Mitch Wolff

Education

Institution	Field of Study	Degree/Date
Purdue University	Mechanical Engineering	Ph.D., 1995
Purdue University	Mechanical Engineering	M.S.M.E., 1989
Purdue University	Mechanical Engineering	B.S.M.E., 1983

Professional Experience

Position	Institution	Dates
Professor	Wright State University, Mech. & Mat. Eng.	08/14-current
Senior Mechanical Engineer	Rolls-Royce North American Corporation	05/13-08/14
Professor	Wright State University, Mech. & Mat. Eng.	08/12-05/13
Scientific Advisor for INVENT	Air Force Research Laboratory	09/08-08/12
Professor	Wright State University, Mech. & Mat. Eng.	09/95-08/08

Selected Publications (Total Journal/Conference over 155)

1. Bear, P. S., Wolff, M., Gross, A., Marks, C. R., Sondergaard, R., "Experimental Investigation of Total Pressure Loss Development in a Highly Loaded Low Pressure Turbine Cascade," *ASME Journal of Turbomachinery,* Vol. 140, No. 3, March 2018. doi: 10.1115/1.4038413.
2. Gross, A., Marks, C. R., Sondergaard, R., Bear, P., Wolff, J. M., "Experimental and Numerical Characterization of Flow through Highly Loaded Low-Pressure Turbine Cascade, AIAA J. of Propulsion and Power, Vol. 34, No. 1, Jan. 2018, pp. 27-39. doi: 10.2514/1.B36525.
3. Doty, J., Yerkes, K., Byrd, L., Murthy, J., Alleyne, A., Wolff, M., Hester, S., and Fisher, T., "Dynamic Thermal Management for Aerospace Technology: Review and Outlook," AIAA Journal of Thermophysics and Heat Transfer, Articles in Advance, Vol. 31, No. 1, Jan. 2017, pp. 86-98.
4. Acton, M., Wolff, M., List, M., "Computational Inlet Swirl Distortion Investigation of a High-Speed Compressor," *AIAA Paper 21-0387*, 59th AIAA Aerospace Sciences Meeting, SciTech, Virtual Event, Jan. 11-15 & 19-21, 2021.
5. Scott, M., Marks, C., Fletcher, N., Wolff, M., "Turbine Passage Vortex Response to Upstream Periodic Disturbances," *AIAA Paper 21-1090*, 59th AIAA Aerospace Sciences Meeting, SciTech, Virtual Event, Jan. 11-15 & 19-21, 2021.
6. Payne, N., Roberts, R., Wolff, M., McCoppin, J., and Elston, L., "Experimental Validation of a Aircraft Combined Power Generation and Thermal Management System using a Rankin Cycle," *AIAA Paper 20-3951*, 55th AIAA Joint Propulsion Conference, Propulsion and Energy Forum, Virtual Event, Aug. 24-26, 2020.
7. Fletcher, N., Marks, C., Wolff, M., "Turbine Secondary Flow Response to Upstream Periodic Unsteadines," *AIAA Paper 20-0834*, 58th AIAA Aerospace Sciences Meeting, SciTech, Orlando, FL, Jan. 6-10, 2020.
8. Knapke, C., Wolff, M., Johnston, D., "Blended Fan Blade Effects on Unsteady Aerodynamics," *AIAA Paper 20-0130*, 58th AIAA Aerospace Sciences Meeting, SciTech, Orlando, FL, Jan. 6-10, 2020.
9. Posada, N., Clark, J., Lethander, A., and Wolff, M., "Unsteady Flow Physics in the Trailing Edge Region of a Transonic Cascade," *AIAA Paper 19-4006*, 55th AIAA Joint Propulsion Conference, Propulsion and Energy Forum, Indianapolis, IN, Aug. 19-22, 2019.
10. Lanchman, T., List, M., and Wolff, M., "Improved Loss Modeling for a 2D Throughflow Compressor Design Code," *AIAA Paper 19-3908*, 55th AIAA Joint Propulsion Conference, Propulsion and Energy Forum, Indianapolis, IN, Aug. 19-21, 2019.
11. Fletcher, N., Marks, C., Sondergaard, R., Wolff, M., "Characterization of Periodic Unsteadiness Generator for Secondary Flow Studies," *AIAA Paper 19-0622*, 57th AIAA Aerospace Sciences Meeting, SciTech, San Diego, CA, Jan. 7-11, 2019.
12. Donovan, M., Wolff, M., Marks, C., Sondergaard, R., Veley, E., "Periodic Forcing of an Endwall Vortex in a Highly Loaded Low Pressure Turbine," *AIAA Paper 19-0621*, 57th AIAA Aerospace Sciences Meeting, SciTech, San Diego, CA, Jan. 7-11, 2019.
13. Knapke, C., Wolff, M., Johnston, D., "Blended Fan Blade Effects on Aerodynamic Forces," *AIAA Paper 19-1182*, 57th AIAA Aerospace Sciences Meeting, SciTech, San Diego, CA, Jan. 7-11, 2019.
14. Butt, N., Wolff, M., Roberts, R., and Patnaik, S., "A Dynamically Efficient, Transient High Energy Pulse System Model Analysis," *AIAA Paper 18-4489*, 16th AIAA International Energy Conversion Engineering Conference, Propulsion and Energy Forum, Cincinnati, OH, July 2018.

15. Butt, N., Wolff, M., Roberts, R., and Thomas, S., "A Cryogenic Palletized High Energy Pulse System," *AIAA Paper 18-4487*, 16th AIAA International Energy Conversion Engineering Conference, Propulsion and Energy Forum, Cincinnati, OH, July 2018.
16. Dickel, J., Marks, C., Sondergaard, R., and Wolff, M., "Optimization of a Non-Axisymmetric Endwall Contour for Front-Loaded High-Lift Low Pressure Turbines," *AIAA Paper 18-4918*, 54th AIAA Joint Propulsion Conference, Propulsion and Energy Forum, Cincinnati, OH, July 2018.
17. Fletcher, N., Marks, C., Petrie, R., Sondergaard, R., and Wolff, M., "Experimental Investigation of Endwall Flow Control for Front-Loaded Turbine Blades," *AIAA Paper 18-4436*, 54th AIAA Joint Propulsion Conference, Propulsion and Energy Forum, Cincinnati, OH, July 2018.
18. Dickel, J., Marks, C., Clark, J., Sondergaard, R., Wolff, M., "Non-Axisymmetric Endwall Contouring of Front-Loaded High-Lift Low Pressure Turbines," *AIAA Paper 18-2125*, 56th AIAA Aerospace Sciences Meeting, SciTech, Orlando, CA, Jan. 8-12, 2018.
19. Veley, E., Marks, C., Anthony, R., Sondergaard, R., Wolff, M., "Unsteady Flow Measurements in a Front Loaded Low Pressure Turbine Passage," *AIAA Paper 18-2124*, 56th AIAA Aerospace Sciences Meeting, SciTech, Orlando, CA, Jan. 8-12, 2018.
20. Veley, E., Marks, C., Anthony, R., Sondergaard, R., and Wolff, M., "Unsteady Flow Measurements in a Low Pressure Turbine Passage using Surface Mounted Thin Film Sensors," *AIAA Paper 17-4825*, 53rd AIAA Joint Propulsion Conference, Propulsion and Energy Forum, Atlanta, GA, July 2017.
21. Buettner, R., Roberts, R. A., Wolff, M., Behbahani, A., "Design of a Transient Variable Cycle Turbine Engine Model for System Integration with Controls," *AIAA Paper 17-1940*, 55th AIAA Aerospace Sciences Meeting, SciTech, Grapevine, TX, Jan. 9-13, 2017.
22. Sharpe, J., Bear, P. S., Wolff, M., Marks, C. R., Sondergaard, R., "Computational Investigation of Secondary Flow Structures in Low Pressure Turbines," *AIAA Paper 17-0108*, 55th AIAA Aerospace Sciences Meeting, SciTech, Grapevine, TX, Jan. 9-13, 2017.
23. Bracey, M., Nuzum, S. R., Roberts, R. A., Wolff, M., Zumberge, J., "Air Cycle Machine Transient Modeling with Exergy Analysis," *AIAA Paper 16-5004*, 14th AIAA International Energy Conversion Engineering Conference, Propulsion and Energy Forum, Salt Lake City, UT, July 24-27, 2016.
24. Donovan, A., Roberts, R. A., Wolff, M., "Enhanced ECS/Generator Models in an Integrated Air Vehicle Platform," *AIAA Paper 16-4915*, 14th AIAA International Energy Conversion Engineering Conference, Propulsion and Energy Forum, Salt Lake City, UT, July 24-27, 2016.
25. Bear, P. S., Wolff, M., Gross, A., Marks, C. R., Sondergaard, R., "Secondary Loss Production Mechanisms in a Low Pressure Turbine Cascade," *AIAA Paper 16-4554*, 52nd AIAA/SAE/ASEE Joint Propulsion Conference, Propulsion and Energy Forum, Salt Lake City, UT, July 24-27, 2016.
26. Donovan, A. B., Nuzum, S. R., Roberts, R. A., Wolff, M., "A Cryogenic Based Aviation Thermal Management System," 2016 AIAA Aviation Conference, Washington D.C. June 13-17, 2016.
27. Nuzum, S. R., Roberts, R. A., Wolff, M., "An Aerospace Vehicle Model Including a Cryogenic Thermal Subsystem," *AIAA Paper 16-0673*, 57th AIAA/ASCE/AHS/ASC Structural Dynamics, and Materials Conference, SciTech, San Diego, CA, Jan. 3-8, 2016.
28. Bear, P. S., Wolff, M., Marks, C. R., Sondergaard, R., "The Effect of Profile Contouring on Secondary Flow Structures in Low Pressure Turbines," *AIAA Paper 16-0113*, 54th AIAA Aerospace Sciences Meeting, SciTech, San Diego, CA, Jan. 3-8, 2016.
29. Marks, C. R., Sondergaard, R., Bear, P. S., Wolff, M., "Reynolds Number Effects on the Secondary Flow of Profile Contoured Low Pressure Turbines," *AIAA Paper 16-0114*, 54th AIAA Aerospace Sciences Meeting, SciTech, San Diego, CA, Jan. 3-8, 2016.

Professional Memberships

1) American Institute of Aeronautics and Astronautics, 1994-Present, Associate Fellow. 2) Society of Automotive Engineers, 1995-Present. 3) American Society of Mechanical Engineers, 1986-Present, Fellow. 4) American Society of Engineering Educators, 1993-Present.

Honors and Awards (Since Joining WSU)

1) Affiliate Societies Council, Dayton, Outstanding Engineers & Scientists Award, 2003. 2) College of Engineering and Computer Science Outstanding Faculty Member, 2001. 3) College of Engineering and Computer Science Outstanding Teacher Award, 1999. 4) ASEE Dow Outstanding New Educator Award, 1999 5) SAE Ralph R. Teetor Educational Award, 1999.

Selected Professional Service

Reviewer for Professional Journals: *ASME Journal of Turbomachinery*; *AIAA Journal of Power and Propulsion*; *Journal of Fluids and Structures*; *Journal of Aerospace Engineering*; *Journal of Sound and Vibration*; *International Journal of Modelling and Simulation, SAE Transactions, International Journal of Turbo and Jet Engines.*

Other Professional Service:; *ISHM Conference*, Covington, KY, August 10-13, 2009, Organizing Committee; *ISHM Conference*, Covington, KY, August 10-13, 2009, Session Chair – Subsystems Application Session; 50th AIAA Aerospace Science Meeting, Nashville, TN, Jan. 8-12, 2012, Session Chair – INVENT: Modeling & Simulation for Integrated Aircraft Systems; 57th AIAA Aerospace Science Meeting, San Diego, CA, Jan. 7-11, 2019, Session Chair – Modeling of Wall Bounded Flows; AIAA Propulsion & Energy, Virtual, Aug. 24-26, 2020, Session Chair – Turbomachinery Components.

Selected Professional Development Activities

AFRL/RB & NASA, Dayton, OH, "Sensitivity Analysis and Uncertainty Quantification Short Course," May 12-13, 2009, Wright State University/AFRL/WBI, Dayton, OH; "Introduction to Design of Experiments (DOE) Short Course," June 1-2, 2010, Wright State University/AFRL/WBI, Dayton, OH; "Design with Constructal Theory Short Course," June 3-4, 2010; von Karman Institute for Fluid Dynamics, Brussels, Belgium, "Engine Intake Aerothermal Design: Subsonic to High Speed Application," VKI Lecture Series, Nov. 14- 16, 2011; von Karman Institute for Fluid Dynamics, Wright State University, Dayton, OH, "Physics-Based Modeling & Simulation for Aerospace Systems," VKI Lecture Series, Aug. 21-23, 2012.