, IN (November 2022).

Session Chair: APA-48/FD-46, "Experimental-Computational Effects in High-Speed Fluid-Structure Interaction," AIAA AVIATION 2021.

Session Chair: V01: "Andreas Acrivos Dissertation Award Lecture", American Physical Society Division of Fluid Dynamics Meeting, Virtual (November 2020).

Session Chair: FD-44/APA-35: "Experimental-Computational Effects in High-Speed Fluid-Structure Interaction", AIAA AVIATION Forum 2020, Virtual, June 2020.

Session Chair: FD-34: "Experimental-Computational High-Speed FSI II", AIAA SciTech Forum 2020, Orlando, FL, January 2020.

Session Chair: B06: "Noise Reduction", American Physical Society Division of Fluid Dynamics Meeting, Seattle, WA (November 2019).

Session Chair: Atomization Theory, Analysis, & Modeling, Meeting of the Institute for Liquid Atomization and Spray Systems, Tempe, AZ (May 2019).

Session Chair: APA-43/FD-54/SD-19/AMT-20: Special Session: Joint Experimental-Computational Efforts in High-Speed FSI IV, AIAA SciTech 2019, San Diego, CA (January 2019).

Session Chair: A01. Nonlinear Dynamics: Model Reduction I, American Physical Society Division of Fluid Dynamics Meeting, Atlanta, GA (November 2018).

Session Chair: Acoustics I: Aeroacoustics, American Physical Society Division of Fluid Dynamics Meeting, San Francisco, CA (November 2014).

Session Chair: Acoustics I, American Physical Society Division of Fluid Dynamics Meeting, Pittsburgh, PA (November 2013).

Session Chair: ICTAM Session on Compressible Flow, Beijing, China (August 2012).

Session Chair: 9th European Fluid Mechanics Session on Aeroacoustics, Rome, Italy (September 2012).

Session Chair: Acoustics I, American Physical Society Division of Fluid Dynamics Meeting, San Diego, CA (November 2012).

Session Chair: Acoustics III session of APS Division of Fluid Dynamics meeting in Long Beach, CA (November 2010).

Session Chair: Loads/Sonic Fatigue/ Interior Noise/Structual Acoustics session of AIAA/CEAS Aeroacoustics Meeting, Portland, OR (June 2011).

Session Chair: Flow Control I, American Physical Society Division of Fluid Dynamics Meeting, Baltimore, MD (November 2011).

Session Chair: Jets & Wakes I, AIAA Aerospace Sciences Meeting & Exhibit, Nashville, TN (January 2012).

Session Chair: Jet Noise session of AIAA/CEAS Aeroacoustics Meeting, Stockholm, Sweden (June 2010).

Session Chair: Jet Noise session of AIAA Aerospace Sciences Meeting & Exhibit, Orlando, FL (January 2010).

Session Chair: Acoustics I session of APS DFD meeting in Minneapolis, MN (November 2009)

Session Chair: Jet Noise I session of the AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV (January 2008).

Session Chair: Bio-Fluids: Phonation/Glottal Flows session of APS DFD meeting in San Antonio, TX (November 2007).

Session Chair: Acoustics I session of American Physical Society's Division of Fluid Dynamics meeting in Tampa, FL (November, 2006).

Reviewer/Judge for Journals and Conferences

Journal of Fluid Mechanics
Physics of Fluids
Physical Review Physics, Fluids
Journal of Computational Physics
AIAA Journal
Science
Journal of Experimental Biology
Journal of the Acoustical Society of America
International Journal of Aeroacoustics
ASME Journal of Fluids Engineering
European Journal of Mechanics, B.
International Journal of Numerical Methods for Fluids
Journal of Nonlinear Science
Journal of Turbulence

SIAM Journal of Scientific Computing
Proceedings Royal Society of London, A.
Wave Motion
AIAA Fluid Dynamics Best Paper Competition Judge, 2018.
APS DFD Gallery of Fluid Motion Competition Judge, 2010.

Federal and State Research Proposal Review
 National Science Foundation Fluid Dynamics (Early Research Initiation) Panel Review
 National Science Foundation Fluid Dynamics Panel Review
 National Science Foundation CAREER Panel Review
 National Science Foundation XSEDE Resource Allocation Committee
 National Science Foundation Blue Waters Allocation Committee
 National Science Foundation SBIR Panel Review
 Department of Energy INCITE Panel Review
 U.S. Air Force Office of Scientific Research Proposal Review
 Reviewer for NASA Postdoctoral Program
 Department of Energy Advanced Scientific Computing Research Leadership Computing
  Challenge Reviewer
 Reviewer for Dutch Research Council (NWO)

GOVERNMENT SERVICE

Department of Energy Advanced Technology Deployment and Mitigation (ATDM) L2 Milestone
 Review Committee, 2017 – 2018.
Department of Energy "Turbulent Flow Simulation at the Exascale: Opportunities and Challenges
 Workshop" Panel Participant, 2015.

SOCIETY SERVICE ("*" denotes current)

American Physical Society Division of Fluid Dynamics Offices and Positions Held
 *Executive Committee, 2021 – 2024
  *Secretary and Treasurer, 2021 – 2024
 Acrivos Awards Committee, 2019 – 2020.
  Vice Chair, 2019.
  Chair, 2020.
 Nomination Committee, 2016 – 2018.
 Program Committee, 2012 – 2015.
 Forum on Graduate Student Affairs Executive Committee Member-at-Large, 2005 – 2007.

AIAA Offices and Positions Held
 Fluid Dynamics Technical Committee, 2012 – 2020.
  Fluid Dynamics Award Subcommittee, 2018 – 2020.
  Fluid-Structure Interaction Discussion Group, 2015 – Present.

Future of Fluids Subcommittee, 2014 – 2018.
Fundamentals of Flow Physics Subcommittee, 2012 – 2020.
Aeroacoustics Technical Committee, 2007 – 2011.

Panelist. "Advice on applying to faculty and postdoc positions", American Physical Society Division of Fluid Dynamics Meeting, Seattle, WA (November 2019).

UNIVERSITY SERVICE ("*" denotes current)

*Chancellor's Transforming Higher Education Implementation Working Group, 2023.
Chancellor's Working Group on Reforming Higher Education, 2022.
Chancellor's Task Force on Facilitating & Recognizing Public Engagement, 2020 – 2021.
Facilitator for pre-tenure workshop sponsored by the Provost's Office, 2017.
Facilitator for pre-tenure workshop sponsored by the Provost's Office, 2016
IT Governance Administrative Committee, 2014 – 2015.
Campus Conversation on Undergraduate Education, 2013.
Graduate College ARCS Scholar Application Review, 2012.
Allocation Committee for NCSA Forge System (through OVCR), 2011.
Allocation Committee for NCSA Ember System (through OVCR), 2011.
Graduate College Discussion on Graduate Education, Hosted by Dean Dutta, 2011.

COLLEGE SERVICE ("*" denotes current)

UIUC College of Engineering Associate and Full Professor Feedback and Career Planning Committee, 2021
UIUC College of Engineering "Leaning into 2020" COVID-19 Pandemic Response Coordination Committee, 2020.
UIUC College of Engineering Aerospace Engineering Department Head Search, 2019 – 2020.
Panelist in UIUC College of Engineering "Panel on Sources of Funding", January 25, 2019.
UIUC College of Engineering Strategic Planning Working Group, 2019.
UIUC College of Engineering Research Working Group for Engineering IT (Chair), 2015 – 2019.
UIUC College of Engineering Executive Committee, 2017 – 2020.
UIUC College of Engineering Committee on Course Review for AE 512 "Molecular Gas Dynamics", 2016.
UIUC College of Engineering AE Department Head Review Committee, 2016 – 2017.
UIUC College of Engineering Undergraduate Computing Education Committee [committee to discuss changes to CS101], 2014 – 2015.
UIUC College of Engineering Research Working Group for Engineering IT, 2014 – 2015.
UIUC College of Engineering Ad Hoc Subcommittee for Proposed Undergraduate Minor in Computational Science and Engineering. 2014 – 2015.
UIUC College of Engineering Computational Science and Engineering Steering Committee, 2013 – 2018.
UIUC College of Engineering Blue Waters Faculty Search Committee, 2012 – 2014.

UIUC College of Engineering Computational Science and Engineering Fellowship Review Panel, 2011, 2012.
UIUC College of Engineering Engineering Open House Judge, 2008, 2009.

DEPARTMENT SERVICE ("*" denotes current)

*UIUC AE Department Undergraduate Curriculum Committee (Chair), 2022 – 2023.
*UIUC AE Department Promotion and Tenure Committee, 2022 – 2023.
UIUC AE Department Faculty Search Committee (Chair), 2021 – 2022.
UIUC AE Department Promotion and Tenure Committee, 2021 – 2022.
UIUC AE Department Stillwell Lectureship Selection Committee, 2017 – 2019.
UIUC AE Department Undergraduate Course Development Committee, 2017 – 2018.
UIUC AE Department Faculty Search Committee, 2017 – 2018.
UIUC AE Department Faculty Search Committee (Chair), 2016 – 2017.
UIUC AE Department Strategic Planning Committee, 2015 – 2016.
UIUC AE Department Teaching Improvement Committee, 2015 – 2016.
UIUC AE Department Advisory Committee, 2015 – 2016.
UIUC AE Department Faculty Search Committee, 2013 – 2014.
UIUC AE Department Undergraduate Curriculum Committee, 2012 – 2013.
UIUC AE Department Faculty Search Committee, 2012 – 2013.
UIUC AE Department Advisory Committee, 2011 – 2012.
UIUC AE Department Advisory Committee, 2008 – 2011.
UIUC AE Department Undergraduate Curriculum Committee, 2007 – 2010.
UIUC AE Department ABET Review Committee, 2007.
UIUC AE Department Graduate Admissions Committee, 2006 – 2009.
UIUC AE Department Graduate Policy Committee, 2006 – 2010 (Chair, 2009 – 2010).

NEW COURSE DEVELOPMENT

New course development: "Applied Computational Fluid Dynamics," AE 498 CFD – senior-level/graduate course on using CFD to solve fluid dynamics problems relevant to aerospace and mechanical engineers.
Course re-development: "Aeroelasticity," AE 451—senior-level/graduate-level course on introduction to fluid-structure interaction relevant to aerospace engineering.
New course development: "Numerical methods in Aerospace Engineering," AE 270--sophomore-level course on the fundamentals of numerical methods in aerospace engineering, 2018.
New course development: "Introduction to Aerospace Computing," AE199 IAC: open level course on computing and programming literacy, 2013.
Course re-development: "Computational Aerodynamics," AE410/CSE461: dual level course on the fundamentals of computational fluid mechanics, 2012.
New course development: "Aeroacoustics," AE598 CAA: graduate level course on the fundamentals of aeroacoustics, UIUC, 2009.

COURSES TAUGHT

<u>Graduate level</u>
    Aeroacoustics (new course development)
        UIUC, Spring 2021
        UIUC, Spring 2017
        UIUC, Spring 2013
        UIUC, Spring 2011
        UIUC, Spring 2009

<u>Senior/Graduate level</u>
    Applied Computational Fluid Dynamics
        UIUC, Fall 2022
        UIUC, Fall 2021
    Aeroelasticity
        UIUC, Fall 2023
        UIUC, Fall 2019
    Viscous Flow and Heat Transfer
        UIUC, Fall 2020
        UIUC, Fall 2018
        UIUC, Fall 2016
        UIUC, Fall 2014
        UIUC, Fall 2012
        UIUC, Fall 2010
        UIUC, Fall 2008
    Computational Aerodynamics (course re-development)
        UIUC, Spring 2018
        UIUC, Spring 2012
    Aerospace Propulsion
        UIUC, Fall 2015
        UIUC, Fall 2009
        UIUC, Fall 2007

<u>Junior-level</u>
    Incompressible Flow
        UIUC, Fall 2017
        UIUC, Fall 2011
        UIUC, Fall 2008
    Compressible Flow
        UIUC, Spring 2020
        UIUC, Spring 2014
        UIUC, Spring 2010
        UIUC, Spring 2008
        UIUC, Spring 2007

<u>Freshman-level</u>
    Introduction to Aerospace Computing (new course development)

UIUC, Fall 2014
UIUC, Fall 2013

UNDERGRADUATE RESEARCH PROJECTS SUPERVISED

AE 497 (individual project), "Analysis of Three Dimensional Flow Effects on the Fluid-Structure Interaction of a Compliant Ramp in a Mach 6 Flow", Mason Metzkes, Spring 2019.

AE 497 (individual project), "CFD with OpenMP programming on the IBM Power9 Architecture", Griffin Bojan, Spring 2018.

AE 497 (individual project), "Simulation of the ACT-II SCRAMJET test facility", Griffin Bojan, Fall 2017.

AE 497 (individual project), "Computational Fluid Dynamics simulation of perturbed boundary layer flows in a wind tunnel facility and their influence on multispecies flow mixing," Cong Lin, Spring 2016.

AE 497 (individual project), "CFD prediction of the aerodynamic performance of a model-scale propeller", Erik Lopez, Spring 2016.

AE 497 (individual project), "Uncertainty Quantification of Acoustic Propagation Through the Atmosphere", Michael Banks, Spring 2016.

AE 497 (individual project), "Parallel implementation of the dynamic mode decomposition algorithm", Michael Banks, Fall 2015.

McNair Scholar Advisor for AE undergraduate Francisco Gonzalez (AY2014-2015)

AE 497 (individual project), "Reynolds-averaged Navier-Stokes Modeling of a Low-Speed Wind Tunnel", Kevin Kim, Fall 2014.

ME 497 (individual project), "Human Speech: Wave Propagation in Agarose Gel", Justin Faber, Fall 2013.

NASA UROP (Undergraduate research opportunities program), "Human Speech: Wave Propagation in Agarose Gel", Justin Faber, Summer 2013.

AE497 (individual project) "Development of a finite volume solver for the quasi-one-dimensional Euler equations", Martin Gonzalez, Spring 2013.

AE497 (individual project) "Development of a parallel finite volume code", Christian Howard, Spring 2013.

NASA UROP (Undergraduate research opportunities program), "Use of automatic differentiation for developing a discrete adjoint approach to multi-physics problems", Tristan Darboux , Summer 2011.

AE597 (individual project) "Computational Analysis of Aerothermoelastic Structures," Revathi Jambunathan, Spring 2011.

AE497 (individual project) "Computational Analysis of Aerothermoelastic Structures," Brandon Seerup, Fall 2010.

NASA UROP (Undergraduate research opportunities program), "Acoustic-structure interaction in a duct-plate-cavity system", Nicolas Parilo, Summer 2010.

AE497 (individual project) "Computational Analysis of a High-Flow Bypass for Low Sonic Boom," Salur Basbug, Spring 2010.

ME597 (individual project) "Computational Aspects of Human Voice Prediction," Eli Lazar, Fall 2009.

AE497 (individual project) "Computational Analysis of a High-Flow Bypass for Low Sonic Boom," Meg Danko, Fall 2009.

NSF REU "Acoustic signature of low Reynolds number flapping wings," Aharon Kharon (Georgia Tech Undergraduate), Summer 2009.

AE497 (individual project) "Aeroacoustics of micro air vehicles," Mike Day (AE Undergraduate student), Spring 2009.

AE597 (individual project) "Compressible wave propagation in a microscale channel," Craig Merrett (AE Graduate student), Spring 2009. (Follow-on to Fall 2008.)

AE597 (individual project) "Compressible wave propagation in a microscale channel," Craig Merrett (AE Graduate student), Fall 2008.

NSF REU, "Acoustic characterization of an USAF facility," Eric Halvorson (Rose-Hulman Undergraduate), Summer 2008.

NASA UROP (Undergraduate research opportunities program), "Time-domain impedance boundary conditions of an USAF facility," Adam Kuester (pre-MS AE student), Summer 2008.

ME597 (individual project), "FEM Solution of the Laplace Equation for an Exterior Domain," Myung Hahn (ME Masters student), Spring 2008.

NSF REU (Research experiences for undergraduates), "Analysis of core noise," David Simmons (Georgia Tech Undergraduate), Summer 2007.

NASA UROP (Undergraduate research opportunities program), "Acoustic Properties of Model Human Vocal Folds," Phillip Robinson (AE Undergraduate), Summer 2007.

AE497 (individual project), "Systems engineering approach to designing the future warfare battlefield," Michael Duffy (AE Undergraduate), Fall 2007.

OUTREACH

Urbana Little League Baseball Coach, Summer 2018.
Champaign Urbana Little League Fall Ball Coach, Fall 2017.
Urbana Little League Baseball Coach, Summer 2017.
Urbana Little League Baseball Coach, Summer 2016.
Champaign Urbana Little League Fall Ball Coach, Fall 2016.
Urbana Park District Soccer Coach, Summer 2014.
Urbana Little League Baseball Coach, Summer 2014.
Urbana School District Level Parent Advisory Committee, 2012 – 2013.
Advisory Committee of Implementation of Dual Language, Urbana School District 116, Urbana, IL, 2011 – 2012.
Finance Committee, First United Methodist Church, Champaign, IL, 2008 – 2010 (chair from 2011-2013).

COLLABORATORS ("*" denotes current)

*Professor Miao Yu, University of Maryland, 2022 – Present
*Professor Tim Colonius, California Institute of Technology, 2020 – Present
*Professor Stuart Laurence, University of Maryland, 2016 – Present
*Professor Gregory Elliott, University of Illinois at Urbana-Champaign, 2021 – Present
*Professor Francesco Panerai, University of Illinois at Urbana-Champaign, 2021 – Present
*Professor Marco Panesi, University of Illinois at Urbana-Champaign, 2021 – Present

*Professor Kelly Stephani, University of Illinois at Urbana-Champaign, 2021 – Present
Professor Olivier Desjardins, Cornell University, 2016 – Present
Professor Theodore (Ted) Heindel, Iowa State University, 2016 – Present
Professor Alberto Aliseda, University of Washington, 2016 – Present
Professor S. (Bala) Balachandar, University of Florida, 2016 – Present
Professor Andreas Klöckner, University of Illinois at Urbana-Champaign, 2016 – 2021
Professor Laximant Kale, University of Illinois at Urbana-Champaign, 2016 – 2020
Professor Peter Schmid, Imperial College, London, UK, 2016 – 2020
Professor Dan Henningson, Royal Institute of Technology (KTH), Stockholm, Sweden, 2015 – 2020
Professor Ardeshir Hanifi, Royal Institute of Technology (KTH), Stockholm, Sweden, 2015 – 2020
Professor William Gropp, University of Illinois at Urbana-Champaign, 2012 – 2021
Professor Jonathan Freund, University of Illinois at Urbana-Champaign, 2006 – 2021
Professor Carlos Pantano, University of Southern California, 2012 – 2018
Professor Greg Elliott, University of Illinois at Urbana-Champaign, 2008 – 2013
Professor Craig Dutton, University of Illinois at Urbana-Champaign, 2008 – 2013
Professor Philippe Geubelle, University of Illinois at Urbana-Champaign, 2006 – 2013
Professor Michael T. Heath, University of Illinois at Urbana-Champaign, 2006 – 2013
Professor Heinz Pitsch, Stanford University, 2006 – 2009