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Education

Doctor of Philosophy, Michigan State University, Mechanical Engineering, 2002

Doctoral Thesis: *The Velocity and Vorticity Fields of a Single Stream Shear Layer*

Journal Publications

1. Tan, C., Day, I., Morris, S.C., Wadia, A., 2010, "Spike-type Compressor Stall Inception, Detection and Control," *Ann. Rev. Fluid Mech.*, pp.
2. Mikrut, P., Cameron, J., Morris, S.C., 2009, "Blade Image Velocimetry," accepted for publication in *Measurement Science and Technology*.
3. Stephens, D.B., Morris, S.C., 2009, "Sound Generation by a Rotor Interacting with a Casing Turbulent Boundary Layer," *AIAA J.*, Vol 47, No. 11, pp 2698-2708.
4. Ma, R., Slaboch, P., Morris, S., 2009, "Fluid Mechanics of the flow excited Helmholtz resonator," *J. Fluid Mech.*, Vol 623, pp. 1-23.
5. Shannon, D., Morris, S.C., 2008, "Blunt trailing edge noise measurements using a large aperture phased array," *Int. J. of Aeroacoustics.*, Vol. 7 No 2, p. 147.
6. Stephens, D., Morris, S.C., 2008, "A method for quantifying the acoustic transfer function of a ducted rotor" *J. of Sound and Vibration*, Vol. 313, pp. 97-112.
7. Morris, S.C., Stolpa, S.R., Slaboch, P.E., Klewicki, J.C., 2007, "Near surface particle image velocimetry measurements in a transitionally rough-wall atmospheric boundary layer," *J. Fluid Mech.* 580, pp. 319-338.
8. Shannon, D., Morris, S.C., 2006, "Trailing edge flow physics with application to acoustic generation," *Experiments in Fluids*, Vol. 41, No. 5, pp. 777-788.
9. Shannon, D. W., Morris, S. C., Mueller, T. J., 2006, "Radiated Sound and Turbulent Motions in a Blunt Trailing Edge Flow Field," *International Journal of Heat and Fluid Flow*, V. 27, pp. 730-736.
10. A. Aksan, S.C. Morris, M. Toner, 2005, "Analysis of Desiccation and Vitrification Characteristics of Carbohydrate Films by Shear-Wave Resonators," *Langmuir*, Vol 21, pp. 2847-2854.
11. Morris, S.C., Foss, J.F., 2005, "Vorticity spectra in high Reynolds number anisotropic turbulence," *Phys. Fluids*, Vol. 17, 088102.
12. S.C. Morris, J.F. Foss, 2003, "Boundary Layer to Shear Layer - the Transition Region," *J. Fluid Mech.*, Vol. 494, pp.187-221.
13. S.C. Morris, J.F. Foss, 2003, "Transient Thermal Response of a Constant Temperature Anemometer," *Meas. Sci. Tech.*, Vol. 14, No. 3, pg. 251.

14. S.C. Morris, 2002, "Evaluation of Turbulence Statistics from Engine Fan Velocity Measurements," *SAE Transactions Journal of Passenger Cars - Mechanical Systems*, pp. 52-62.
15. I.S. Wichman, S.C. Morris, and A.W. McIntosh, 2002, "Experimental Measurements of Flow and Flame Spread in the Development of a Fire Testing Facility," *Experimental Thermal and Fluid Science*, Vol 25 pp. 595-603.
16. S.C. Morris, J.F. Foss, 2001, "An Aerodynamic Shroud: an Automotive Application," *Journal of Fluids Engineering*, vol. 123, No. 2, pp. 278-292.
17. S.C. Morris, D.R. Neal, J.F. Foss, and G.L. Cloud, 2001, "A moment-of-momentum flux mass air flow measurement device," *Measurement Science and Technology*, 12, pp. N9-N13.
18. S.C. Morris, J.J. Good, and J.F. Foss, 1998, "Velocity measurements in the wake of an automotive cooling fan," *Experimental Thermal and Fluid Science*, vol. 17, pp.100-106.

Conference Publications

2009

1. Slaboch, P., Ma, R., Morris, S.C., "Side window buffeting," Society of Automotive Engineers - Detroit, MI, March, 2009.
2. Shannon, D., Morris, S.C., Silver, J., "Circulation Control Acoustics" 15th AIAA/CEAS Aeroacoustics Conference, Miami, May, 2009.

2008

3. Shannon, D.S, Morris, S.C., "Sound generation by a blunt trailing edge," ASME Noise Control and Acoustics Division, Dearborn, MI, July, NCAD-2008-73052.
4. Stephens, D.B., Morris, S.C., "Self noise of a low speed ducted rotor," ASME Noise Control and Acoustics Division, Dearborn, MI, July, NCAD-2008-73029.
5. Vo, H.D., Morris, S.C., Cameron, J.D., "Control of short length scale rotating stall inception on a high-speed axial compressor with plasma actuation," ASME Turbo Expo 2008, GT2008-50967.
6. Bennington, M.A., Cameron, J.D., Morris, S.C., Chen, J.P., Legault, C., Barrows, S.T., McNulty, G.S., Wadia, A.R., "Investigation of tip-flow based stall criteria using rotor casing visualization," GT2008-51319.
7. Cameron, D.D., Morris, S.C., Barrows, S.T., Chen, J.P., "On the interpretation of casing measurements in axial compressors," GT2008-51371.
8. Morris, S.C., Cameron, J.D., Bennington, M.A., McNulty, G.S., Wadia, A.R., "Performance and short length-scale disturbance generation in an axial compressor with non-uniform tip clearance," GT2008-51372.
9. VanNess, D.K., Corke, T.C., Morris, S.C., "Tip clearance flow visualization of a turbine blade cascade with active and passive flow control," GT2008-50703.
10. Stephens, J.E., Corke, T.C., Morris, S.C., "Turbine blade tip leakage flow control: thick/thin blade effects and separation line studies," GT2008-50705.
11. Slaboch, P., Ma, R., Morris, S., "Vortical-acoustic interactions in a flow-excited Helmholtz resonator at low Mach numbers," AIAA-2008-2849.

12. Stephens, D, Morris, S., Blake, W., “Sound Generation by a rotor ingesting a casing turbulent boundary layer,” AIAA-2008-2990.
13. Ross, M., Shanon, D., Blake, W., and Morris, S., “Unsteady Lift and Radiated sound generated by a 2D airfoil in a single stream shear layer,” AIAA-2008-2963.
14. Ross, M., Shannon, D., Morris, S., “Unsteady lift and radiated sound generated by a circular-cylinder in a single stream shear layer,” AIAA-2008-2962.
15. Shannon, D., Morris, S., “Experimental investigation fo slotted circulation control airfoil acoustics,” AIAA-2008-2815.
16. Morris, S., “Interior duct wall pressure downstream of a low-speed rotor,” AIAA-2008-2893.
17. Matlis, E., Corke, T., Cameron, J., Morris, S., Fay, P., “High-Bandwidth Plasma Sensor Suite for High-Speed High-Enthalpy Measurements,” AIAA-2008-243.

2007

18. Cameron, J. D., Morris, S.C., 2007, “Spatial correlation based stall inception analysis,” ASME GT2007-28268, 12 pages.
19. Bennington, M.A., Cameron, J.D., Morris, S.C., Gendrich, C.P., 2007, “Over rotor casing surface streak measurements in a high speed axial compressor,” ASME GE2007-28273, 11 pages.
20. Cameron, J.D., Bennington, M.A., Ross, M.H., Morris, S.C., and Corke, T.C., 2007, “Effects of steady tip clearance asymmetry and rotor whirl on stall inception in an axial compressor,” ASME-GT2007-28278, 12 pages.
21. Stephens, J., Corke, T., Morris, S., 2007, “Turbine Blade Tip Leakage Flow Control: Thick/Thin Blade Effects,” 45th Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA-2007-646.
22. Van Ness, D., Corke, T., Morris, S., 2007, “Stereo PIV of a Turbine Tip Clearance Flow with Plasma Actuation,” 45th Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA-2007-0647.

2006

23. Slaboch, P., Morris, S., 2006, “Sound and vibration produced by an airfoil tip in a turbulent boundary layer flow with an elastic endwall,” 12th AIAA/CEAS Aeroacoustics Conference, Cambridge, MA, AIAA 2006-2408.
24. Stephens, D., Morris, S., 2006, “The effect of blade loading on sound sources in a ducted rotor,” 12th AIAA/CEAS Aeroacoustics Conference, Cambridge, MA, AIAA 2006-2683.
25. Douville, T., Stephens, J., Corke, T., Morris, S., “Turbine Blade Tip Leakage Flow Control by Partial Squealer Tip and Plasma Actuators,” 44th Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA-2006-0020.
26. Cameron, J., Gendrich, C., Corke, T., Morris, S., “A transonic axial compressor facility for fundamental research and flow control development,” 44th Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA-2006-0416.
27. Ma, R., Morris, S., Corke, T., “Preliminary design of a transonic research turbine facility,” 44th Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA-2006-1311.

28. Van Ness, D., Corke, T., Morris, S., "Turbine tip clearance flow control using plasma actuators." 44th Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA-2006-0021.

2005

29. D. Shannon, S.C. Morris, 2005, "Trailing Edge Flow Physics and Acoustics," *Turbulent Shear Flows Phenomenon -4*, Blacksburg, VA, June.
30. D. Shannon, S.C. Morris, 2005, "Trailing Edge Acoustics," AIAA Aeroacoustics Meeting, Monterey, CA, May, AIAA 2005-2957.
31. D. Stephens, S.C. Morris, 2005, "Acoustics of a ducted propeller " AIAA Aeroacoustics Meeting, Monterey, CA, May.
32. S.C. Morris, T.C. Corke, D. VanNess, J Stephens, T. Douville, "Tip Clearance Control Using Plasma Actuators," 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA 2005-0782.

2004

33. D. Shannon, S.C. Morris, 2004, "Visualization of blunt trailing edge turbulence," *11th International Symposium on Flow Visualization*, Notre Dame, IN.
34. P. Slaboch, S. Stolpa, S.C. Morris, 2004, "Spatially Resolved Near Surface Motions in the Atmospheric Boundary Layer Using PIV," *11th International Symposium on Flow Visualization*, Notre Dame, IN.
35. S.C. Morris, R. Nofke, T.J. Mueller, 2004. "The effects of inflow turbulence on propeller wake flow using Fourier and Karhunen-Loeve basis Vectors," 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, AIAA 2004-0687.

1996-2003

36. S.C. Morris, J.F. Foss, A. Hellum, 2003, "Velocity-Vorticity Decomposition of the Reynolds Stress Gradient in a Shear Layer," *Turbulent Shear Flows Phenomenon - 3*, Sendai, Japan.
37. J.F. Foss, S.C. Morris, 2002, "Velocity Vorticity Product in Boundary and Shear Layers," IUTAM symposium on high Reynolds numbers, Princeton, NJ.
38. S.C. Morris, J.F. Foss, 2002 "Scaling of vorticity in a shear layer," IUTAM symposium on high Reynolds numbers, Princeton, NJ.
39. S.C. Morris, (2001), "Evaluation of Turbulence Statistics From Engine Cooling Fan Velocity Measurements," SAE Vehicle Thermal Management Systems 5, paper no. 2001-01-1710, May.
40. J.F. Foss, T.J. Hicks, D. Neal, and S. Morris (1999), "Operating Experience of the Pulse Width Modulated-Constant Temperature Anemometer," AIAA 30th Fluid Dynamics Conference and Exhibit, July.
41. D.R. Neal, S.C. Treat, S.C. Morris, and J.F. Foss (1999), "Using Particle Image Velocimetry (PIV) Measurements to Evaluate Blade Designs for Axial Fans," Proceedings of the 3rd International Workshop on PIV-99, Santa Barbara, CA, pp 657-662.
42. S.C. Morris, T.J. Hicks, and J.F. Foss (1999), "Transient Thermal Response of a Constant Temperature Anemometer," Proceedings of the 3rd ASME/JSME Joint Fluids Engineering Conference, San Francisco, paper no. FEDSM99-7350.

43. N.G. Humbad, J.F. Foss, R.A. Porda, S.C. Morris, R.J. Prevost and D.G. Johnson (1998), "Noise and Flow Measurements in an Automotive Blower Scroll," ASME Noise Control and Acoustics DIV, NCA-Vol 25.
44. S.C. Morris, J.F. Foss and J.E. Pakkala (1997) "The Automotive Cooling Fan Research and Development Facility," SAE Vehicle Thermal Management Systems, paper no. 971784, May.
45. S.C. Morris and J.F. Foss (1997) "Integral Performance Measurements and Detailed Flow Field Observations for a 1994 Ford Explorer Cooling Fan," SAE Vehicle Thermal Management Systems, paper no. 971794, May.
46. S.C. Morris and J.F. Foss (1997) "The Aerodynamic Shroud: An Automotive Application," ASME/FED Summer Meeting, paper no. FEDSM97-3277, July.
47. S.C. Morris, J.J Good, J.F. Foss, (1996) "Velocity Measurements in the Wake of an Automotive Cooling Fan," Engineering Turbulence Modeling and Experiments 3, Proceedings of the 3rd International Symposium on Engineering Turbulence Modelling and Measurements, ed. W. Rodi and G Bergeles, Heraklion-Crete, Greece, pp. 785-794, May.