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Education

Massachusetts Institute of Technology	Aerospace Engineering	Ph.D. 2007
Massachusetts Institute of Technology	Aerospace Engineering	S.M. 2004
Massachusetts Institute of Technology	Aerospace Engineering	S.B. 2003
Massachusetts Institute of Technology	Physics	S.B. 2003

Appointments and Research Experience

Sep. 2021-present:	Professor, Department of Aerospace Engineering, University of Michigan, Ann Arbor, MI
Sep. 2014-Aug. 2021:	Associate Professor, Department of Aerospace Engineering, University of Michigan, Ann Arbor, MI
2008-2014:	Assistant Professor, Department of Aerospace Engineering, University of Michigan, Ann Arbor, MI
Aug. 2008:	Visiting Professor, Department of Aerospace Engineering, University of Michigan, Ann Arbor, MI
2007-2008:	Postdoctoral Associate, Department of Aerospace Engineering, Massachusetts Institute of Technology, Cambridge, MA
2003-2007:	Research Assistant, Department of Aerospace Engineering, Massachusetts Institute of Technology, Cambridge, MA
Summer 2004:	DOE Computational Science Graduate Fellowship Practicum, Argonne National Laboratory, Argonne, IL
2002-2003:	Undergraduate Researcher, Aerospace Computational Design Laboratory, Massachusetts Institute of Technology, Cambridge, MA
2001-2002:	Undergraduate Researcher, Gas Turbine Laboratory, Massachusetts Institute of Technology, Cambridge, MA
Summer 2001:	Research Experience for Undergraduates, Department of Mathematics, University of Washington, Seattle, WA
2000-2001:	Undergraduate Researcher, Laboratory for Nuclear Science Massachusetts Institute of Technology, Cambridge, MA
Summer 2000:	Research Experience for Undergraduates, Department of Physics, University of California, San Diego, CA

Professional Activities

- Associate Fellow, AIAA; Member SIAM, ASEE
- Associate Member: AIAA Fluid Dynamics Technical Committee
- Associate Editor: International Journal for Numerical Methods in Fluids
- University of Michigan Center for Research on Learning and Teaching Advisory Board

- Organizing Committees: 2012 AIAA ASM Fluid Dynamics Track, 2012 International Conference on High-Order CFD Methods, 2012 AIAA Fluid Dynamics Conference, 2013 AIAA CFD Conference and Student Paper Competition, 2015 AIAA CFD Conference, 2017 AIAA Aviation Conference, 2019 AIAA Aviation Conference.
- Reviewer for: SIAM Journal of Scientific Computing, AIAA Journal, Journal of Computational Physics, Computer Methods in Applied Mechanics and Engineering, International Journal of Numerical Methods in Fluids, International Journal of Numerical Methods in Engineering, Applied Mathematical Modeling, Communications in Applied Mathematics and Computational Science, Mathematical Methods in Applied Sciences, NSF, AFOSR, NASA

Honors and Awards

- Aerospace Engineering Department Award, 2019
- Vulcan's Education Excellence Award, 2017
- Department of Energy Office of Science Early Career Research Program Award, 2013
- Air Force Office of Scientific Research Young Investigator Award, 2011
- Sigma Gamma Tau Silver Shaft Teaching Award, 2011, 2015
- Department of Energy Computational Science Graduate Fellowship, 2003-2007
- Salisbury Award for Superior Achievement in Aeronautics and Astronautics, 2003
- Boston Area Physics Contest Winner, 2001
- National Merit Finalist, 1999

Teaching Experience

- W16, W17, W18, W20, W24: Introduction to Aerospace Engineering, AE 201, University of Michigan
- W13, W14, W15, W16, W17, W18, W19, W20, W21, W23: Undergraduate Computational Methods for Aerospace Engineering, AE 423, University of Michigan
- W12, W13, W17, W19, W20, W23: Graduate Advanced Computational Fluid Dynamics, AE 623, University of Michigan
- W09, F09, W10, F10, W11, F11, F12, F13, F14, F15, F17, F18, F19, W21, F22, F23, W24: Undergraduate Aerodynamics, AE 325, University of Michigan
- F08, F16, F18, F19, F20, F21, F22: Graduate Computational Fluid Dynamics, AE 523, University of Michigan
- W24: Turbulent Flows, AE 525, University of Michigan
- S08: Undergraduate Computational Methods for Aerospace Engineering , 16.90, MIT (co-instructor)
- S07: Undergraduate Aerodynamics, 16.100, MIT (co-instructor)
- 2004-2007: Graduate Resident Tutor at MIT

Research Interests

Development of robust, scalable, and adaptive solution techniques for computational fluid dynamics. Topics include high-order methods, numerical error estimation, unsteady adaptive simulations, large-scale model reduction, parallel algorithms, and uncertainty quantification.

Current and recent research projects include:

- Hybridized discontinuous Galerkin methods
- Iterative multilevel solution methods
- Machine learning for computational fluid dynamics

- Reduced-order modeling using projection and interpolation-based methods
- Unsteady output-based error estimation and mesh adaptation
- Adaptive RANS calculations with the discontinuous Galerkin method
- Uncertainty quantification in nuclear reactor thermal-hydraulics codes
- Stochastic-space adaptive methods for uncertainty quantification
- Entropy-adjoint approach to mesh refinement
- Probabilistic approach to contaminant source inversion
- Cut-cell mesh generation
- Nonlinear model reduction for inverse problems

Publications

Journal Publications

[1] Rakesh Halder, Krzysztof J. Fidkowski, and Kevin J. Maki. An adaptive sampling algorithm for reduced-order models using isomap. *International Journal for Numerical Methods in Engineering*, 125(8):e7427, 2024. `doi:https://doi.org/10.1002/nme.7427`.

[2] Rakesh Halder, Krzysztof J. Fidkowski, and Kevin J. Maki. Non-intrusive reduced-order modeling using convolutional autoencoders. *International Journal for Numerical Methods in Engineering*, 123(21):5369–5390, 2022. `doi:https://doi.org/10.1002/nme.7072`.

[3] Krzysztof J. Fidkowski. Gradient-based shape optimization for unsteady turbulent simulations using field inversion and machine learning. *Aerospace Science and Technology*, 129:107843, October 2022. `doi:https://doi.org/10.1016/j.ast.2022.107843`.

[4] Krzysztof J. Fidkowski. Output-based error estimation and mesh adaptation for unsteady turbulent flow simulations. *Computer Methods in Applied Mechanics and Engineering*, 399:115322, 2022. `doi:https://doi.org/10.1016/j.cma.2022.115322`.

[5] Yifan Bai and Krzysztof J. Fidkowski. Continuous artificial-viscosity shock capturing for hybrid discontinuous Galerkin on adapted meshes. *AIAA Journal*, 60(10), 2022. Accepted. `doi:10.2514/1.J061783`.

[6] Sijian Tan, Zhihang Zhang, Kevin Makin, Krzysztof J. Fidkowski, and Jesse Capecelatro. Beyond well-mixed: A simple probabilistic model of airborne disease transmission in indoor spaces. *Indoor Air*, 32, 2022. Accepted. `doi:10.1111/ina.13015`.

[7] Gustavo L.O. Halila, Anil Yildirim, Charles A. Mader, Krzysztof J. Fidkowski, and Joaquim R. R. A. Martins. Linear stability-based smooth Reynolds–averaged Navier–Stokes transition model for aerodynamic flows. *AIAA Journal*, 60(2):1077–1090, 2022. `doi:10.2514/1.J060481`.

[8] Krzysztof J. Fidkowski. A coupled inviscid-viscous airfoil analysis solver, revisited. *AIAA Journal*, 60(5):2961–2971, 2022. `doi:10.2514/1.J061341`.

[9] Vivek Ojha, Krzysztof J. Fidkowski, and Carlos E. S. Cesnik. Adaptive high-order fluid-structure interaction simulations with reduced mesh-motion errors. *AIAA Journal*, 59(6), 2021. `doi:10.2514/1.J059730`.

[10] Guodong Chen and Krzysztof J. Fidkowski. Output-based adaptive aerodynamic simulations using convolutional neural networks. *Computers and Fluids*, 223:104947, 2021. `doi:10.1016/j.compfluid.2021.104947`.

[11] Krzysztof J. Fidkowski and Guodong Chen. Metric-based, goal-oriented mesh adaptation using machine learning. *Journal of Computational Physics*, 426:109957, 2021. doi:10.1016/j.jcp.2020.109957.

[12] Gustavo L. O. Halila, Krzysztof J. Fidkowski, and Joaquim R. R. A. Martins. Towards automatic PSE-based transition to turbulence prediction for aerodynamic flows. *AIAA Journal*, 59(2), 2021. doi:10.2514/1.J059516.

[13] Gustavo L.O. Halila, Joaquim R. R. A. Martins, and Krzysztof J. Fidkowski. Adjoint-based aerodynamic shape optimization including transition to turbulence effects. *Aerospace Science and Technology*, 107:106243, 2020. doi:10.1016/j.ast.2020.106243.

[14] Kaihua Ding and Krzysztof J. Fidkowski. Acceleration of adjoint-based adaptation through sub-iterations. *Computers and Fluids*, 202:104491, 2020. doi:10.1016/j.compfluid.2020.104491.

[15] Matteo Franciolini, Krzysztof J. Fidkowski, and Andrea Crivellini. Efficient discontinuous Galerkin implementations and preconditioners for implicit unsteady compressible flow simulations. *Computers and Fluids*, 203:104452, 2020. doi:10.1016/j.compfluid.2020.104542.

[16] Guodong Chen and Krzysztof J. Fidkowski. Variable-fidelity multipoint aerodynamic shape optimization with output-based adapted meshes. *Aerospace Science and Technology*, 105:106004, 2020. doi:10.1016/j.ast.2020.106004.

[17] Francesco Bassi, Alessandro Colombo, Andrea Crivellini, Krzysztof J. Fidkowski, Matteo Franciolini, Antonio Ghidoni, and Gianmaria Noventa. An entropy-adjoint p-adaptive discontinuous Galerkin method for the under-resolved simulation of turbulent flows. *AIAA Journal*, 2020. doi:10.2514/1.J058847.

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[19] Gustavo L.O. Halila, Guodong Chen, Yayun Shi, Krzysztof J. Fidkowski, Joaquim R.R.A. Martins, and Márcio Teixeira de Mendonça. High-Reynolds number transitional flow simulation via parabolized stability equations with an adaptive RANS solver. *Aerospace Science and Technology*, 91:321 – 336, 2019. URL: http://www.sciencedirect.com/science/article/pii/S1270963819304444, doi:10.1016/j.ast.2019.05.018.

[20] Kevin Doetsch and Krzysztof J. Fidkowski. Combined entropy and output-based adjoint approach for mesh refinement and error estimation. *AIAA Journal*, 57(8), 2019. doi:10.2514/1.J057836.

[21] Guodong Chen and Krzysztof J. Fidkowski. Discretization error control for constrained aerodynamic shape optimization. *Journal of Computational Physics*, 387:163–185, 2019. doi:10.1016/j.jcp.2019.02.038.

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[23] Krzysztof J. Fidkowski. Output-based space-time mesh optimization for unsteady flows using continuous-in-time adjoints. *Journal of Computational Physics*, 341(15):258–277, July 2017. doi:10.1016/j.jcp.2017.04.005.

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[41] Krzysztof J. Fidkowski and David L. Darmofal. Review of output-based error estimation and mesh adaptation in computational fluid dynamics. *AIAA Journal*, 49(4):673–694, 2011. `doi:10.2514/1.J050073`.

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[45] D.W. Milanes, D.R. Kirk, Krzysztof J. Fidkowski, and I.A. Waitz. Gas turbine engine durability impacts of high-fuel-air ratio combustors: near wall reaction effects on film-cooled backward-facing step heat transfer. *Journal of Engineering for Gas Turbines and Power*, 128(2):318–325, 2006. `doi:10.1115/GT2002-30182`.

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[47] A. Quirrenbach, J.E. Roberts, Krzysztof J. Fidkowski, W. de Vries, and W. van Breugel. Keck adaptive optics observations of the radio galaxy 3C294: A merging system at z = 1.786? *The Astrophysical Journal*, 556:108–112, July 2001. `doi:10.1086/321564`.

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Conference Proceedings

[1] Jacob C. Vander Schaaf, Qizhi Lu, Krzysztof Fidkowski, and Dennis S. Bernstein. Data-driven retrospective cost adaptive flow control. AIAA Paper 2024–1935, 2024. doi:10.2514/6.2024-1935.

[2] Braden E. Frigoletto, Krzysztof J. Fidkowski, and Carlos E. S. Cesnik. Towards output-based mesh adaptation for high-order fluid-structure interaction of flexible wings. AIAA Paper 2024–2445, 2024. doi:10.2514/6.2024-2445.

[3] Alexander W. Coppeans andand Krzysztof J. Fidkowski and Joaquim R.R.A. Martins. Anisotropic mesh adaptation for high-order meshes in two dimensions. AIAA Paper 2024–1020, 2024. doi:10.2514/6.2024-1020.

[4] Miles McGruder and Krzysztof Fidkowski. Incremental super-resolution reconstruction for turbulent flow on high-order discontinuous finite elements. AIAA Paper 2024–1983, 2024. doi:10.2514/6.2024-1983.

[5] Krzysztof Fidkowski. Anisotropic metric-based curved meshing using prismatic layers. AIAA Paper 2024–1019, 2024. doi:10.2514/6.2024-1019.

[6] Krzysztof Fidkowski. Correcting an algebraic transition model using field inversion and machine learning. AIAA Paper 2024–2739, 2024. doi:10.2514/6.2024-2739.

[7] Alexander Coppeans, Krzysztof Fidkowski, and Joaquim R. R. A. Martins. Comparison of finite volume and high order discontinuous Galerkin based aerodynamic shape optimization. AIAA Paper 2023–1845, 2023. doi:10.2514/6.2023-1845.

[8] Nathan A. Wukie, Krzysztof Fidkowski, Per-Olof, and Z.J. Wang. High-fidelity CFD verification workshop 2023: Mesh motion. AIAA Paper 2023–1243, 2023. doi:10.2514/6.2023-1243.

[9] Alexander O. Kleb, Krzysztof Fidkowski, and Joaquim R. R. A. Martins. Development of a Cartesian cut-cell solver for viscous flows. AIAA Paper 2023–1795, 2023. doi:10.2514/6.2023-1795.

[10] Devina P. Sanjaya and Krzysztof Fidkowski. High-order node movement discretization error control in shape optimization. AIAA Paper 2023–2367, 2023. doi:10.2514/6.2023-2367.

[11] Braden E. Frigoletto, Vivek Ojha, Krzysztof Fidkowski, and Carlos E. S. Cesnik. Development of a high-order fluid-structure interaction solver for flexible wings. AIAA Paper 2023–0185, 2023. doi:10.2514/6.2023-0185.

[12] Miles J. McGruder, Aniruddhe Pradhan, and Krzysztof Fidkowski. A neural-network based adaptive discontinuous Galerkin method for turbulent flow simulations. AIAA Paper 2023–1802, 2023. doi:10.2514/6.2023-1802.

[13] Krzysztof J. Fidkowski. Residual-based time-step control for high-order discretizations. AIAA Paper 2023–2294, 2023. doi:10.2514/6.2023-2294.

[14] Krzysztof J. Fidkowski. Output-based mesh optimization using metric-conforming node movement. AIAA Paper 2023–2369, 2023. doi:10.2514/6.2023-2369.

[15] Krzysztof J. Fidkowski. An interactive airfoil analysis and design tool in Matlab. AIAA Paper 2023–2514, 2023. doi:10.2514/6.2023-2514.

[16] Krzysztof J. Fidkowski. Gradient-based shape optimization for unsteady turbulent simulations using dynamic closures. AIAA Paper 2023–0905, 2023. doi:10.2514/6.2023-0905.

[17] Krzysztof J. Fidkowski. Adjoint-based adaptation of large-eddy simulations using dynamic closures. AIAA Paper 2023–1850, 2023. doi:10.2514/6.2023-1850.

[18] Krzysztof J. Fidkowski. Data-driven adaptation and optimization of turbulent flows. In *33rd Congress of the International Council of the Aeronautical Sciences*, number 914, 2022.

[19] Yifan Bai and Krzysztof J. Fidkowski. Continuous artificial viscosity shock capturing for hybrid DG on adapted meshes. AIAA Paper 2022–0585, 2022. doi:10.2514/6.2022-0585.

[20] Rakesh Halder, Krzysztof J. Fidkowski, and Kevin J. Maki. Local non-intrusive reduced-order modeling using isomap. AIAA Paper 2022–0081, 2022. doi:10.2514/6.2022-0081.

[21] Alexander W. Coppeans, Krzysztof J. Fidkowski, and Joaquim R.R.A. Martins. Output based mesh adaptation using overset methods for structured meshes. AIAA Paper 2022–1867, 2022. doi:10.2514/6.2022-1867.

[22] Vivek Ojha, Guodong Chen, and Krzysztof J. Fidkowski. Initial mesh generation for solution-adaptive methods using machine learning. AIAA Paper 2022–1244, 2022. doi:10.2514/6.2022-1244.

[23] Kevin T. Doetsch Krzysztof J. Fidkowski. A combined entropy and output-based adaptive approach using a stabilized continuous finite element formulation. AIAA Paper 2022–0581, 2022. doi:10.2514/6.2022-0581.

[24] Krzysztof J. Fidkowski, Rakesh Halder, and Kevin J. Maki. Model reduction using interpolated systems of equations. AIAA Paper 2022–2323, 2022. doi:10.2514/6.2022-2323.

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[26] Vivek Ojha, Krzysztof J. Fidkowski, and Carlos E. S. Cesnik. Adaptive mesh refinement for fluid-structure interaction simulations. AIAA Paper 2021–0731, 2021. doi:10.2514/6.2021-0731.

[27] Ping He, Rakesh Halder, Krzysztof J. Fidkowski, Kevin J. Maki, and Joaquim R. R. A. Martins. An efficient nonlinear reduced-order modeling approach for rapid aerodynamic analysis with openfoam. AIAA Paper 2021–1476, 2021. doi:10.2514/6.2021-1476.

[28] Kaihua Ding and Krzysztof Fidkowski. Acceleration of adjoint-based adaptation through sub-iterations for unsteady simulations. AIAA Paper 2021–0155, 2021. doi:10.2514/6.2021-0155.

[29] Gary Collins, Krzysztof Fidkowski, and Carlos E. Cesnik. Petrov-Galerkin projection-based model reduction with an optimized test space. AIAA Paper 2020–1562, 2020. doi:10.2514/6.2020-1562.

[30] Devina P. Sanjaya, Krzysztof J. Fidkowski, and Scott M. Murman. Comparison of algorithms for high-order metric-based mesh optimization. AIAA Paper 2020–1141, 2020. doi:10.2514/6.2020-1141.

[31] Vivek Ojha, Krzysztof J. Fidkowski, Carlos E. Cesnik, Philip S. Beran, and Nathan A. Wukie. Assessment of mesh resolution requirements for adaptive high-order fluid structure interaction simulations. AIAA Paper 2020–1051, 2020. doi:10.2514/6.2020-1051.

[32] Krzysztof J. Fidkowski and Guodong Chen. A machine-learning anisotropy detection algorithm for output-adapted meshes. AIAA Paper 2020–0341, 2020. doi:10.2514/6.2020-0341.

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[34] Qingzhao Wang, Carlos E.S. Cesnik, and Krzysztof J. Fidkowski. Multivariate recurrent neural network models for scalar and distribution predictions in unsteady aerodynamics. AIAA Paper 2020–1533, 2020. doi:10.2514/6.2020-1533.

[35] Gary Collins, Krzysztof J. Fidkowski, and Carlos E. S. Cesnik. Output error estimation for projection-based reduced models. AIAA Paper 2019–3528, 2019. doi:10.2514/6.2019-3528.

[36] Krzysztof J. Fidkowski. Output-based mesh optimization for the embedded discontinuous Galerkin method. AIAA Paper 2019–2950, 2019. doi:10.2514/6.2019-2950.

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[38] Kevin T. Doetsch and Krzysztof J. Fidkowski. Unsteady combined entropy and output-based adjoint approach for mesh refinement and error estimation. AIAA Paper 2019–2951, 2019. doi:10.2514/6.2019-2951.

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Presentations (other than the above conference proceedings)

1. Scale-Resolving Turbulence Simulations Through Adaptive High-Order Discretizations and Data-Enabled Model Refinements, Second High-Fidelity Industrial LES/DNS Symposium, 22 September, 2021. (Invited).

2. Adjoint-Based Mesh Optimization for Hybridized Discontinuous Galerkin Methods. Finite Elements in Fluids. Chicago, IL, 2019.

3. Improving Robustness of CFD Applications through Output-Based Adaptive Methods. Centre for Computational Science and Engineering. University of Toronto Institute for Aerospace Studies. April 5, 2018.

4. Improving CFD Robustness and Fidelity Through Output-Based Adaptive Methods. Fluid Dynamics Research Consortium Fall Seminar Series. Penn State University. November 16, 2017

5. Theory and Applications of Unstructured h-p Mesh Optimization for Computational Fluid Dynamics. Applied Mathematics Seminar UC Berkeley / Lawrence Berkeley Laboratory. December 13, 2017

6. Output-Based Adaptation for Chaotic Flow Simulations. 2017 SIAM Conference on Computational Science and Engineering, Atlanta, Georgia, 2017.

7. Advances in High-Order Adaptive Methods for Unsteady Problems. Recent progress on numerical analysis of higher order methods & industrial mathematics related on computational fluid dynamics. National Institute for Mathematical Sciences, Daejeon, Korea, 2016.

8. Introduction to Output-Based Error Estimation and Mesh Adaptation. Workshop on Mesh Movement and Adaptation in Adjoint-based Design Mazurski Raj, Masuria, Poland, 2015.

9. A Comparison of Hybrid and Standard Discontinuous Galerkin Methods for Output-Based Adaptive Simulations on Deformable Domains. 13th US National Congress on Computational Mechanics San Diego, California, 2015.

10. Error Estimation and Mesh Adaptation using Output Adjoints. 38th Advanced CFD Lecture Series. Von Karman Institute, Belgium, 2015 (Invited).

11. Output-Based Adaptive Methods for Unsteady Flow Problems. 38th Advanced CFD Lecture Series. Von Karman Institute, Belgium, 2015 (Invited).

12. Output-Based Adaptive Methods for Computational Fluid Dynamics. Computational and Applied Mathematics Seminar. Purdue University, 2015 (Invited).

13. Goal-Oriented Curved Mesh Optimization for High-Order Finite-Element Methods. 2015 SIAM Conference on Computational Science and Engineering, Salt Lake City, Utah, 2015.

14. New Directions in High-Order Adaptive Methods for Computational Fluid Dynamics. K.J. Fidkowski. Symposium in Honor of Antony Jameson's 80th birthday. Stanford, CA. November 2014 (Invited).

15. A Scalable Algebraic p-Multigrid Preconditioner for High-Order DG Discretizations of Convection-Dominated Flows. K.J. Fidkowski. U.S. National Congress on Computational Mechanics. July 2013 (Keynote).

16. Output-based Adaptive Methods for Large-Scale Aerodynamics Simulations. K.J. Fidkowski. Jameson, Roe, van Leer Symposium. San Diego, CA. June 2013 (Invited).

17. Output-Based Adaptive Methods for Steady and Unsteady Aerodynamics. K.J. Fidkowski. RTWH-Aachen University Applied Mathematics Seminar, May 2013 (Invited).

18. UQ Applications in Multiphase Flow and an Adaptive MLS Sampling Method. I.M. Asher and K.J. Fidkowski. Society for Industrial and Applied Mathematics Conference on Computational Science and Engineering, February 2013.

19. Output-Based Adaptation for Hybridized Discontinuous Galerkin Methods. P.N. Klein, J.P.S. Dahm, and K.J. Fidkowski. Society for Industrial and Applied Mathematics Conference on Computational Science and Engineering, February 2013.

20. Output-based hp-adaptive Simulations of High- Reynolds Number Compressible Flows. M.A. Ceze and K.J. Fidkowski. Society for Industrial and Applied Mathematics Conference on Computational Science and Engineering, February 2013.

21. Output-Based hp-Adaptive Methods for Steady and Unsteady Aerodynamics. K.J. Fidkowski. ICES, University of Texas, September 2012 (Invited).

22. Drag Output Error Estimation for Numerical Simulations of Two-Dimensional Flows. K.J. Fidkowski. Iowa State University, March 2012 (Invited).

23. Output-Based Adaptive Simulations of Unsteady Flows. K.J. Fidkowski. University of Michigan SIAM Student Conference (Plenary talk), November 2011.

24. Output-Based Error Estimation and Adaptation for Uncertainty Quantification. I.M. Asher and K.J. Fidkowski. US National Congress on Computational Mechanics, July 2011.

25. Output-Based Adaptive Simulations of Unsteady Flows. 7th International Congress on Industrial and Applied Mathematics, July 2011.

26. Gradient-Enhanced Response Surfaces for Uncertainty Propagation in Radiation-Hydrodynamics Simulations. C.S. Miranda, J.P. Dahm, and K.J. Fidkowski. 7th International Congress on Industrial and Applied Mathematics, July 2011.

27. Adjoint-Based Numerical Error Estimation for the Unsteady Compressible Navier-Stokes Equations. K.J. Fidkowski and I.M. Asher. SIAM Conference on Computational Science and Engineering. March 2011.

28. Is My CFD Mesh Adequate? A Quantitative Answer. Gas Dynamics Research Colloquium, University of Michigan. January 2011.

29. Progress in Mesh-Adaptive Discontinuous Galerkin Methods for CFD, German Aerospace Center Seminar, May 2009 (Invited). (Similar presentation at NASA Ames in June 2009)

30. Towards Automated Mesh Adaptation Using Simplex Cut Cells. K.J. Fidkowski. Computational Research in Boston Seminar (Invited), October 2007. (Similar presentation at NASA Ames in December 2007, and at a Computation for Design and Optimization seminar in May 2008).

31. A Cut-Cell Adaptive Method for High-Order Discretizations of the Compressible Navier-Stokes Equations. K.J. Fidkowski. 2007 Computational Science Graduate Fellowship Conference in Washington D.C. June 2007.

32. An Automated, Adaptive Cut-Cell Method for Triangles and Tetrahedra. K.J. Fidkowski, University of Michigan, February 1, 2007.

33. p-Multigrid solution of high-order discontinuous Galerkin discretizations of the Euler and compressible Navier-Stokes equations. K.J. Fidkowski, D.L. Darmofal. 12th Copper Mountain Conference on Multigrid Methods in Copper Mountain, Colorado. April 3, 2005.

34. Shock capturing and robust output-based adaptation for DG. G.E. Barter, K.J. Fidkowski, D.L. Darmofal. 7th World Congress on Computational Mechanics in Los Angeles, CA. July 16, 2006.