# CURRICULUM  VITAE

## CHARLES MENEVEAU

Louis M. Sardella Professor, Department of Mechanical Engineering
Professor, Department of Physics and Astronomy (joint)
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**Birth Date:**  December 04, 1960 (Paris, France).

**Education:**  Ph.D. in Mechanical Engineering: Yale University, May 1989
Master of Philosophy:          Yale University, 1988
Master of Science:              Yale University, 1987
B.S. in Mechanical Engineering:  Universidad Técnica Federico Santa
                                  María, Valparaíso (Chile), 1985

**Positions:**  2005 – present:  L.M. Sardella Professor of Mechanical Engineering, JHU
2009 – present:  Associate Director, Institute for Data Intensive and  Engineering Science (IDIES).
2018 – present:  Secondary appointment as Professor in the Department of Physics & Astronomy, Krieger School or Arts & Sciences, Johns Hopkins University.
June-August, '13: Visiting Professor, EPFL Lausanne, Switzerland
May 2013:  Visiting Professor, Università di Roma Tor Vergata, Italy
March-April '13:  Visiting Professor, École Normale Supérieure de Lyon, France
2012 – Febr.'13:  Visiting Professor, University of Melbourne, Australia
2001 –2012:  Director, Center for Environmental and Applied Fluid Mechanics (CEAFM).
2016 – present:  Secondary appointment as Professor in the Department of Environmental Health and Engineering (EHE), Whiting School of Engineering, JHU.
2001 – 2016:  Secondary appointment in Department of Geography and Environmental Engineering (DoGEE), JHU.
2002 – 2004:  Vice-Chair, Department of Mechanical Engineering
1996 – 2005:  Professor, JHU
1999 – 2000:  Visiting Professor, École Centrale de Paris, France
1994 – 1996:  Associate Professor, Johns Hopkins University
1990 – 1994:  Assistant Professor, Johns Hopkins University
1989 – 1990:  Postdoctoral Fellow, Center for Turbulence Research (Stanford University / NASA Ames Research Center)
05-09 – 1989:  Postdoctoral Fellow, Yale University
1986  – 1989:  Research Assistant, Yale University.

**Society Memberships:**
- American Academy of Mechanics, Fellow.
- American Society of Mechanical Engineers, Fellow.
- American Physical Society, Fellow.
- American Geophysical Union, Member.
- American Institute for Aeronautics and Astronautics, Senior Member.

**Awards and Honors:**
- Recipient, 2021 Fluid Dynamics Award from the American Institute of Aeronautics and Astronautics (AIAA), "for advancing both the theoretical and practical understanding of turbulence through groundbreaking modeling techniques and applications of large-eddy simulation."
- Recipient, Miegunyah Distinguished Visiting Fellows Program, 2020, University of Melbourne, Australia (postponed due to Covid).
- Elected member, National Academy of Engineering (2018), *"for contributions to turbulence small-scale dynamics, large-eddy simulations, wind farm fluid dynamics, and leadership in the fluid dynamics community"*.
- Awarded honorary doctorate from the Danish Technical University, *Doctor Tecnices, Honoris Causa* (2016) for "*Outstanding and highly innovative scientific achievements in fluid dynamics, particularly for his work on turbulence and atmospheric physics and its applications to wind energy*".
- Midwest Mechanics Lecturer (2014-2015).
- Fulbright Scholar, US-Australia Fulbright Scholarship (Sept. 2012-Febr. 2013).
- Stanley Corrsin Lecturer, Johns Hopkins University (2012).
- First recipient of the Stanley Corrsin Award from the American Physical Society (2011), citation: "*For his innovative use of experimental data and turbulence theory in the development of advanced models for large-eddy simulations, and for the application of these models to environmental, geophysical and engineering applications.*"
- Foreign corresponding member of the Chilean Academy of Sciences (2005).
- Appointed to the Louis M. Sardella Professorship in Mechanical Engineering (2005).
- UCAR Outstanding Publication Award for co-authorship of the paper by Horst *et al.*, that appeared in J. Atmospheric Science in 2004.
- Johns Hopkins University Alumni Association Excellence in Teaching Award (2003).
- François N. Frenkiel Award for Fluid Mechanics, American Physical Society (2001).
- Henry P. Becton Prize for Excellence in Research, Yale University (1989).
- Premio Federico Santa María, UTFSM Valparaíso, Chile (1985).

**Editorships and other professional synergistic activities:**
- Deputy Editor, Journal of Fluid Mechanics (April 2010 - present).
- Chair, American Physical Society, Division of Fluid Dynamics (2019).
- Key participant in the development and maintenance of the JHTDB (Johns Hopkins Turbulence Databases) open numerical laboratory (2008-present).

- Editor-in-Chief, Journal of Turbulence (2003 - 2015).
- Associate Editor, Journal of Fluid Mechanics (September 2005 - 2010).
- Member Editorial Committee, Annual Rev. of Fluid Mechanics (2005-2010).
- Member Advisory Board, Theor. & Comp. Fluid Dynamics (2001 - present).
- Associate Editor, Physics of Fluids (2001 - 2003).
- Guest Associate Editor, Annual Reviews of Fluid Mechanics (2003).

## Expertise:

Professor Meneveau's research is focused on understanding and modeling hydrodynamic turbulence, and complexity in fluid mechanics in general. Special emphasis is placed on the multiscale aspects of turbulence, using tools such as subgrid-scale modeling, downscaling techniques, and fractal geometry. Applications of the results to Large Eddy Simulation (LES) have facilitated applications of LES to engineering, environmental and geophysical flow phenomena. Currently Meneveau is focused on applications of LES to wind energy and wind farm fluid dynamics, on developing advanced wall models for LES, as well as on building "big-data" tools to share the very large data sets that arise in computational fluid dynamics with broad constituencies of scientists and engineers around the world.

## Publications in refereed journals:

1. W. Wu, C. Meneveau, R. Mittal, A. Padovan, C. Rowley & L. Cattafesta: "Response of a Turbulent Separation Bubble to Zero-Net-Mass-Flux Jet Perturbations" (2022), submitted to Phys. Rev. Fluids (under review).

2. P. Clark Di Leoni, L. Lu, C. Meneveau, G.E. Karniadakis & T. Zaki, "Neural operator prediction of linear instability waves in high-speed boundary layers" (2022), submitted to J. Comp. Phys. (under review).

3. S. Kumar, C. Meneveau and G. Eyink: "Perturbative model for the second order velocity structure function tensor in turbulent shear flows" (2022), Phys. Rev. Fluids (submitted, under review).

4. Y. Luo, Y. Shi and C. Meneveau, "Multifractality in a nested velocity gradient model for intermittent turbulence" (2022), Phys. Rev. Fluids **7**, 014609.

5. A. Aiyer and C. Meneveau, "Resolved and subgrid-scale crossing trajectory effects in Eulerian large eddy simulations of polydisperse droplet transport" (2022), J. Fluid Mech. **935**, A-15.

6. M. Fowler, T.A. Zaki and C. Meneveau, "A Lagrangian relaxation towards equilibrium wall model for large eddy simulation" (2022), J. Fluid Mech. **934**, A44.

7. M. Bastankhah, C.R. Shapiro, S. Shamsoddin, D.F. Gayme and C. Meneveau, "A vortex sheet based analytical model of the curled wake behind yawed wind turbines" (2022), J. Fluid Mech. **933**, A2.

8. K.M. Womack, R.J. Volino, C. Meneveau, and M.P. Schultz, "Turbulent boundary layer flow over regularly and irregularly arranged truncated cone surfaces", 2022, J. Fluid Mech. **933**, A38.

9. G.M. Starke, C. Meneveau, J.R. King and D.F. Gayme, "The Area Localized Coupled Model for Analytical Mean Flow Prediction in Arbitrary Wind Farm Geometries" (2021), J. Renew. Sust. Energy **13**, 033305.

10. G. Narasimhan, C. Meneveau & T.A. Zaki, "Large Eddy Simulation of transitional wall-bounded flows using a machine learning classifier to distinguish laminar and turbulent regions" (2021), Phys. Rev. Fluids **6**, 074608.

11. P. Clark Di Leoni, T. Zaki, G.E. Karniadakis & C. Meneveau, "Two-point stress-strain rate correlation structure and non-local eddy viscosity in turbulent flows" (2021), J. Fluid Mech. **914**, A6.

12. M. Ge, D.F. Gayme and C. Meneveau, "Large-eddy simulation of wind turbines immersed in the wake of a cube-shaped building" (2021) Renewable Energy **163**, 1063-1077.

13. A. Aiyer and C. Meneveau, "Coupled population balance and large eddy simulation model for polydisperse droplet evolution in a turbulent round jet" (2020), Phys. Rev. Fluids **5**, 114305.

14. C. Meneveau, "A note on fitting a generalized Moody diagram for wall modeled Large Eddy Simulations" (2020), J. Turbulence **21**, 650-673.

15. R. Mittal, C. Meneveau & W. Wu, "A Mathematical Framework for Estimating Risk of Airborne Transmission of COVID-19 with Application to Facemask Use and Social Distancing" (2020), Phys. Fluids **32**, 101903.

16. C. Shapiro, D.F. Gayme & C. Meneveau, "Generation and decay of counter-rotating vortices downstream of yawed wind turbines in the atmospheric boundary layer" (2020), J. Fluid Mech. **903**, R2.

17. Z. Wu, T.A. Zaki & C. Meneveau, "Data compression for turbulence databases using spatio-temporal sub-sampling and local re-simulation" (2020), Phys. Rev. Fluids. **5**, 064607.

18. Z. Wu, T. Zaki & C. Meneveau, "High-Reynolds-number fractal signature of nascent turbulence during transition" (2020), Proc. Nat. Acad. Sci. **117**, 3461-3468.

19. W. Wu, R. Mittal & C. Meneveau, "Total mechanical energy transport lines and attractors in separating turbulent boundary layers" (2020), Phys. Rev. Fluids **5**, 012601(R).

20. W. Wu, C. Meneveau and R. Mittal "Spatio-temporal dynamics of turbulent separation bubbles" (2020), J. Fluid Mech. **883**, A45.

21. Chamecki, M., Chor, T., Yang, D., & Meneveau, C. (2019). Material transport in the ocean mixed layer: Recent developments enabled by large eddy simulations. Reviews of Geophysics, **57**, 1338-1371.

22. P. Veers, Dykes, K., Lantz, E., Barth, S., Bottasso, C.L., Carlson, O., Clifton, A., Green, J., Green, P., Holttinen, H., Laird, D., Meneveau, C. *et al.,* "Grand challenges in the science of wind energy" (2019). Science **366**, 443.

23. K.M. Womack, C. Meneveau and M.P. Schultz, "Comprehensive shear stress analysis of turbulent boundary layer profiles" (2019), J. Fluid Mech. **879**, 360-389.

24. A. K. Aiyer, D. Yang, M. Chamecki, and C. Meneveau: "Population Balance Modeling in a Large Eddy Simulation Framework" (2019), J. Fluid Mech. **878**, 700-739.

25. C.R. Shapiro, D.F. Gayme & C. Meneveau: "Filtered actuator disks: Theory and application to wind turbine models in large eddy simulation" (2019), Wind Energy **22**, 1414-1420.

26. C.R. Shapiro, G.M. Starke, C. Meneveau and D.F. Gayme: "A Wake Modeling Paradigm for Wind Farm Design and Control" (2019), Energies **12**, 2956.

27. C. Meneveau, "Big wind power: Seven questions for turbulence research" (2019), J. Turbulence **20**, 2-20.

28. Z. Wu, J. Lee, C. Meneveau and T. Zaki, "Application of a self-organizing map to identify

the turbulent-boundary-layer interface in a transitional flow" (2019), Phys. Rev. Fluids **4**, 023902.

29. X.I.A. Yang and C. Meneveau, "Hierarchical random additive model for wall-bounded flows at high Reynolds numbers" (2019), Fluid Dynamics Research **51**, 011405.

30. L.A. Martínez-Tossas and C. Meneveau, "Filtered lifting line theory and application to the actuator line model" (2019), J. Fluid Mech**. 863**, 269-292.

31. J. Bossuyt, C. Meneveau, & J. Meyers, "Effect of layout on asymptotic boundary layer regime in deep wind farms" (2018), Phys. Rev. Fluids **3**, 124603.

32. T. Chor, D. Yang, C. Meneveau & M. Chamecki, "A turbulence velocity scale for predicting the fate of buoyant materials in the Oceanic Mixed Layer" (2018), Geophys. Res. Lett. **45**, 11,817–11,826.

33. L.A. Martínez-Tossas, M.J. Churchfield, A.E. Yilmaz, H. Sarlak, P.L. Johnson, J.N. Sørensen, J. Meyers, C. Meneveau, "Comparison of four LES research codes and effects of model coefficient and inflow turbulence in actuator line based wind turbine modeling" (2018), J. Renew. Sust. Energy **10**, 033301.

34. B. Chen, D. Yang, C. Meneveau and M. Chamecki, "A Numerical Study of the Effects of Chemical Dispersant on Oil Transport from an Idealized Underwater Blowout" (2018), Phys. Rev. Fluids **3**, 083801.

35. J.U. Bretheim, C. Meneveau,1 & D.F. Gayme, "The restricted nonlinear large eddy simulation approach to reduced-order wind farm modeling" (2018), J. Renew. Sust. Energy **10**, 043307.

36. E. Ramudu, R. Gelderloos, D. Yang, C. Meneveau and A. Gnanadesikan, "Large eddy simulation of heat entrainment under Arctic sea ice" (2018), J. Geophys. Res.-Oceans **123**, 287-304.

37. T. Chor, D. Yang, C. Meneveau & M. Chamecki, "Preferential concentration of noninertial buoyant particles in the ocean mixed layer under free convection" (2018), Phys. Rev. Fluids **3**, 064501.

38. L.J. Lukassen, R.J.A.M. Stevens, C. Meneveau and M. Wilczek, " Modeling space-time correlations of velocity fluctuations in wind farms" (2018), Wind Energy **21**, 474-487.

39. M. Danish & C. Meneveau, "Multi-scale analysis of the invariants of velocity gradient tensor in isotropic turbulence" (2018), Phys. Rev. Fluids **3**, 044604.

40. I. Hameduddin, C. Meneveau, T.A. Zaki and D.F. Gayme, "Geometric decomposition of the conformation tensor in viscoelastic turbulence" (2018), J. Fluid Mech. **842**, 395-427.

41. J.H. Elsas, A. Szalay and C. Meneveau, "Geometry and scaling laws of excursion and iso-sets of enstrophy and dissipation in isotropic turbulence" (2018), J. Turbulence **19**, 297-321.

42. C. Shapiro, D.F. Gayme & C. Meneveau, "Modelling yawed wind turbine wakes: a lifting line approach" (2018), J. Fluid Mech. **841**, R1, 1-12.

43. C. Shapiro, J. Meyers, C. Meneveau & D.F. Gayme, "Wind farms providing secondary frequency regulation: Evaluating the performance of model-based receding horizon control" (2018), Wind Energy Science **3**, 11-24.

44. M. Buzzicotti, M. Linkmann, H. Aluie, L. Biferale, J. Brasseur and C. Meneveau, "Effect of filter type on the statistics of energy transfer between resolved and subfilter scales from a-priori analysis of direct numerical simulations of isotropic turbulence" (2018), J. Turbulence **19**, 167-197.

45. J. Bretheim, C. Meneveau and D.F. Gayme, "A restricted nonlinear large eddy simulation model for high Reynolds number flows" (2018), J. Turbulence **19**, 141-166.

46. P. Johnson and C. Meneveau, "Predicting viscous-range velocity gradient dynamics in large-eddy simulations of turbulence" (2018), J. Fluid Mech. **837**, 80-114

47. R.J.A.M. Stevens, L.A. Martinez-Tossas, & C. Meneveau, "Comparison of wind farm large eddy simulations using actuator disk and actuator line models with wind tunnel experiments" (2018), Renewable Energy **116**, 470-478.

48. P. Johnson & C. Meneveau, "Turbulence intermittency in a multiple-time scale, Navier-Stokes based reduced model" (2017), Phys. Rev. Fluids **2**, 072601(R).

49. X.I.A. Yang, R. Badya, P. Johnson, I. Marusic & C. Meneveau, "Structure function tensor scaling in the logarithmic region from attached eddy model of wall-bounded turbulent flows" (2017), Phys. Rev. Fluids 2, 064602.

50. J. Bossuyt, C. Meneveau, & J. Meyers, "Wind farm power fluctuations and spatial sampling of turbulent boundary layers" (2017), J. Fluid Mech. **823**, 329-344.

51. C. Shapiro, P. Bauweraerts, J. Meyers, C. Meneveau & D.F. Gayme, "Model-based receding horizon control of wind farms for secondary frequency regulation" (2017), Wind Energy **20**, 1261-1275.

52. L.A. Martinez-Tossas, M. Churchfield & C. Meneveau: "Optimal smoothing length scale for actuator line models of wind turbine blades based on Gaussian body force distribution" (2017), Wind Energy **20**, 1083-1096.

53. J. Sadique, X.I.A. Xiang, C. Meneveau & R. Mittal: "Aerodynamic properties of rough surfaces with high aspect--ratio roughness elements - Effect of aspect--ratio and arrangements" (2017), Bound. Layer Met. **163**, 203-224.

54. P. Johnson & C. Meneveau, ""Restricted Euler dynamics along trajectories of small inertial particles in turbulence" (2017), J. Fluid Mech. **816**, R2.

55. J. Bossuyt, M.F. Howland, C. Meneveau & J. Meyers, "Measurement of unsteady loading and power output variability in a micro wind farm model in a wind tunnel" (2017), Exp. in Fluids **58**, 1.

56. X.I.A. Yang & C. Meneveau: "Modeling turbulent boundary layer flow over fractal-like multiscale terrain using Large Eddy Simulations and analytical tools" (2017), Phil. Trans. R. Soc. A, **375**, 20160098.

57. R.J.A.M. Stevens & C. Meneveau, "Flow structure and turbulence in wind farms", (2017), Annu. Rev. Fluid Mech. **49**, 311-339.

58. P. Johnson, S. Hamilton, R. Burns & C. Meneveau (2017), "Analysis of Lagrangian stretching in turbulent channel flow using a database task-parallel particle tracking algorithm", Phys. Rev. Fluids **2**, 014605.

59. S. Xie, C.L. Archer, N. Ghaisas and C. Meneveau, "Benefits of collocating vertical-axis and horizontal-axis wind turbines in large wind farms" (2017), Wind Energy **20**, 45-62.

60. X.I.A. Yang & C. Meneveau: "Large Eddy Simulations and parameterization of roughness element orientation and flow direction effects in rough wall boundary layers" (2016), J. Turbulence **17**, 1072-1085.

61. P. Johnson & C. Meneveau: "A closure for Lagrangian velocity gradient evolution in turbulence using recent deformation mapping of initially Gaussian fields" (2016). J. Fluid Mech. **804**, 387-419.

62. X.I.A. Yang, C. Meneveau, I. Marusic & L. Biferale: "Extended Self-similarity in Moment-

Generating-Functions in Wall-bounded Turbulence at High Reynolds Number" (2016), Phys. Rev. Fluids **1**, 044405.

63. R.J.A.M. Stevens, B.F. Hobbs, A. Ramos & C. Meneveau, "Combining economic and fluid dynamic models to determine the optimal spacing in very large wind farms", (2016), Wind Energy **20**, 465-477.

64. M.G. Giometto, A. Christen, C. Meneveau, J. Fang, M. Krafczyk, M.B. Parlange: "Spatial characteristics of roughness sublayer mean flow and turbulence over a realistic urban surface" (2016), Bound. Layer Met. **160**, 425-452.

65. M.F. Howland, J. Bossuyt, L.A. Martínez-Tossas,J. Meyers & C. Meneveau: "Wake Structure of Wind Turbines in Yaw under Uniform Inflow Conditions" (2016), J. Sust. Renew. Energy **8**, 043301.

66. X.I.A. Yang, I. Marusic & C. Meneveau: "A hierarchical random additive process and logarithmic scaling of generalized high order, two-point correlations in turbulent boundary layer flow" (2016), Phys. Rev. Fluids. **1**, 024402.

67. W. Munters. C. Meneveau & J Meyers, "Shifted periodic boundary conditions for simulations of wall-bounded turbulent flows"c (2016), Phys. Fluids **28**, 025112.

68. W. Munters, C. Meneveau & J. Meyers, "Turbulent inflow precursor method with time-varying direction for large-eddy simulations and applications to wind farms" (2016), Bound. Layer Met. **159**, 305-328

69. B. Chen, D. Yang, C. Meneveau & M. Chamecki: "ENDLESS: An Extended Non-periodic Domain Large-Eddy Simulation Approach for Scalar Plumes" (2015), Ocean Modeling **101**, 121-132.

70. D. Yang, B. Chen, S.A. Socolofsky, M. Chamecki & C. Meneveau, "Large-eddy simulation and parameterization of buoyant plume dynamics in stratified flow" (2016), J. Fluid Mech. **794**, 798-833.

71. L. Lignarolo, Mehta, D.; Stevens, R.; Yilmaz, A.E., van Kuik, G., Andersen, S.J., Meneveau, C, Simão Ferreira, C.J., Ragni, D., Meyers, J., van Bussel, G., Holierhoek, J. (2016), "Validation of four LES and a vortex model against stereo-PIV measurements in the near wake of an actuator disc and a wind turbine", Renewable Energy **94**, 510-52.

72. P. Johnson & C. Meneveau, "Large-deviation statistics of vorticity stretching in isotropic turbulence", (2016), Phys. Rev. E **93**, 033118.

73. H. Sarlak, T. Nishino, L.A. Martinez-Tossas, C. Meneveau & J.N. Sørensen: "Assessment of blockage effects on the wake characteristics and power of wind turbines" (2016), Renewable Energy **93**, 340-352.

74. R.J.A.M. Stevens, D. Gayme & C. Meneveau, "Generalized coupled wake boundary layer model: applications and comparisons with field and LES data for two real wind-farm" (2016), Wind Energy **19**, 2023-2040.

75. X.I.A. Yang, I. Marusic & C. Meneveau: "Moment generating functions and scaling laws in the inertial layer of turbulent wall bounded flows" (2016), J. Fluid Mech. **791**, R2.

76. X.I.A. Yang, J. Sadique, R. Mittal & C. Meneveau, "Exponential roughness layer and analytical model for turbulent boundary layer flow over rectangular-prism roughness elements" (2016), J. Fluid Mech. **789**, 127-165.

77. R.J.A.M. Stevens, D. Gayme & C. Meneveau, "Effects of turbine spacing on the power output of extended wind-farms" (2016), Wind Energy **19**, 359-370.

78. X.I.A. Yang & C. Meneveau, "Recycling inflow method for simulations of spatially evolving turbulent boundary layers over rough surfaces" (2015), J. Turbulence **17**, No.1, 75-93.

79. J. Graham, K. Kanov, X.I.A. Yang, M. K.Lee, N. Malaya, C.C. Lalescu, R. Burns, G. Eyink, A. Szalay, R.D. Moser, and C. Meneveau, "A Web Services-accessible database of turbulent channel flow and its use for testing a new integral wall model for LES" (2015), Journal of Turbulence **17:2**, 181-215.

80. F.J. Alexander, & C. Meneveau, "Open Simulation Laboratories [Guest editors' introduction]" (2015), Computing in Science & Engineering **17:5**, 7-9.

81. P. Johnson & C. Meneveau, "Large-deviation joint statistics of the finite-time Lyapunov spectrum in isotropic turbulence", (2015), Phys. Fluids **27**, 085110.

82. D. Yang, B. Chen, M. Chamecki & C. Meneveau: "Oil plumes and dispersion in Langmuir, upper-ocean turbulence: large-eddy simulations and K-profile parameterization" (2015), J. Geophysical Res.-Oceans **120**, 4729-4759.

83. M. Wilczek, R.J.A.M. Stevens & C. Meneveau, "Height-dependence of spatio-temporal spectra of wall-bounded turbulence – LES results and model predictions" (2015), J. Turbulence **16**, 937-949.

84. Sescu & C. Meneveau, "Large-Eddy Simulation and single-column modeling of thermally stratified wind turbine arrays for fully developed, stationary atmospheric conditions" (2015), J. Atmospheric and Oceanic Tech. **32**, 1144-1162.

85. V. Maldonado, L. Castillo, A. Thormann & C. Meneveau, "The Role of Free Stream Turbulence with Large Integral Scale on the Aerodynamic Performance of a Wind Turbine Blade" (2015), J. Wind Eng. & Ind. Aerodyn. **142**, 246-257.

86. R.J.A.M. Stevens, D. Gayme & C. Meneveau, "Coupled wake boundary layer model of wind-farms" (2015), J. Sust. Renew. Energy **7**, 023155.

87. K. Bai, J. Katz & C. Meneveau, "Turbulent flow structure inside a canopy with complex multi-scale elements" (2015), Bound. Layer Met **155**, 435-457.

88. C.M. de Silva, I. Marusic, J. D. Woodcock & C. Meneveau, "Scaling of second- and high-order structure functions in turbulent boundary layers" (2015), J. Fluid Mech. **769**, 654-686.

89. M. Wilczek, R. Stevens & C. Meneveau, "Spatio-temporal spectra in the logarithmic layer of wall turbulence: large-eddy simulations and simple models" (2015), J. Fluid Mech. **769**, R1.

90. X.I.A. Yang, J. Sadique, R. Mittal & C. Meneveau, "Integral Wall Model for Large Eddy Simulations of wall-bounded turbulent flows" (2015), Phys. Fluids **27**, 025112.

91. Thormann & C. Meneveau, "Decaying turbulence in the presence of a shearless uniform kinetic energy gradient" (2014), J. Turbulence **16**, No. 5, 442–459.

92. J.U. Bretheim, C. Meneveau & D.F. Gayme, "Standard logarithmic mean velocity distribution in a band-limited restricted nonlinear model of turbulent flow in a half-channel" (2015), Phys. Fluids **27**, 011702.

93. C. VerHulst & C. Meneveau: "Altering kinetic energy entrainment in LES of large wind farms using unconventional wind turbine actuator forcing" (2015), Energies **8**, 370-386.

94. H. Sarlak, C. Meneveau & J.N. Sørensen, "Role of subgrid-scale modelling in large eddy simulation of wind turbine wake interactions" (2015), Renewable Energy **77**, 386-399.

95. R.J.A.M. Stevens, M. Wilczek & C. Meneveau, "Large-eddy simulation study of the logarithmic law for second and higher-order moments in turbulent wall-bounded flow" (2014), J. Fluid Mech. **757**, 888-907.

96. M. Wilczek & C. Meneveau, "Pressure Hessian and viscous contributions to velocity gradient statistics based on Gaussian random fields" (2014), J. Fluid Mech. **756**, 191-225.

97. L. Biferale, C. Meneveau & R. Verzicco, "Deformation statistics of sub-Kolmogorov-scale ellipsoidal drops in isotropic turbulence" (2014), J. Fluid Mech. **754**, 184-207.

98. R.J.A.M. Stevens & C. Meneveau, "Temporal structure of aggregate power fluctuations in large-eddy simulations of extended wind-farms" (2014), J. Sust. Renew. Energy **6**, 0431002.

99. J. Boschung, P. Schaefer, N. Peters, and C. Meneveau, "The local topology of stream- and vortex lines in turbulent flows" (2014), Phys. Fluids **26**, 045107.

100. D. Yang, C. Meneveau & L. Shen, "Effect of swells on offshore wind energy harvesting - a Large-Eddy Simulation study" (2014), Renewable Energy **70**, 11-23.

101. D. Yang, M. Chamecki, C. Meneveau, "Inhibition of oil plume dilution due to Langmuir ocean circulation " (2014), Geophys. Res. Letts. **41**, 1632-1638.

102. R.J.A.M. Stevens, D. Gayme & C. Meneveau, "Large Eddy Simulation studies of the effects of alignment and wind farm length" (2014), J. Sust. Renew. Energy **6**, 023105.

103. R.J.A.M. Stevens, J. Graham, C. Meneveau , "A concurrent precursor inflow method for Large Eddy Simulations and applications to finite length wind farms" (2014), Renewable Energy **68**, 46-50.

104. Sescu & C. Meneveau, "A control algorithm for statistically stationary Large Eddy Simulations of thermally stratified boundary layers" (2014), Quart. J. Royal Met. Soc. **140**, 2017-2022.

105. VerHulst & C. Meneveau, "Large Eddy Simulation study of the kinetic energy entrainment by energetic turbulent flow structures in extended wind farms" (2014), Phys. Fluids **26**, 025113.

106. Thormann & C. Meneveau, "Decay of homogeneous, nearly isotropic turbulence behind active fractal grids" (2014), Phys. Fluids **26**, 025112.

107. Yang, C. Meneveau & L. Shen, "Large-Eddy Simulation of off-shore wind farm" (2014), Phys. Fluids **26**, 025101.

108. J. Phillip, C. Meneveau, C. de Silva & I. Marusic, "Multiscale analysis of fluxes at the turbulent/non-turbulent interface in high Reynolds number boundary layers" (2014), Phys. Fluids **26**, 01510.

109. L. Chevillard & C. Meneveau, "Orientation dynamics of small, triaxial-ellipsoidal particles in isotropic turbulence" (2013), J. Fluid Mech. **737**, 571-596.

110. G. Katul, A. Porporato, C. Manes, and C. Meneveau, "Co-spectrum and mean velocity in turbulent boundary layers" (2013), Phys. Fluids **25**, 091702.

111. C.M. de Silva, J. Philip, K. Chauhan, C. Meneveau & I. Marusic, "Multiscale geometry and scaling of the turbulent/non-turbulent interface in high Reynolds number boundary layers" (2013), Phys. Rev. Lett. **111**, 044501.

112. K. Bai, C. Meneveau & J. Katz, "Experimental study of spectral energy fluxes in turbulence generated by a fractal, tree-like object" (2013), Phys. Fluids **25**, 110810.

113. G. Eyink, E. Vishniac, C. Lalescu, H. Aluie, K. Kanov, K Bürger, R. Burns, C. Meneveau, & A. Szalay, "Flux-freezing breakdown observed in high-conductivity magnetohydrodynamic turbulence" (2013), Nature **497**, 466-469.

114. D. Yang, L. Shen & C. Meneveau, "An Assessment of Dynamic Subgrid-Scale Sea-Surface Roughness Models" (2013), Flow, Turb. & Comb. **91**, 541-563.

115. D. Yang, C. Meneveau & L. Shen, "Dynamic modeling of sea-surface roughness for large-eddy simulation of wind over ocean wavefield", (2013), J. Fluid Mech, **726**, 62-99.

116. A.J. Newman, J. Lebron, C. Meneveau, & L. Castillo, "Streamwise development of the wind turbine boundary layer over a model wind turbine array" (2013), Phys. Fluids **25**, 085108.

117. Meneveau & I. Marusic, "Generalized logarithmic law for high-order moments in turbulent boundary layers " (2013), J. Fluid Mech. **719**, R1.

118. C.C. Lalescu, C. Meneveau & G. Eyink, "Synchronization of Chaos in Fluid Turbulence" (2013), Phys. Rev. Lett. **110**, 0841102.

119. J. Meyers & C. Meneveau, "Flow visualization using momentum and energy transport tubes and applications to turbulent flow in wind farms", (2013), J. Fluid Mech. **715**, 335-358.

120. N. Hamilton, H.S. Kang, C. Meneveau & R.B. Cal, "Statistical analysis of kinetic energy entrainment in a model wind turbine array boundary layer", (2012), J. Sust. Renew. Energy **4**, 063105.

121. Meneveau, "Germano identity-based subgrid-scale modeling: a brief survey of variations on a fertile theme" (2012), Phys. Fluids **24**, 121301.

122. J. Graham & C. Meneveau, "Modeling turbulent flow over fractal trees using Renormalized Numerical Simulation: Alternate formulations and numerical experiments" (2012), Phys. Fluids **24**, 125105.

123. J. Lebrón, C. Castillo & C. Meneveau, "Experimental study of the kinetic energy budget in a wind turbine streamtube" (2012), J. Turbulence **13**, 43.

124. J. Hong, J. Katz, C. Meneveau & M. Schultz, "Coherent structures and associated subgrid-scale energy transfer in a rough-wall turbulent channel flow" (2012), J. Fluid Mech. **712**, 92-128.

125. H. Yu, K. Kanov, E. Perlman, J. Graham, E. Frederix, R. Burns, A.Szalay, G. Eyink & C. Meneveau, "Studying Lagrangian dynamics of turbulence using on- demand fluid particle tracking in a public turbulence database" (2012), J. Turbulence **13**, N. 12.

126. W. Anderson, P. Passalacqua, F. Porté-Agel & C. Meneveau, "Large-eddy simulation of atmospheric boundary layer flow over fluvial-like landscapes using a dynamic roughness model" (2012), Bound. Layer Met. **144**, 263-286.

127. Meneveau, "The top-down model of wind farm boundary layers and its applications" (2012), J. Turbulence **13**, N7.

128. K. Bai, C. Meneveau & J. Katz, "Near-wake turbulent flow structure and mixing length downstream of a fractal, tree-like object" (2012), Bound. Lay. Met. **143**, 285-308.

129. J. Meyers & C. Meneveau, "Optimal turbine spacing in fully developed wind-farm boundary layers" (2012), Wind Energy **15**, 305-317.

130. M. Calaf, M.B. Parlange & C. Meneveau, "Large Eddy Simulation study of scalar transport in fully developed wind-turbine array boundary layers" (2011), Phys. Fluids **23**, 126603.

131. L. Chevillard &C. Meneveau, "Lagrangian time correlations of vorticity alignments in isotropic turbulence: observations and model predictions" (2011), Phys. Fluids **23**, 101704.

132. L. Chevillard, E. Leveque, F. Taddia, C. Meneveau, H. Yu & C. Rosales, "Local and nonlocal pressure Hessian effects in real and synthetic fluid turbulence" (2011), Phys. Fluids **23**, 095108.

133. M. Chamecki & C. Meneveau, "Particle boundary layer above and downstream of an area source: scaling, simulations, and pollen transport" (2011), J. Fluid Mech. 683, 1-26.

134. H.S. Kang, D. Dennis & C. Meneveau, "Flow over fractals: drag forces and near wakes" (2011), Fractals **19**, 387-399.

135. C. Meneveau, "Lagrangian dynamics and models of the velocity gradient tensor in turbulent flows" (2011), Annual Rev. Fluid Mech. **43**, 219-245.

136. W. Anderson & C. Meneveau, "Dynamic roughness model for large-eddy simulation of turbulent flow over multiscale, fractal-like rough surfaces" (2011), J. Fluid Mech., **679**, 288-314.

137. G. Araya, L. Castillo, C. Meneveau & K. Jansen, "A dynamic multi-scale approach for turbulent inflow boundary conditions in spatially evolving flows" (2011), J. Fluid Mech., **670**, 581-605.

138. J. Meyers, C. Meneveau & B.J. Geurts, "Error-landscape-based multi-objective calibration of the Smagorinsky eddy-viscosity using high-Reynolds-number decaying turbulence data" (2010), Phys. Fluids **22**, 125106.

139. W. Anderson & C. Meneveau, "A large-eddy simulation model for boundary layer flow over surfaces with horizontally resolved but vertically unresolved roughness elements" (2010), Bound. Layer Met. **137**, 397-415.

140. H. Yu & C. Meneveau, "Scaling of conditional Lagrangian time correlation functions of velocity and pressure gradient magnitudes in isotropic turbulence" (2010), Flow, Turbulence & Combustion **85**, 457-472.

141. Bou-Zeid, C. Higgins, H. Huwald, C. Meneveau & M.B. Parlange, "Field study of the dynamics and modelling of subgrid scale turbulence in a stable atmospheric boundary layer over a glacier" (2010), J. Fluid Mech. **665**, 480-515.

142. V. Kumar, G. Svensson, A.A.M. Holtslag, C. Meneveau & M.B. Palange, "Impact of surface flux formulations and geostrophic forcing on Large-eddy simulations of diurnal atmospheric boundary layer flow" (2010), J. Applied Meteorology **49**, 1496-1516.

143. H.S. Kang & C. Meneveau, "Direct mechanical torque sensor for model wind turbines" (2010), Meas. Sci. & Tech. **21**, 105206.

144. P. Gualtieri & C. Meneveau, "Direct Numerical Simulations of Turbulence Subjected to a Straining and De-Straining Cycle" (2010), Phys. Fluids **22**, 065104.

145. M. Martins Afonso and C. Meneveau, "Recent Fluid Deformation closure for velocity gradient tensor dynamics in turbulence: time-scale effects and expansions" (2010), Physica D **239**, 1241-1250.

146. H. Yu & C. Meneveau, "Lagrangian Refined Kolmogorov Similarity Hypothesis for Gradient Time-evolution in Turbulent Flows" (2010), Phys. Rev. Lett. **104**, 084502

147. M. Wan, Z. Xiao, C. Meneveau, G. L. Eyink and S. Chen, Dissipation-energy flux correlations as evidence for the Lagrangian energy cascade in turbulence (2010), Phys. Fluids **22**, 061702.

148. R.B. Cal, J. Lebron, H.S. Kang, L. Castillo & C. Meneveau, "Experimental study of the horizontally averaged flow structure in a model wind-turbine array boundary layer" (2010), J. Renewable and Sustainable Energy **2**, 013106.

149. M. Calaf, C. Meneveau and J. Meyers, "Large Eddy Simulation study of fully developed wind-turbine array boundary layers" (2010), Phys. Fluids **22**, 015110.

150. C. Higgins, C. Meneveau & M.B. Parlange, "Geometric alignments of the subgrid-scale force in the atmospheric boundary layer" (2010), Bound. Layer Met., **132** DOI 10.1007/s10546-009-9385-3.

151. C. Meneveau, "Turbulence: Subgrid-Scale Modeling" (2010), Scholarpedia **5** (1), 9489.

152. M. Martin, M. Chamecki, G. Brush, C. Meneveau and M.B. Parlange, "Pollen clumping and wind dispersal in an invasive angiosperm" (2009), American J. of Botany **96**, 1703–1711.

153. B. Brzek, S. Torres-Nieves, J. Lebrón, R. Cal, C. Meneveau & L. Castillo, "Effects of free-stream turbulence on rough surface turbulent boundary layers" (2009), J. Fluid Mech. **635**, 207-243.

154. M. Chamecki, C. Meneveau & M.B. Parlange, "Large Eddy Simulation of pollen transport in the atmospheric boundary layer" (2009), J. Aerosol Sci. **40**, 241-255.

155. Y. Li. L. Chevillard, G. Eyink & C. Meneveau, "Matrix exponential-based closures for the turbulent subgrid-scale stress tensor" (2009), Phys. Rev. E **79**, 016305.

156. H.S. Kang & C. Meneveau, "Experimental study of an active grid-generated shearless mixing layer and comparisons with large-eddy simulation" (2008), Phys. Fluids **20**, 125102.

157. Bou-Zeid, N. Vercauteren, M.B. Parlange & C. Meneveau, "Scale dependence of subgrid-scale model coefficients: an a-priori study" (2008), Phys. Fluids **20**, 115106.

158. L. Chevillard, C. Meneveau, L. Biferale & F. Toschi, "Modeling the pressure Hessian and viscous Laplacian in Turbulence: comparisons with DNS and implications on velocity gradient dynamics" (2008), Phys. Fluids **20**, 101504.

159. Y. Li, E. Perlman, M. Wan, Y. Yang, C. Meneveau, R. Burns, S. Chen, A. Szalay & G. Eyink. "A public turbulence database cluster and applications to study Lagrangian evolution of velocity increments in turbulence" (2008), J. Turbulence **9**, No. 31.

160. M. Chamecki, C. Meneveau & M.B. Parlange, "A hybrid spectral/finite-volume algorithm for large eddy simulation of scalars in the atmospheric boundary layer" (2008), Bound. Layer. Met**. 128**, 473–484.

161. N. Vercauteren, E. Bou-Zeid, M.B. Parlange, U. Lemmin,H . Huwald, J. Selker & C. Meneveau, "Subgrid-scale dynamics of water vapor, heat and momentum over a lake" (2008), Bound. Layer. Met.,**128**, 205-228.

162. C. Rosales & C. Meneveau, "Anomalous scaling and intermittency in three-dimensional synthetic turbulence" (2008), Phys. Rev. E **78**, 016313.

163. J. Meyers & C. Meneveau, "A functional form for the energy spectrum parameterizing bottleneck and intermittency effects" (2008), Phys. Fluids **20**, 065109.

164. W. Yue, C. Meneveau, M.B. Parlange, W. Zhu, R. van Hout & J. Katz, "Turbulent kinetic energy budgets in a windtunnel model canopy: LES and comparison with experiments" (2008), J. Environmental Fluid Mechanics **8**, 73-95.

165. S. Chester & C. Meneveau, "Renormalized Numerical Simulation of Flow over Planar and Non-Planar Fractal Trees" (2007), J. Environmental Fluid Mechanics **7**, 289-301.

166. M. Chamecki, R. van Hout, C. Meneveau & M.B. Parlange, "Concentration profiles of particles settling in the neutral and stratified atmospheric boundary layer" (2007), Bound. Layer Met. **125**, 25-38.

167. W. Yue, M.B. Parlange, C. Meneveau, W. Zhu, R. van Hout & J. Katz, "Large eddy simulation study of turbulence structures within and above a corn canopy, using field- and plant-scale representations" (2007), Bound. Lay. Met. **124**, 183-203.

168. S. Chester, C. Meneveau & M.B. Parlange, "Modeling Turbulent Flow over Fractal Trees with Renormalized Numerical Simulation" (2007), J. Comp. Phys. **225**, 427-448.

169. L. Biferale, L. Chevillard, C. Meneveau & F. Toschi, "Multi-scale model of gradient evolution in turbulent flows" (2007), Phys. Rev. Letts. **98**, 213401.

170. M. Chamecki, C. Meneveau & M.B. Parlange. "The local structure of atmospheric turbulence and its effect on the Smagorinsky model for large eddy simulation" (2007), J. Atmos. Sci. **64**, 1941-1958.

171. Chevillard L. & C. Meneveau, "Intermittency and universality in a Lagrangian model of velocity gradients in three-dimensional turbulence" (2007), Comptes Rendues Mecanique, Acad. Sci (Paris) **335**, 187-193.

172. W. Yue, C. Meneveau, M.B. Parlange, W. Zhu, R. van Hout & J. Katz, "A comparative quadrant analysis of turbulence in a plant canopy" (2007), Water Resources Research **43**, W05422.

173. O. Uzol, D. Brzozowski, Y.-C. Chow, J. Katz & C. Meneveau. "A Database of PIV Measurements within a Turbomachinery Stage and Sample Comparisons with Unsteady RANS" (2007), J. Turbulence **8**, N10.

174. C.W. Higgins, C. Meneveau, & M.B. Parlange. "The effect of filter dimension on the components of the subgrid-scale stress and Tensor Alignments in the atmospheric surface layer" (2007), J. Atmos. Ocean. Tech. **24**, 360-375.

175. Y. Li & C. Meneveau, "Material deformation in a restricted Euler model for turbulent flows: analytic solution and numerical tests" (2007), Phys. Fluids. **19**, 015104.

176. E. Bou-Zeid, M.B. Parlange and C. Meneveau, "On the parameterization of surface roughness at regional scales" (2007), J. Atmos. Sciences **64**, 216-227.

177. L. Chevillard & C. Meneveau, "Lagrangian dynamics and statistical geometric structure of turbulence" (2006), Phys. Rev. Lett. **97**, 174501.

178. Y. Li, C. Meneveau, G. Eyink & S. Chen, "The subgrid-scale modeling of helicity and energy dissipation in helical turbulence" (2006), Phys. Rev. E **74**, 026310.

179. W. Zhu, R. van Hout, L. Luznik, H.S. Kang, J. Katz, Joseph, C. Meneveau, "A Comparison of PIV Measurements of Canopy Turbulence Performed in the Field and in a Wind Tunnel Model" (2006), Exp. Fluids **41**, 309-318.

180. C. Rosales & C. Meneveau, "A minimal multiscale Lagrangian map approach to synthesize non-Gaussian turbulent vector fields" (2006), Phys. Fluids **18**, 075104.

181. H.S. Kang & C. Meneveau, "Experimental measurements of spectral subgrid-scale Prandtl number and 4/3-law in a heated turbulent wake flow" (2006), J. Turbulence **7**, No. 45.

182. V. Kumar, J, Kleissl, M.B. Parlange & C. Meneveau, "Large-Eddy Simulation of a diurnal cycle in the turbulent Atmospheric Boundary Layer: Atmospheric stability and scaling issue" (2006), Water Res. Research **42**, W06D09.

183. J. Kleissl,, V. Kumar, C. Meneveau, & M.B. Parlange, "Numerical study of dynamic Smagorinsky models in Large Eddy Simulation of the atmospheric boundary layer: validation in stable and unstable conditions" (2006), Water Res. Research **42**, W06D10.

184. Y.-H. Tseng, C. Meneveau & M.B. Parlange, "Modeling flow around bluff bodies and urban dispersion using large eddy simulation" (2006), Envir. Sci. & Tech. **40**, 2653-2662.

185. J. Chen, C. Meneveau & J. Katz, "Scale Interactions of Turbulence Subjected to a Straining-Relaxation-Destraining Cycle" (2006), J. Fluid Mech. **562**, 123-150.

186. Y. Li & C. Meneveau, "Intermittency trends and Lagrangian evolution of non-gaussian statistics in turbulent flow and scalar transport" (2006), J. Fluid Mech., **558**, 133-142.

187. Y. Li & C. Meneveau, "Origin of non-Gaussian statistics in hydrodynamic turbulence" (2005), Phys. Rev. Lett., **95**, 164502.

188. C. Rosales & C. Meneveau, "Linear forcing in numerical simulations of isotropic turbulence: physical space implementations and convergence properties" (2005), Phys. Fluids, **17**, 095106.

189. J. Chen, J. Katz & C. Meneveau, "The implication of mismatch between stress and strain-rate in turbulence subjected to rapid straining and destraining on dynamic LES models" (2005), J. Fluids Engineering, **127**, 840-850.

190. Y.-Y. Chow, O. Uzol, J. Katz & C. Meneveau, "Decomposition of the spatially filtered and ensemble averaged kinetic energy, the associated fluxes and scaling trends in a rotor wake" (2005), Phys. Fluids **17**, 085102.

191. H.S. Kang & C. Meneveau, "Effect of large-scale coherent structures on subgrid-scale stress and strain-rate eigenvector alignments in turbulent shear flow" (2005), Phys. Fluids, **17**, 055103.

192. E. Bou-Zeid, C. Meneveau & M.B. Parlange, "A scale-dependent Lagrangian dynamic model for large eddy simulation of complex turbulent flows" (2005), Phys. Fluids **17**, 025105.

193. C.W. Higgins, M.B. Parlange & C. Meneveau, "Turbulent heat flux and temperature gradient alignments in the lower atmosphere" (2004), Geophys. Res. Letts. **31**, L22105.

194. R. Knikker, D. Veynante & C. Meneveau, "A dynamic flame surface density model for large eddy simulation of turbulent premixed combustion" (2004), Phys. Fluids **16**, L91-L94.

195. J. Kleissl, M.B. Parlange, & C. Meneveau "Field experimental study of dynamic Smagorinsky models in the atmospheric surface layer" (2004), J. Atmos. Science **61**, 2296-2307.

196. Y. Li & C. Meneveau, "Analysis of mean momentum flux in subgrid models of turbulence" (2004), Phys. Fluids **16**, 3483-3486.

197. T. Horst, J. Kleissl, D. Lenschow, C. Meneveau, C.-H. Moeng, M.B. Parlange, P.P. Sullivan and J.C. Weil. "HATS: Field observations to obtain spatially-filtered turbulence fields from crosswind arrays of sonic anemometers in the atmospheric surface layer" (2004), J. Atmos. Science **61**, 1655-1681.

198. E. Bou-Zeid, C. Meneveau & M.B. Parlange, "Atmospheric boundary layer flow over heterogeneous surfaces: blending height and effective surface roughness" (2004), Water Resources Research **40**, W02505.

199. J. Kleissl, C. Meneveau, & M.B. Parlange. "On the magnitude and variability of subgrid-scale eddy-diffusion coefficients in the atmospheric surface layer" (2003), J. Atmos Sciences **60**, 2372-2388.

200. C.W. Higgins, M.B. Parlange, C. Meneveau. "Alignment trends of velocity gradients and subgrid-scale fluxes in the turbulent atmospheric boundary layer" (2003), Boundary Layer Meteorology **109**, 59-83.

201. R. Knikker, D. Veynante and C. Meneveau. "A-priori testing of similarity model for large eddy simulations of turbulent premixed combustion" (2003), Proc. Combust. Inst. **29**, 2105-2111.

202. H.S. Kang, S. Chester and C. Meneveau, "Decaying turbulence in an active-grid-generated flow and comparisons with large-eddy simulation" (2003), J. Fluid Mech. **480**, 129-160.

203. H.S. Kang and C. Meneveau, "Universality of LES model parameters across a turbulent wake behind a heated cylinder" (2002), J. of Turbulence **3**, 032.

204. Uzol, O., Y.C. Chow, J. Katz & C. Meneveau. "Experimental investigation of unsteady flow field within a two-stage axial turbomachine using PIV" (2002), ASME J. Turbomachinery **124**, p. 542-552.

205. Uzol, O., Chow, C.Y., J. Katz & C. Meneveau. "Unobstructed PIV measurements within an axial turbo-pump using liquid and blades with matched refractive indices" (2002), Experiments in Fluids **33**, p. 909-919.

206. Charlette, C. Meneveau, and D. Veynante, "A power-law flame wrinkling model for LES of premixed turbulent combustion. Part I: Non-dynamic formulation and initial tests" (2002), *Comb. & Flame* **131**, p. 159-180.

207. F. Charlette, C. Meneveau, and D. Veynante, "A power-law flame wrinkling model for LES of premixed turbulent combustion. Part II Dynamic formulation" (2002), *Comb. & Flame* **131**, p. 181-197.

208. F. van der Bos, B. Tao, C. Meneveau and J. Katz, "Effects of small-scale turbulent motions on the filtered velocity gradient tensor as deduced from holographic PIV measurements" (2002), Phys. Fluids, **14**, p. 2456-2474.

209. B. Tao, J. Katz & C. Meneveau, "Statistical geometry of subgrid-scale stresses determined from holographic particle image velocimetry measurements" (2002), J. Fluid Mech., **467**, p. 35-78.

210. C. Meneveau & J. Katz, "A deterministic stress model for rotor-stator interactions in simulations of average-passage flow" (2002), J. Fluid Eng. **124**, p. 550-554.

211. Jiang, T.R. Osborn & C. Meneveau, "The flow field around a freely swimming copepod in steady motion: Part I, theoretical analysis" (2002), J. Plankton Res. **24**, p. 167-189.

212. Jiang, C. Meneveau & T.R. Osborn, "The flow field around a freely swimming copepod in steady motion: Part II, Numerical simulation" (2002), J. Plankton Res. **24**, p.191-213.

213. H. Jiang, T.R. Osborn & C. Meneveau, "Chemoreception and the deformation of the active space in freely swimming copepods: A numerical study" (2002), *J. Plankton Research* **24**, p. 495-510".

214. H. Jiang, T.R. Osborn & C. Meneveau, "Hydrodynamic interactions between two copepods: a numerical study" (2002), J. Plankton Res. **24**, p. 235-253.

215. S. Chester, F. Charlette, and C. Meneveau, "Dynamic turbulence model for large Eddy Simulations without test-filtering: Quantifying the accuracy of Taylor Series approximations" (2001), Theor. & Comput. Fluid Dyn., **15**, p. 165-181.

216. H.S. Kang and C. Meneveau, "Passive scalar anisotropy in a heated turbulent wake: new observations and implications for LES" (2001), J. Fluid Mech. **442**, p. 161-170.

217. F. Porté-Agel, M. Pahlow, C. Meneveau, & M.B. Parlange "Atmospheric stability effect on subgrid scale physics for large-eddy simulation" (2001), Adv. Water Resources, **24**, 1085-1102.

218. F. Porté-Agel, M.B. Parlange, C. Meneveau, & W. E. Eichinger, "A priori field study of the subgrid-scale heat fluxes and dissipation in the atmospheric surface layer" (2001), J. Atmos. Sci, **58**, 2673-2698.

219. C. Meneveau & J. Katz, "Scale-invariance and turbulence models for large-eddy simulation" (2000), Annu. Rev. Fluid Mech. **32**, 1-32.

220. B. Tao, J. Katz & C. Meneveau, "Geometry and scale relationships in high Reynolds number turbulence determined from 3-D holographic velocimetry" (2000), Phys. Fluids **12**, 941-944.

221. S. Cerutti, C. Meneveau & O.M. Knio, "Spectral and hyper eddy-viscosity in high Reynolds number turbulence" (2000), J. Fluid Mech. **421**, 307-338.

222. S. Cerutti & C. Meneveau, "Statistics of filtered velocity in grid and wake turbulence" (2000), Phys. Fluids, **12**, 1143-1165.

223. F. Porté-Agel, & M.B. Parlange, C. Meneveau, W. E. Eichinger & M. Pahlow "Subgrid-scale dissipation in the atmospheric surface layer: effects of stability and filter dimension" (2000), J. Hydromet. **1**, 75-87.

224. M. Sinha, J. Katz and C. Meneveau, "Quantitative visualization of the flow in a centrifugal pump with diffuser vanes, Part B: Addressing passage-averaged and LES modeling issues in in turbomachinery flows" (2000), J. Fluids Eng., **122**, 108-116.

225. F. Porté-Agel, C. Meneveau & M.B. Parlange, "A scale-dependent dynamic model for large eddy simulation: applications to a neutral atmospheric boundary layer" (2000), J. Fluid Mech., **415**, 261-284.

226. C. Meneveau & J. Katz, "Conditional subgrid force and dissipation in locally isotropic and rapidly strained turbulence" (1999), Phys. Fluids **11**, 2317-2329.

227. H. Jiang, C. Meneveau & T.R. Osborn, "Numerical study of the feeding current around a copepod" (1999), J. Plankton Res. **21**,1391-1421.

228. C. Meneveau & J. Katz, "Dynamic testing of subgrid models in LES based on the Germano identity" (1999), Phys. Fluids **11**, 1-3.

229. J.R. Mansfield, O.M. Knio & C. Meneveau, "Dynamic LES of colliding vortex rings using a 3D vortex method" (1999), J. Comp. Phys. **152**, 305-345.

230. Scotti & C. Meneveau, "A fractal model for large eddy simulation of turbulent flow" (1999), Physica D **127**, 198-232.

231. S. Liu, J. Katz & C. Meneveau, "Evolution and modeling of subgrid scales during rapid straining of turbulence" (1999) J. Fluid Mech**. 387**, 281-320.

232. R. Anderson & C. Meneveau, "Effects of the similarity model in finite-difference LES of isotropic turbulence using a Lagrangian dynamic mixed model" (1999), Flow, Turb. & Comb. **62**, 201-255.

233. F. Porté-Agel, C. Meneveau & M.B. Parlange, "Some basic properties of the surrogate subgrid-scale heat flux in the atmospheric boundary layer" (1998), Boundary Layer Meteorology **88**, 425-444.

234. J.R. Mansfield, O.M. Knio & C. Meneveau, "A dynamic LES scheme for the vorticity transport equation: formulation and a priori tests" (1998), J. Comp. Phys. **145**, 693-730.

235. E. Etasse, C. Meneveau & T. Poinsot, "Simple stochastic model for particle dispersion including inertia, trajectory-crossing and continuity effects" (1998), J. Fluid Engineering **120**, 186-192.

236. G. Stolovitzky, C. Meneveau & K.R. Sreenivasan, "Comment on 'Isotropic turbulence: important differences between true dissipation rate and its surrogates' " (1998), Phys. Rev. Lett. **80**, 3883.

237. S. Cerutti & C. Meneveau, "Intermittency and relative scaling of subgrid scale energy dissipation in isotropic turbulence" (1998), Phys. Fluids **10**, 928-937.

238. C. Meneveau & T.S. Lund, "The dynamic model and scale-dependent coefficients in the viscous range of turbulence" (1997), Phys. Fluids **9**, 3932-3934.

239. O'Neil & C. Meneveau, "Subgrid-scale stresses and their modelling in a turbulent plane wake" (1997), J. Fluid Mech. **347**, 253-293.

240. Scotti, C. Meneveau & M. Fatica, "Dynamic Smagorinsky model on anisotropic grids" (1997) Phys. Fluids **9**, 1856.

241. Scotti & C. Meneveau, "Fractal model for coarse-grained nonlinear partial differential equations" (1997), Phys. Rev. Lett. **78,** 867.

242. Meneveau, "On the cross-over between viscous and inertial-range scaling of turbulence structure functions" (1996), Phys. Rev. E **54**, 3657.

243. Meneveau, T. Lund & W. Cabot, "A Lagrangian dynamic subgrid-scale model of turbulence" (1996), J. Fluid Mech. **319**, 353.

244. Katz & C. Meneveau, "Wake-induced relative motion of bubbles rising in line" (1996), Int. J. Multiphase Flow **22**, 239.

245. Scotti, C. Meneveau & S. Saddoughi, "Fractal dimension of velocity signals in high Reynolds number hydrodynamic turbulence" (1995), Phys. Rev E **51**, 5594.

246. S. Liu, C. Meneveau & J. Katz: "Experimental study of similarity subgrid-scale models of turbulence in the far-field of a jet" (1995), App. Sci. Res. **54**, 177.

247. Meneveau, "Statistics of turbulence subgrid-scale stresses: Necessary conditions and experimental tests" (1994), Phys. Fluids A, 815.

248. S. Liu, C. Meneveau & J. Katz: "On properties of similarity subgrid-scale models as deduced from measurements in a turbulent jet" (1994), J. Fluid Mech. **275**, 83.

249. Meneveau & J. O'Neil: "Scaling laws of the dissipation rate of turbulent subgrid-scale kinetic energy" (1994), Phys. Rev. E **49**, 2866.

250. Meneveau & T. Lund: "On the Lagrangian nature of the turbulence energy cascade" (1994), Phys. Fluids **6**, 2820.

251. J. O'Neil & C. Meneveau, "Spatial correlations in turbulence: Predictions from the multifractal formalism and comparison with experiments" (1993), Phys. Fluids A **5**, 158.

252. Sarkar & C. Meneveau, "Gradients of potential fields on rough surfaces: perturbative calculation of the singularity spectrum f( ) for small surface dimension" (1993), Phys. Rev. E **47**, 957.

253. Scotti, C. Meneveau & D.K. Lilly: "Generalized Smagorinsky model for non-isotropic grids" (1993), Phys. Fluids A **5**, 2306.

254. Muzzio, C. Meneveau, T. Swanson & J. Ottino, "Spatial complexity in chaotic mixing: scaling and multifractal analysis" (1992), Phys. Fluids A **4**, 1439.

255. Meneveau, "Comment on 'is intermittent motion of outer flow in the turbulent boundary layer deterministic chaos?" ' (1992), Phys. Fluids A **4**, 1587.

256. Meneveau, "Dual spectra and mixed energy cascade of turbulence in the wavelet representation" (1991), Phys. Rev. Lett. **66**, 1450.

257. Meneveau & T. Poinsot, "Stretching and quenching of flamelets in premixed turbulent combustion" (1991), Comb. and Flame **81**, 311.

258. Meneveau, "Analysis of turbulence in the orthonormal wavelet representation" (1991), J. Fluid Mech **323**, 469.

259. C. Meneveau & K.R. Sreenivasan, "The multifractal nature of the turbulent energy dissipation" (1991), J. Fluid Mech. **224**, 429-484.

260. C. Meneveau, K.R. Sreenivasan, P. Kailasnath and M. Fan, "Joint multifractal measures: theory and applications to turbulence" (1990), Phys. Rev. A **41** , 894.

261. C. Meneveau & K.R. Sreenivasan "Interface dimension in intermittent turbulence" (1990), Phys. Rev. A **41**, 2246.

262. C. Meneveau & A. Chhabra, "Two-point statistics of multifractal measures" (1990), Physica A **164**, 564.

263. K.R. Sreenivasan, R. Ramshankar & C. Meneveau, "Mixing, entrainment and fractal dimensions of interfaces in turbulent flows" (1989), Proc. Roy. Soc. Lond. **A 421**, 79.

264. C. Meneveau & M. Nelkin, "Attractor size in intermittent turbulence" (1989), Phys. Rev. A. **39**, 3732.

265. Chhabra, C. Meneveau, R.V. Jensen & K.R. Sreenivasan, "Direct determination of the f( ) singularity spectrum and its application to fully developed turbulence" (1989), Phys. Rev. A **40**, 5284.

266. K.R. Sreenivasan, R.R. Prasad, C. Meneveau & R. Ramshankar, "The fractal geometry of interfaces and the multifractal distribution of dissipation in fully developed turbulent flows" (1989), Pure Appl. Geoph. **131**, 43.

267. K.R. Sreenivasan & C. Meneveau, "Singularities of the equations of fluid motion" (1988), Phys. Rev. A **38**, 6287.

268. C. Meneveau & K.R. Sreenivasan, "Measurement of f( ) from scaling of histograms and application to dynamical systems and fully developed turbulence" (1988), Phys. Letts. A **137**, 103.

269. R.R. Prasad, C. Meneveau & K.R. Sreenivasan, "Multifractal nature of the dissipation field of passive scalars in fully developed turbulent flows" (1988), Phys. Rev. Lett. **61**, 74.

270. C. Meneveau & K.R. Sreenivasan, "Simple multifractal cascade model for fully developed turbulence" (1987), Phys. Rev. Letts. **59**, 1424.

271. C. Meneveau & K.R. Sreenivasan, "The multifractal spectrum of the dissipation field in turbulent flows" (1987), Nuclear Physics B, Proc. Suppl. **2** (North-Holland, Amsterdam) p. 49.

272. K.R. Sreenivasan & C. Meneveau, "The fractal facets of turbulence" (1986), J. Fluid Mech. **173**, 357.

## Book chapters:

1. C. Meneveau & I. Marusic, "Turbulence in the era of Big Data: Recent experiences with sharing large datasets" (2016), In "Whither Turbulence and Big Data in the 21st Century" (pp. 497-507). Springer.

2. C. Meneveau & J. Riley, "Stanley Corrsin" (2011), Chapter in "A Journey Through Turbulence" (Eds. Davidson, Kaneda, Moffatt & Sreenivasan, Cambridge Univ. Press).

3. J. Katz & C. Meneveau, "Measurements for Large-Eddy-Simulations" (2007), Chapter C.10.4 in "Springer Handbook of Experimental Fluid Mechanics" (Springer Verlag), Editors: C. Tropea, J. Foss & A. Yarin, pp 830-855.

4. C.W. Higgins, M.B. Parlange, C. Meneveau , "Chapter 3: Energy dissipation in LES: dependence on flow structure and effects of eigenvector alignments" (2004), 51-69. In Festschrift "Turbulence and convection. Scientific inspirations by Douglas K. Lilly", (Cambridge University Press, E. Fedorovich, R. Rotunno, B. Stevens Eds.), 240 pp.

## Conference proceedings and others:

1. Starke, G.M., P. Stanfel, C. Meneveau. D.F. Gayme and J. King (2020), "Network based

estimation of wind farm power and velocity data under changing wind direction",  in 2021 American Control Conference (ACC), pp. 1803-1810, New Orleans, USA, May 25-28, 2021

2.  Chamecki, M., T. Chor, D. Yang, and C. Meneveau (2020), "Understanding material movement in the ocean's upper layer",

Eos **101**, https://doi.org/10.1029/2020EO138351.

3.  K. Womack, M. Schultz, & C. Meneveau (2019), "Outer-layer differences in boundary layer flow over surfaces with similar densities and roughness heights," Eleventh International Symposium on Turbulence and Shear Flow Phenomena (TSFP11), Southampton, England, July 30 – August 2, 2019.

4.  Katherine Dykes et al. (28 authors): "IEA Wind TCP: Results of IEA Wind TCP Workshop on a Grand Vision for Wind Energy Technology" (2019), prepared for the International Energy Agency Wind Implementing Agreement.

5.  W. Wu, J.H. Seo, C. Meneveau, and R. Mittal. "Response of a Laminar Separation Bubble to Zero-Net Mass Flux Actuation", 2018 Flow Control Conference, AIAA AVIATION Forum, (AIAA 2018-4018).

6.  J. Bossuyt, C. Meneveau & J. Meyers, "Large Eddy Simulation of a wind tunnel wind farm experiment with one-hundred static turbine models", Proceedings Torque Conference. Milan, Italy (2018).

7.  S. Hamilton, P. Johnson, P. Lindstrom, C. Meneveau, J. Patchett, A. Szalay & R. Burns, "Extreme Event Analysis in Next Generation Simulation Architectures", ISC High Performance Computing 2017, LNCS 10266 pp. 277-293.

8.  C. Shapiro, J. Meyers, C. Meneveau & D. Gayme, "Dynamic wake modeling and state estimation for improved model-based receding horizon control of wind farms", submitted to the IEEE Control Systems Society Conference Management System, 2017, Seattle, WA.

9.  M. Churchfield, S. Schreck, L.A. Martinez-Tossas, C. Meneveau & P.R. Spalart (2017), "An Advanced Actuator Line Method for Wind Energy Applications and Beyond", 35th Wind Energy Symposium, AIAA SciTech Forum, (AIAA 2017-1998).

10. J. Bossuyt, M. Howland, C. Meneveau, & J. Meyers. "Wind tunnel study of the power output spectrum in a micro wind farm", Torque conference, 2016.

11. L.A. Tossas-Martınez, M. Churchfield & C. Meneveau, "A Highly Resolved Large-Eddy Simulation of a Wind Turbine using an Actuator Line Model with Optimal Body Force Projection", J. Phys. Conf. Ser. **753**, 082014.

12. C.R. Shapiro, J. Meyers, C.Meneveau & D.F. Gayme, "Wind farms providing secondary frequency regulation: Evaluating the performance of model-based receding horizon control", J. Phys. Conf. Ser. **753**, 052012.

13. J. Bossuyt, M. Howland, C. Meneveau, & J. Meyers. "Measuring power output intermittency and unsteady loading in a micro wind farm model", 34th Wind Energy Symposium, AIAA SciTech,  (AIAA 2016-1992).

14. L.A. Martınez-Tossas, R.J.A.M. Stevens & C. Meneveau. "Wind Turbine Large-Eddy Simulations on Very Coarse Grid Resolutions using an Actuator Line Model." (2016). 34th Wind Energy Symposium, AIAA SciTech,  (AIAA 2016-1261)

15. L.A. Martinez-Tossas, M.J. Churchfield & C. Meneveau, "Large Eddy Simulation of wind turbine wakes: detailed comparisons of two codes focusing on effects of numerics and subgrid modeling" (2015), in "Proc. Wake Conference 2015", J. Physics: Conf. Ser. 625, 012024.

16. R.J.A.M. Stevens, D. Gayme & C. Meneveau, "Using the coupled wake boundary layer

model to evaluate the effect of turbulence intensity on wind farm performance" (2015), in "Proc. Wake Conference 2015", J. Physics: Conf. Ser. 625, 012004.

17.   H. Sarlak, C. Meneveau, J.N. Sørensen & R. Mikkelsen, "Quantifying the impact of subgrid scale models in actuator-line based LES of wind turbine wakes in laminar and turbulent inflow" (2015), in: "Direct and Large-Eddy Simulation IX, Editors: J. Fröhlich, H. Kuerten, B.J. Geurts & V. Armenio, pp. 169-175 (Springer).

18.   W. Sidebottom, O. Cabrit, I. Marusic, C. Meneveau, A. Ooi and D. Jones, "Modelling of Wall Shear-Stress Fluctuations for Large-Eddy Simulation" (2014), Proceedings 19th Australasian Fluid Mechanics Conference.

19.   M. Wilczek, R. Stevens, Y. Narita & C. Meneveau, "A wavenumber-frequency spectral model for atmospheric boundary layers and tests in LES" (2014), *J. Phys.: Conf. Ser.* **524** 012104.

20.   D. Yang, C. Meneveau & L. Shen, "Large-Eddy Simulation Based Study Of Offshore Wind Turbine Array Boundary Layers" (2013), In: Proc. ICOWES2013, Lyngby, Denmark, 17-19 June 2013.

21.   R.J.A.M. Stevens, D.F. Gayme & C. Meneveau "Effect of turbine alignment on the average power output of wind-farms" (2013), In: Proc. ICOWES2013, Lyngby, Denmark, 17-19 June 2013.

22.   C. VerHulst & C. Meneveau, "LES study of the impact of various wind-turbine actuator forcings on kinetic energy entrainment in large wind farms" (2013), In: Proc. ICOWES2013, Lyngby, Denmark, 17-19 June 2013.

23.   C. Verhulst & C. Meneveau, "Dynamic time-scale for Lagrangian-averaged subgrid-scale models based on Rice's formula " (2012), In: Proc. 18th Australasian Fluid Mechanics Conference Launceston, Australia, 3-7 December 2012.

24.   K.Kanov, R. Burns, G.Eyink, C. Meneveau & A. Szalay, "Data-Intensive Spatial Filtering in Large Numerical Simulation Datasets" (2012), submitted to "The International Conference for High Performance Computing, Networking, Storage, and Analysis", Supercomputing SC12.

25.   K. Buerger et al. "Turbulence Visualization at the Terascale on Desktop PCs", paper submitted to IEEE Visualization 2012 conference.

26.   C. Meneveau "The top-down model of wind farm boundary layers and its applications" (2011), 6th AIAA Theoretical Fluid Mechanics Conference, AIAA paper 2011-3297.

27.   J. Graham, K. Bai, C. Meneveau & J. Katz "LES modeling and experimental measurement of boundary layer flow over multi-scale, fractal canopies" (2011), in Direct and Large-Eddy Simulation VIII, 425 ERCOFTAC Series 15, pp. 233-238 (H. Kuerten et al., eds., DOI 10.1007/978-94-007-2482-2 37).

28.   M. Calaf, C. Meneveau & M. Parlange "Large Eddy Simulation study of a fully developed thermal wind-turbine array boundary layer" (2011), in Direct and Large-Eddy Simulation VIII, 425 ERCOFTAC Series 15, pp. 239-244 (H. Kuerten et al., eds., DOI 10.1007/978-94-007-2482-2 38).

29.   J. Meyers & C. Meneveau "Effect of wind-turbine surface loading on power resources in LES of large wind farms" (2011), in Direct and Large-Eddy Simulation VIII, 425 ERCOFTAC Series 15, pp. 425-430 (H. Kuerten et al., eds., DOI 10.1007/978-94-007-2482-2 67).

30.   C. Meneveau, "A Web-services accessible turbulence database and applications to a-priori testing of a matrix exponential subgrid model" (2011), in "Progress in Wall Turbulence: Understanding and Modeling, proceedings of the Wallturb international workshop held in Lille, France, April 21-23, 2009 (Stanislas, Jimenez & Marusic, eds.), Springer, 2011.

31. Y. Ahmad, R. Burns, M. Kazhdan, C. Meneveau, A. Szalay & A. Terzis, "Scientific Data Management at the Johns Hopkins Institute for Data Intensive Engineering and Science" (2010), Sigmod Record Vol 39, No. 3.

32. S. Chen, G. Eyink, D.P. Lathrop & C. Meneveau, Preface to "Symposium on Fluid Science and Turbulence" honoring Prof. K.R. Sreenivasan (2010), Physica D **239**, 1211-1213.

33. J. Lebrón, L. Castillo, R.B. Cal, H.S. Kang & C. Meneveau, "Interaction between a wind turbine array and a turbulent boundary layer" (2010), AIAA Paper number 2010-824.

34. S. Torres-Nieves, J. Lebrón, B. Brzek, L. Castillo, H.S. Kang, C. Meneveau & R.B. Cal, "Effect of isotropic free-stream turbulence on the anisotropy of favorable pressure gradient turbulent boundary layers" (2010), AIAA Paper number 2010-1252.

35. J. Meyers & C. Meneveau "Large Eddy Simulations of large wind-turbine arrays in the atmospheric boundary layer" (2010), AIAA Paper number 2010-0827.

36. C. Meneveau & H. Yu, "Public database-enabled analysis of Lagrangian statistics in isotropic turbulence" (2009), in "Proceedings of Euromech Colloquium 512: Small scale turbulence and related gradient statistics", Accademia delle Scienze di Torino (D. Tordella & K.R. Sreenivasan, editors).

37. M. Chamecki, C. Meneveau & M.B. Parlange "Large Eddy Simulation of pollen transport in the atmosphere", in "Proceedings of DLES-7", Springer 2009 (V. Armenio, ed).

38. J. Meyer, C. Meneveau & B. Geurts "Error-landscape assessment of LES accuracy using experimental data", in "Proceedings of DLES-7" Springer 2008 (V. Armenio, ed).

39. E. Perlman, R. Burns, Y. Li & C. Meneveau, "Data exploration of turbulence simulations using a database cluster" (2007), SC07 International Conference for High Performance Computing, Networking, Storage and Analysis, Reno NV, ACM, IEEE.

40. C. Meneveau, V. Kumar, S. Chester & M.B. Parlange, "Progress in Large Eddy Simulation modeling of temporally and spatially complex land-atmosphere interactions" (2007), in Advances in Turbulence XI, Proceedings of 11th European Turbulence Conference (eds: J. Palma and A. Silva Lopes, Springer), pp. 665-672,.

41. L. Chevillard & C. Meneveau "Lagrangian modeling and alignment trends of vorticity with pressure-Hessian eigendirections in turbulence" (2007), in Advances in Turbulence XI, Proceedings of 11th European Turbulence Conference (eds: J. Palma and A. Silva Lopes, Springer), pp. 112-114.

42. M. Chamecki, C. Meneveau & M.B. Parlange "Effects of local conditions on Smagorinsky and dynamic coefficients for LES of atmospheric turbulence" (2007), in Advances in Turbulence XI, Proceedings of 11th European Turbulence Conference (eds: J. Palma and A. Silva Lopes, Springer), pp. 694-696.

43. E. Bou-Zeid, H. Huwald, U. Lemmin, J. Selker, C. Meneveau & M.B. Parlange "Atmospheric surface layer turbulence over water surfaces and subgrid-scale physics" (2007), in Advances in Turbulence XI, Proceedings of 11th European Turbulence Conference (eds: J. Palma and A. Silva Lopes, Springer), pp. 517-519.

44. M.B. Parlange, E. Bou-Zeid, H. Huwald, M. Chamecki & C. Meneveau "SNOHATS: Stratified atmospheric turbulence over snow surfaces" (2007), in Advances in Turbulence XI, Proceedings of 11th European Turbulence Conference (eds: J. Palma and A. Silva Lopes, Springer), pp..520-522.

45. S. Chester & C. Meneveau, "Renormalized Numerical Simulation of Flow over Planar and 3D Fractal Trees" (2006), Proceedings of IUTAM Symposium on High Reynolds Number Turbulence (Nagoya, Japan – Springer, ed: Kaneda & Gotoh), in press.

46. C. Meneveau, V. Kumar, J. Kleissl, & M. Parlange, "Scale Invariance Based Turbulence Modeling And Applications To LES Of Atmospheric Boundary Layer Flow During A Diurnal Cycle", Proceedings "Complex Effects in Large Eddy Simulation", Limassol, Cyprus, September 20-24, 2005.

47. O. Uzol, Y.C. Chow, F. Soranna, J. Katz, & C. Meneveau, "Two-Dımensıonal And Stereoscopıc Partıcle Image Velocımetry Measurements Wıthın An Axıal Turbomachıne" *3rd Ankara International Aerospace Conference, August 22-25 2005, Middle East Technical University (METU), Ankara, Turkey*

48. W. Zhu, R. van Hout, L. Luznik, H.-S. Kang, J. Katz & C. Meneveau "Applying PIV for Measuring Turbulence just within and above a Corn Canopy", 6th International Symposium on PIV, Pasadena CA, September 21-23, 2005.

49. H.S. Kang & C. Meneveau, Spectral Eddy Diffusivity and Prandtl Number Distributions in a Heated Turbulent Wake, Proc. 4th Int. Symp. Turbulence and Shear Flow Phenomena (TSFP-4), Williamsburg, Virginia, June 27-29, 2005.

50. Chow, Y.C., O. Uzol, J. Katz, and C. Meneveau. "On the Energy Flux between Large, Small, Mean and Fluctuating Parts of the Flow in a Turbomachinery Rotor Wake". (2005), Paper No. AIAA 2005-1271, 43rd AIAA Aerospace Sciences Meeting and Exhibit, 10 - 13 Jan., Reno, NV.

51. Brzozowski D., O. Uzol, Y.C. Chow, J. Katz, C. Meneveau, "A Comparison of Unsteady RANS Simulations With PIV Data in an Axial Turbomachine" (2005), Paper FEDSM2005-77318, Proc. 2005 ASME Fluids Engineering Division Summer Meeting and Exhibition June 2005, Houston, TX.

52. O. Uzol, Y.C. Chow, F. Soranna, J. Katz & C. Meneveau, "3D measurements of deterministic stresses withing a rotor-stator gap at mid-span and tip region", Proc. HT-FED04 2004 ASME Heat Transfer/FED Summer Conference, paper HT-FED04-56513, 15p.

53. J. Chen, J. Katz & C. Meneveau "Study of scale-interactions in strained and destrained turbulence", Proc. HT-FED04 2004 ASME Heat Transfer/FED Summer Conference, paper HT-FED04-56402, 11p.

54. E. Bou-Zeid, C. Meneveau & M.B. Parlange, "Applications of the lagrangian dnamic model in LES of turbulent flow over surfaces with heterogeneous roughness distributions", Proc. HT-FED04 2004 ASME Heat Transfer/FED Summer Conference, paper HT-FED04-56127, 8p.

55. E. Bou-Zeid, C. Meneveau & M.B. Parlange, "Comparison of foud eddy-viscosity models in LES of flow over rough walls", Proc. HT-FED04, 2004 ASME Heat Transfer/FED Summer Conference, paper HT-FED04-56126, 11p.

56. Y-C Chow, O. Uzol, J. Katz & C. Meneveau, "An investigation of axial turbomachinery flow using PIV in an optically-unobstructed facility" Proc. 9th of International Symposium on Transport Phenomena and Dynamics of Rotating Machinery' Honolulu, Hawaii (2002).

57. O. Uzol, Y.C. Chow, J. Katz & C. Meneveau. "Experimental investigation of unsteady flow field within a two-stage axial turbomachine using PIV". Int. Gas Turbine. I (2002).

58. B. Tao, J. Katz, C. Meneveau: "Alignment trends of a decomposed SGS stress tensor determined from holographic PIV measurements", paper FEDSM02-31261, Proceedings of the ASME 2002 Fluids Engineering Division Summer Meeting, Montreal, Canada (2002).

59. Tao, B., Katz, J. and Meneveau, C. "Alignment of the strain-rate, SGS stress, and SGS force relative to parameters based on the filtered velocity gradients", Proc ASME 2001 Fluids Engineering Division Summer Meeting, FEDSM01-18272, New Orleans, LA (2001).

60. C. Meneveau, H. S. Kang, F. Charlette, J. Averill, O. Knio and D. Veynante: "Challenges in modeling scalars in turbulence and LES: Anisotropy, dynamic models, and scale separation" (2001), IUTAM Proc. of Symposium on Turbulent Mixing and Combustion (A. Pollard, ed), Kluwer Academic.

61. H.S. Kang and C. Meneveau, "Experimental measurements of subgrid passive scalar anisotropy and universality" (2001), in Proceedings of Direct and Large Eddy Simulation - IV (Geurts, Métais and Friedrich, Eds), Kluwer Academic.

62. Tao, B., Katz, J. and Meneveau, C. "Effects of strain-rate and subgrid dissipation rate on alignment trends between large and small scales in turbulent duct flow", Proc. ASME Fluids Engineering Division Summer Meeting, FEDSM00-11164, Boston, MA, (2000).

63. B. Tao, J. Katz, & C. Meneveau, "Application of HPIV data in turbulent duct flow for turbulence modeling", in Proc. Fluids Eng. Division Summer meeting of the ASME, San Fransisco, FEDSM99-7281 (1999).

64. F. Porté-Agel, C. Meneveau & M.B. Parlange, "Dynamic model for large-eddy simulations near the limits of the  inertial range of turbulence", in Proc. Fluids Eng. Division Summer meeting of the ASME, San Fransisco, FEDSM99-7835 (1999).

65. F. Porté-Agel, C. Meneveau & M.B. Parlange, '"Accounting for scale-dependence in the dynamic Smagorinsky model", in "Recent advances in DNS and LES" (1999). Proc. of 2$^{nd}$ AFOSR Conference, held at Rutgers (Knight & Sakell, eds., Kluwer Academic), pp. 317-328.

66. C. Meneveau, S. Cerutti, J.O'Neil, F. Porté-Agel & M. Parlange: "Physics and modeling of small scale turbulence for Large Eddy Simulation", (1999) Proceedings of Monte Verita II (eds. A. Tsinober & A. Gyr), Trends in Mathematics (Birkhauser Verlag), pp. 221-231.

67. M. Sinha, J. Katz & C. Meneveau: "Addressing passage-averaged and LES modeling issues in turbomachinery flows using two-dimensional PIV data" (ASME), FEDSM98-5091 (1998).

68. S. Liu, C. Meneveau & J. Katz: "Generation of locally isotropic turbulence in a tank, and its response to rapid straining" (1997), FED-ASME Forum on Turbulent Flows, CD-ROM (1997).

69. C. Meneveau & T. Lund,  "Dynamic model with scale-dependent coefficients in the viscous range" (1996), in: Proc. of the Summer Program 1996, Center for Turbulence Research, Stanford University, p. 275-290.

70. A. Scotti, C. Meneveau & M. Fatica, "Dynamic Smagorinsky model on anisotropic grids" (1996), in: Proc. of the Summer Program 1996, Center for Turbulence Research, Stanford University, p. 259-274.

71. J.R. Mansfield, O.M. Knio & C. Meneveau, "Towards Lagrangian large vortex simulation" (1996), in 'Vortex flows and related numerical methods', (Edited by Y. Gagnon et al., ESAIM *Proc.*, **1**, http://www.emath.fr/proc/ Vol.1/, pp. 49-64.

72. C. Meneveau & T. Lund, "Lagrangian averaging for dynamic eddy-viscosity subgrid models of turbulenc", in: Proc. of 'Semi-analytic techniques for Navier Stokes equations' (Montreal, 1995, K. Coughlin, ed.) CRM Proc. Lecture Notes, vol. 20, Amer. Math. Soc., Providence, RI, 1999, pp. 101--107.

73. C. Meneveau, T. Lund & W. Cabot, "A Lagrangian dynamic model of turbulence" (1994), in: Proc. of the summer program 1994, Center for Turbulence Research, Stanford University.

74. S. Liu, C. Meneveau & J. Katz: "Experimental studies of similarity subgrid-scale models of turbulence using conditional averaging" (1994), FED-ASME Forum on Turbulent Flows, pp.1-7.

75. J. O'Neil & C. Meneveau: 'Measurements of subgrid-scale stresses in the turbulent plane wake' (1994), FED-ASME Forum on Turbulent Flows, pp. 8-14.

76. S. Liu, C. Meneveau & J. Katz: "Experimental study of similarity subgrid-scale models of turbulence in the far-field of a jet" (1994), in: 'Direct and Large-Eddy Simulation **1**'. eds. P. Voke, L. Kleiser & J-P Chollet (Kluwer Acad. Amsterdam), p. 37-48.

77. C. Meneveau, "Wavelet analysis of turbulence: The mixed energy cascade" (1992), in: Proc. 'Wavelets, Fractals and Fourier Transforms', eds.: M. Farge, J.R.C. Hunt & J.C. Vassilicos, Oxford U. Press (1993), p.251.

78. C. Meneveau, "On the physics of fractality and scaling in hydrodynamic turbulence" (1993) in "Chaotic Dynamics and Transport in Fluids and Plasmas", I. Prigonine, editor, Research Trends in Physics, AIP, p.250.

79. C. Meneveau, T. Lund & J. Chasnov, "On the local nature of the energy cascade" (1992), in: Proc. of the summer program 1992, Center for Turbulence Research, Stanford University, p. 47.

80. C. Meneveau, T. Lund & P. Moin, "Search for subgrid-scale parametrization by projection pursuit regression" (1992), in: Proc. of the summer program 1992, Center for Turbulence Research, Stanford University, p. 61.

81. C. Meneveau "The Fractal Geometry of Turbulence" in: Proceedings of the II Pan American Congress of Applied Mechanics, eds.: Kittl et al. (1991).

82. M. Farge, Y. Guezennec, C.M. Ho & C. Meneveau, "Wavelet analysis of coherent structures", in: Proc. of the Summer Program 1990, CTR, Stanford University.

**Recent Keynote/Plenary Lectures:**

- "A multifractal version of Navier-Stokes based model of velocity gradients in turbulence", invited talk at the EGU webinar series EGU NP Campfire on "Scaling and multifractals: from historical perspectives to recent developments", February 1, 2022.

- "Predicting Large Scale Wind Farm Generation: Current and Future Challenges", keynote lecture at the 3rd Energy Efficiency and Environmental Sustainability Conference, December 9, 2021, La Serena Chile (online)

- "Wind farm flow structure: applications of aerodynamics beyond turbine blades", AIAA Fluid Dynamics Technical Committee Award Lecture, AIAA Aviation Forum, August 4, 2021 (online).

- "Large Eddy Simulations of Turbulence and Insights generated regarding Wind Energy", plenary lecture at "New Challenges in Turbulence Research VI", Les Houches, France (on zoom). February 9, 2021.

- "Boundary layer turbulence and reduced models of wind farms", plenary lecture at the The 24th Online Frontier Scientists Workshop Turbulence Prediction and Control, Korean Academy of Science and Technology, Nov. 6, 2020.

- "Democratizing Access to Big Data from DNS and Applications to Machine Learning", plenary lecture at the 33rd ONR Symposium on Naval Hydrodynamics, Osaka Japan (virtual), October 19, 2020.

- *"The Johns Hopkins Turbulence Databases: Democratizing big data from Direct Numerical Simulations"* at the U.S. National Committee on Theoretical and Applied Mechanics 2019 (72nd) Annual Meeting, March 30, 2019; NAS Building, Washington DC.
- *"Some Turbulence Fundamentals with emphasis on modeling and LES"*, Plenary talk at the conference "Turbulence from Angstroms to Lightyears", International Centre for Theoretical Science, Bangalore, India, January 20, 2018.
- *"Windfarm turbulence at $10^{13}$ Angstroms or ~$10^{-13}$ LightYears"*, Plenary talk at the conference "Turbulence from Angstroms to Lightyears", International Centre for Theoretical Science, Bangalore, India, January 22, 2018.
- *"New analytical models for turbulence spectra and turbine wakes in wind farms"*, plenary invited talk at the Burgers Symposium, Lunteren, The Netherlands, June 5&6, 2018.
- *Lagrangian turbulence models of the velocity gradient tensor and applications in LES*, plenary invited talk at the ECCOMAS 2018 Conference, Glasgow UK, June 11-14, 2018.
- *A multiple time-scale Lagrangian model for the velocity gradient tensor*, plenary invited talk at the Cascades II Euromech-Ercoftac Colloquium, Dec. 5-7, 2017, Lyon (France).
- *Progress in Large Eddy Simulation studies of wind turbine wakes and wind farms*, plenary talk at ISROMAC17 meeting, December 16-20, 2017, Maui, Hawaii
- *Modeling wind farms: actuator disks, actuator lines, turbulence and wind power fluctuations*, Keynote talk at the NAWEA Symposium 2017, Ames Iowa.
- *The structure of turbulent flows in wind farms*, keynote lecture at the Turbulent Shear Flows and Processes 10 (TSFP10), July 6-9, 2017, Chicago, IL.

## Current student and postdoctoral advising:

*Current doctoral students:*

- Samvit Kumar (co-advised with Prof. G. Eyink)
- Genevieve Starke (co-advised with Prof. D. Gayme)
- Ghanesh Narasimhan (co-advised with Prof. D. Gayme)
- Mitchell Fowler (co-advised with Prof. Tamer Zaki)
- Yue Hao (co-advised with Prof. Tamer Zaki)
- Manuel Ayala (co-advised with Prof. D. Gayme)

*Current postdocs and research staff:*

Dr. Mostafa Aghaeijouybari (co-advised with Prof. R. Mittal)

*Current Masters students:*

## Former student and postdoctoral advisees:

*Former doctoral students:*

1. Kristofer Womack (PhD 2021, now at Northrup Grumman)
2. Kara Shipley (Doct. Eng., 2021, co-advised with D. Gayme, now at APL)
3. Aditya Aiyer (PhD 2020), now postdoc at Princeton University
4. Carl Shapiro (PhD 2018, co-advised with D. Gayme). Now Department of Energy.
5. Joel Bretheim (PhD 2018, co-advised with D. Gayme). Now at the Naval Research Laboratory.
6. Perry Johnson (PhD 2017), now Assistant Professor, Univ. California Irvine.

7. Luis A. "Tony" Martínez-Tossas (PhD 2017), now research scientist at the National Renewable Laboratory (NREL), Colorado.
8. Xiang Yang (PhD 2016, co-advised with R. Mittal). Now Assistant Professor, Penn State University.
9. Jasim Sadique (PhD 2015, co-advised with R. Mittal). Now with Convergent Science.
10. Adrien Thormann (Ph.D. 2015), now with Renault, France.
11. Claire Verhulst (Ph.D., 2015) now with Center for Educational Outreach, Johns Hopkins University.
12. Jason Graham (PhD 2014), now at the Naval Research Laboratory.
13. Kunlun Bai (PhD 2014, co-advised with J. Katz), now Research Scientist, KLA-Tencor, San Fransisco, CA.
14. William Anderson (PhD 2011), now Assistant Professor, Department of Mechanical Engineering, Univ. Texas at Dallas, TX.
15. Marcelo Chamecki (PhD 2008, co-advised with M. Parlange), now tenured Associate Professor, Department of Atmospheric & Ocean Sciences, University of California Los Angeles (UCLA).
16. Li Yi  (PhD 2007), now Lecturer, University of Sheffield, UK.
17. Vijayant Kumar (PhD 2007, co-advised with M. Parlange), now VP Data Science and Engineering, at  SentientScience.
18. Carlos Rosales (PhD 2007), now Professor and Chair, Mechanical Engineering, Univ. Técnica Federico Santa María, Valparaíso, Chile.
19. Chad Higgins (PhD 2007, co-advised with M. Parlange), now tenured Associate Professor, Water Resources Engineering, Oregon State Univ., OR.
20. Stuart Chester (PhD 2006), now with Northrop Gruman, MD.
21. Elie Bou-Zeid (PhD 2005, co-advised with M. Parlange), now tenured Associate Professor, Civil and Environmental Engineering, Princeton University.
22. Jun Chen (PhD 2005, co-advised with J. Katz), now tenured Associate Professor, Mechanical Engineering, Purdue University, Indiana.
23. Jan Kleissl (PhD 2004, co-advised with M. Parlange), now tenured Associate Professor, Mechanical and Aerospace Engineering, University of California, San Diego.
24. Bo Tao (PhD 2001, co-advised with J. Katz), Associate Professor, Wentworth Institute of Technology, Boston, MA.
25. Houshuo Jiang (PhD 2000, co-advised with T. Osborn), now Associate Scientist with tenure at Woods Hole Oceanographic Institution, MA.
26. Stefano Cerutti (Ph.D., 1999), now with Lockheed Martin, Orlando, FL.
27. Fernando Porté-Agel (PhD 1999, co-advised with M. Parlange), tenured full Professor, EPFL, Lausanne, Switzerland).
28. Alberto Scotti (PhD 1997), now Professor, Marine Sciences Department at University of North Carolina.
29. Shewen Liu (PhD 1997, co-advised with J. Katz), now at US Bureau of Shipping, Texas.
30. John Mansfield (PhD 1997, co-advised with O. Knio), was Research Engineer at Airflow Sciences Corp, Michigan.
31. John O'Neil (PhD 1996), now Research Engineer, Applied Physics Laboratory, Johns Hopkins University, Laurel, MD.

*Former postdocs and research staff:*

1. Dr. Patricio Clark Di Leoni (Co-advised with Prof. T. Zaki, now Assistant Prof. University of Buenos Aires, Argentina)
2. Dr. Wen Wu (co-advised with R. Mittal), now Assistant Professor, University of Mississippi

3. Dr. Mohammad Danish, now Assistant Professor, Bennet University, Uttar Pradesh, India.
4. Dr. Kun Yang, now in research administration (Southern Technical Univ. China).
5. Dr. Richard Stevens, now tenure-track Assistant Professor, Twente University, The Netherlands.
6. Dr. Di Yang, now Assistant Professor, Mechanical Engineering, University of Houston, TX.
7. Dr. Michael Wilczek, now Max Planck Research Group Leader, Max Planck Institute for Nonlinear Dynamics and Self Organization, Göttingen, Germany.
8. Dr. Adrian Sescu, now tenured Associate Professor, Aerospace Engineering, Mississippi State University.
9. Dr. Huidan Yu, now tenured Associate Professor, Mechanical Engineering, University of Indiana -Purdue University at Indianapolis.
10. Dr. Hyung-Suk Kang, now Research Engineer, Applied Physics Laboratory, Johns Hopkins University, Laurel, MD.
11. Dr. Marco Martins-Afonso, now postdoc, Centro de Matemática da Universidade do Porto (CMUP), Portugal.
12. Dr. Laurent Chevillard, now CNRS researcher, Ecole Normale Superieure, Lyon, France.
13. Dr. Wusi Yue (postdoc, co-advised with M. Parlange), now research engineer at GSE Systems.
14. Dr. Yu-Heng Tseng (co-advised with M. Parlange), now Project Scientist II, NCAR, CO.
15. Dr. Juan Hierro (Fulbright postdoc co-advised with J. Katz), now at LITEC, Zaragoza, Spain.
16. Dr. Oguz Uzol, (co-advised with J. Katz), now with Suzlon Blade Science Center, Vejle, Denmark.

*Former Masters students:*
1. Solomon Polansky (M.S.E. 2020)
2. Gautham Narasimham (M.S.E. 2020)
3. Ashvin Vinod (M.S.E. 2020)
4. Andrew Mellon (M.S.E. 2020)
5. Gilbert Josh (M.S.E. 2018)
6. Danny Dembner (M.S.E. 2018)
7. Yifan Zhang (M.S.E. 2018)
8. Matthew Thompson (M.S.E. 2016)
9. Nicole Cade-Ferreira (M.S.E. 2016
10. Michael Leibel (M.S.E. 2014).
11. Hector Morales (M.S. E. 2012).
12. Brandon Hahn (M.S. E. 2012).
13. Taylor Reese (M.S. E. 2010).
14. Yunke Yang (M.S.E. 2008).
15. Dan Brzozowski (M.S.E. 2004).
16. Pamela Rawe (M.S.E. 1999), U.S. Navy.
17. Matthew Hayden (M.S.E. 1999), U.S. Navy.
18. Richard Anderson (M.S.E. 1995, then PhD in DoGEE with Prof. B. Hobbs), now Assistant Professor, School of Environment and Earth Sciences, Duke University.

*Undergraduate student advising:*
- Continuous academic advising of undergraduate classes (about 10 students/year)

- Undergraduate research advising: Michael Howland (2014-2016), John Bacon (2014), Vincent Rolin (2011, 2012), Jason Li (RPI undergrad, 2011), José Polo (Univ. Turabo PR undergrad, summer 2008), Francisco Wharton (Univ. Turabo PR undergrad, summer 2008), Gustavo Rivera-Rosario (RPI undergrad, Summers of 2007 and 2008), John Kegelman (2007), Joe Lefkowitz (2007), Lauren Denk (2006), Ryan Mayes (2006) Michael Scheib (2005), Juan Sanchez (2005), Byong-Ho Hwang (2005), Giles Haysom (2005) Anthony Tvaroha (2002), David Breau (1998), Ben Kusmin (1993), Ken El-Sherif (1993).

*High-School students:*
- Research Practicum supervision of Mr. Nathan Greene, Baltimore Polytechnic HS (2011/2012).
- Research Practicum supervision of Mr. Duane Dennis, Baltimore Polytechnic HS (2008-2010).
- Research Practicum supervision of Mr. Jesse Broccato, Baltimore Polytechnic HS (2007/2008)
- Research Practicum supervision of Mr. Duane Dennis, Baltimore Polytechnic HS (2008/2009). Duane is now undergraduate student at MIT.

*Visiting scholars:*
- Luo Yuan (2018-2020), visiting PhD student from Beijing Univ., China.
- Dr. Huifeng Hu (2018).
- Dr. Jia Deng (2018).
- José-Hugo Elsas (2016-2017), visiting PhD student from Universidade Federal do Rio de Janeiro, Brazil.
- Juliaan Bossuyt (2013-2016), visiting PhD student from KU Leuven, Belgium.
- Wim Munters (2014), visiting PhD student from KU Leuven, Belgium.
- Hamid Sarlak (2012), visiting PhD. Student from Danish Technical University, Denmark.
- Jonas Bochung (2012), visiting M.S. student from Univ. Aachen, Germany.
- Stimit Shah (2012), visiting PhD student from Princeton University.
- Victor Maldonado (2011, 2012), visiting PhD student from RPI, NY.
- Edo Frederix (2011), visiting MS student from Eindhoven University of Technology, Netherlands.
- Marc Calaf (2008-2009), visiting PhD student from EPFL, Switzerland
- Guillermo Araya (Spring 2008), visiting PhD student from RPI, NY.
- Maja Wänström (Fall 2007-Spring 2008), visiting PhD student from Chalmers, Sweden.
- Brian Brzek (Spring 2007), visiting PhD student from RPI, NY.
- Sheila Torres (Spring 2007,2008,2009), visiting PhD student from RPI, NY.
- José Lebron (Spring 2007,2008,2009), visiting PhD student from RPI, NY.
- Fabrice Charlette (PhD 2002), visiting PhD student from Ecole Centrale Paris.
- Fedderik van der Bos, visiting M.S. student 2001.

## Host to visiting faculty:
- Ruifeng Hu (2018)

- Ivan Marusic (October 2015)
- Luciano Castillo (2008 - 2011)
- Johan Meyers (August 2007, Spring 2009, Summer 2011, Spring 2014)
- Paolo Gualtieri (May 2007)
- Luca Biferale (Summer 2006, March/April 2016)
- Federico Toschi (Summer 2006)

## Courses taught:

*Undergraduate:*

- Intermediate Fluid Mechanics
- Thermodynamics
- Fluid Mechanics I
- Fluid Mechanics II
- Heat Transfer
- Thermal Systems Laboratory (co-taught).
- Introduction to Mechanics I

*Graduate:*

- Fluid Dynamics I
- Turbulence
- Convection
- Uncertainty Analysis and Downscaling (co-taught)
- Topics in complex systems: fractals, chaos, and self-organization
- Advanced Experimental Techniques (co-taught).

## External appointments:
- Chair, Scientific Advisory Board, Max Planck Institute for Nonlinear Dynamics and Self Organization, Göttingen, Germany, 2018-2022.
- Member, Scientific Advisory Board, Max Planck Institute for Nonlinear Dynamics and Self Organization, Göttingen, Germany, 2013-2022.
- Member, Scientific Advisory Board, Max Planck Center Twente for Complex Fluid Dynamics, Twente University, The Netherlands, 2017-present.
- RPI, Troy, NY. Start: 2009 - 2012. Adjunct Professor.
- NWRC (National Wind Resource Center, Texas Tech University, Lubbock Texas), 2013 – 2014. Adjunct Professor.

## Consulting:

- 2018/2019: Expert witness in the area of wind energy fluid dynamics.
- 2010: For EPFL Middle East, evaluation of wind tunnel design proposals.
- 2001-2004: For Applied Scientific Research (Santa Ana, CA) on LES models in grid-free CFD.
- 1996: For Burnett & Co., Inc., wind-tunnel drag measurements for Lacrosse sticks.
- 1995: For Knoll Atomic Power Lab. (Troy, NY), on turbulence modeling for two-phase flows.

- 1992: For "Project C-D", on fluid mechanics of various biomedical devices.

**Personal:**    Married, 2 children.
Fluent in English, Spanish, German, French.