

Short Curriculum Vitae

Parviz Moin

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Education

- Stanford University, Mechanical Engineering, Ph.D. (1978)
- Stanford University, Mathematics, M.S. (1978)
- Stanford University, Mechanical Engineering, M.S. (1975)
- University of Minnesota, Mechanical Engineering, B.M.E. (1974)

Appointments

- Franklin and Caroline Johnson Professor of Mechanical Engineering (1990-present)
- Director, Center for Turbulence Research (1987-present)
- Founding Director, Institute for Computational and Mathematical Engineering, Stanford University (2003-2005)
- Professor, Stanford University (1989-present)
- Associate Professor, Stanford University (1986-1989)
- Research Scientist, NASA Ames Research Center (1982-1986)
- Acting Assistant Professor, Stanford University (1980-1982)
- National Research Council Fellow, NASA Ames (1978-1980)
- Research Assistant, Stanford University (July 1975-June 1978)

Honors and Awards

- Member, National Academy of Sciences (2011)
- Member, National Academy of Engineering (1997)
- Member, American Academy of Arts and Sciences (2010)
- Corresponding member, Royal Spanish Academy of Engineering (2013)
- NASA Exceptional Scientific Achievement Medal (1985)
- American Institute of Aeronautics and Astronautics' Lawrence Sperry Award (1986)
- Elected Fellow of the American Physical Society (1992)
- Alexander von Humboldt Prize of the Federal Republic of Germany (1995)
- American Physical Society's Fluid Dynamics Prize (1996)
- Honorary Doctorate, Universidad Politécnica de Madrid (1998)
- NASA Outstanding Leadership Medal (2002)
- Moody Award of the American Society of Mechanical Engineers (2006)
- Elected Fellow, American Institute of Aeronautics and Astronautics (2009)
- Fluid Dynamics Award, American Institute of Aeronautics and Astronautics (2009)
- Einstein Professorship, Chinese Academy of Sciences (2009)

Service and Affiliations

- Editor, *Annual Review of Fluid Mechanics*
- Associate Editor, *Journal of Computational Physics*
- Editorial Board, *Physical Review Fluids*
- Executive Committee, Division of Fluid Dynamics, American Physical Society (1993-1996)
- Vice Chair, Division of Fluid Dynamics, American Physical Society (1998-1999)
- Chair, Division of Fluid Dynamics, American Physical Society (2000-2001)
- Member, United States National Committee on Theoretical and Applied Mechanics (1999-2003)
- Consultant, Naval Research Advisory Committee (NRAC) (2009)
- Mechanical Engineering Peer Committee, National Academy of Engineering (2010-2012)
- National Academies, Panel on Mechanical Science and Engineering at the Army Research Laboratory (2013-2014)
- Chair, Engineering Sciences Section, National Academy of Sciences (2014-2017)
- National Academies Panel on Improving Air Force Scientific Discovery Mission (2015)
- Aeronautics and Space Engineering Board, National Academies of Sciences (2017-2019)

Publications: Google Scholar Citations 57857, h-index 105 (02/01/2018)

Books

Fundamentals of Engineering Numerical Analysis, Cambridge, 2nd Edition (2010).

Major Review and General Articles

1. “Direct Numerical Simulation: A Tool in Turbulence Research,” P Moin and K Mahesh, *Annual Reviews of Fluid Mechanics*, Vol. 30, pp. 539-578 (1998).
2. “Tackling Turbulence with Supercomputers,” P Moin and J Kim, *Scientific American*, Vol. 276(1), pp. 62-68 (January 1997).
3. “Numerical Simulation of Turbulent Flows,” RS Rogallo and P Moin, *Annual Review of Fluid Mechanics*, Vol. 16, pp. 99-137 (1984).

Publications in Journals (Since 2013)

1. “Turbulence intensities in large-eddy simulation of wall-bounded flows,” HJ Bae, A Lozano-Duran, ST Bose, and P Moin, *Physical Review Fluids*, Vol. 3(1), 014610 (2018).
2. “Large-Eddy Simulation of Thermally Stratified Atmospheric Boundary-Layer Flow Using a Minimum Dissipation Model,” M Abkar, and P Moin, *Boundary-Layer Meteorology*, Vol. 165(3), pp. 405-419 (2017).
3. “Conservative and bounded volume-of-fluid advection on unstructured grids,” CB Ivey and P Moin, *Journal of Computational Physics*, Vol. 350, pp. 387-419 (2017).
4. “Aerodynamic Heating in Wall-Modeled Large-Eddy Simulation of High-Speed Flows,” XIA Yang, J Urzay, S Bose, and P Moin, *AIAA Journal*, pp. 1-12 (2017).

5. “Log-layer mismatch and modeling of the fluctuating wall stress in wall-modeled large-eddy simulations,” XIA Yang, GI Park, and P Moin, *Physical Review Fluids*, Vol. 2(10), 104601 (2017).
6. “Algebraic disturbance growth by interaction of Orr and lift-up mechanisms,” MJP Hack and P Moin, *Journal of Fluid Mechanics*, Vol. 829, pp. 112-126 (2017).
7. “Transitional–turbulent spots and turbulent–turbulent spots in boundary layers,” X Wu, P Moin, JM Wallace, J Skarda, A Lozano-Durán, and J-P Hickey, *Proceedings of the National Academy of Sciences*, Vol. 114(27), 201704671 (2017).
8. “Extraction of coherent clusters and grid adaptation in particle-laden turbulence using wavelet filters,” M Bassenne, J Urzay, K Schneider, and P Moin, *Physical Review Fluids*, Vol. 2(5), 054301 (2017).
9. “Large-Eddy Simulation-Based Characterization of Suction and Oscillatory Blowing Fluidic Actuator,” J Kim, P Moin, and A Seifert, *AIAA Journal*, Vol. 55 (8), pp. 2566-2579 (2017).
10. “Publisher's Note: Space-time characteristics of wall-pressure and wall shear-stress fluctuations in wall-modeled large eddy simulation [Phys. Rev. Fluids 1, 024404 (2016)],” GI Park and P Moin, *Physical Review Fluids*, Vol. 2(4), 049901 (2017).
11. “A simple dynamic subgrid-scale model for LES of particle-laden turbulence,” GI Park, M Bassenne, J Urzay, and P Moin, *Physical Review Fluids*, Vol. 2(4), 044301 (2017).
12. “An Appreciation of the Life and Work of William C. Reynolds (1933–2004),” P Moin, GM Homsy, *Annual Review of Fluid Mechanics*, Vol. 49, pp. 1-21 (2017).
13. “Large-Eddy Simulation of Thermally Stratified Atmospheric Boundary-Layer Flow Using a Minimum Dissipation Model,” M Abkar and P Moin, *Boundary-Layer Meteorology*, pp. 1-15 (2017).
14. “Numerical aspects and implementation of a two-layer zonal wall model for LES of compressible turbulent flows on unstructured meshes,” GI Park and P Moin, *Journal of Computational Physics*, Vol. 305, pp. 589-603 (2016).
15. “Minimum-dissipation scalar transport model for large-eddy simulation of turbulent flows,” M Abkar, HJ Bae, and P Moin, *Physical Review Fluids*, Vol 1(4), 041701 (2016).
16. “Space-time characteristics of wall-pressure and shear-stress fluctuations in wall-modeled large eddy simulation,” GI Park and P Moin, *Physical Review Fluids*, Vol. 1(2), 024404 (2016).
17. “Direct numerical simulation of a turbulent hydraulic jump: turbulence statistics and air entrainment,” M Mortazavi, V Le Chenadec, P Moin, and A Mani, *Journal of Fluid Mechanics*, Vol. 797, pp. 60-94 (2016).
18. “Constant-energetics physical-space forcing methods for improved convergence to homogeneous-isotropic turbulence with application to particle-laden flows,” M Bassenne, J Urzay, GI Park, and P Moin, *Physics of Fluids*, Vol. 28(3), 035114 (2016).

19. "On the suitability of second-order accurate discretizations for turbulent flow simulations," P Moin and R Verzicco, *European Journal of Mechanics-B/Fluids*, Vol. 55, pp. 242-245 (2016).
20. "Annual Review of Fluid Mechanics Introduction," P Moin and SH Davis, *Annual Review of Fluid Mechanics*, Vol. 48(48), VV (2016).
21. "Wall-modeling in complex turbulent flows," P Moin, J Bodart, S Bose, and GI Park, *Advances in Fluid-Structure Interaction*, pp. 207-219 (2016).
22. "Minimum dissipation models for large eddy simulation," W Rosema, HJ Bae, P Moin, and R Verstappen, *Physics of Fluids*, Vol. 27(8), 085107 (2015).
23. "Osborne Reynolds pipe flow: Direct simulation from laminar through gradual transition to fully developed turbulence," X Wu, P Moin, RJ Adrian, and JR Baltzer, *Proceedings of the National Academy of Sciences*, Vol. 112(26), pp. 7920-7924 (2015).
24. "A new approach to wind energy: opportunities and challenges," JO Dabiri, JR Greer, JR Koseff, P Moin, and J Peng, *AIP Conference Proceedings*, Vol. 1652(1), pp. 51-57 (2015).
25. "Boundary layer bypass transition," X Wu, P Moin, and JP Hickey, *Physics of Fluids*, Vol. 26(9), 091104, p. 2 (2014).
26. "Large eddy simulation of a backward facing step flow," K Akselvoll and P Moin, *Engineering Turbulence Modeling and Experiments*, Vol. 2, pp. 303-313 (2014).
27. "Reduced-order representation of near-wall structures in the late transitional boundary layer," T Sayadi, PJ Schmid, JW Nichols, and P Moin, *Journal of Fluid Mechanics*, Vol. 748, pp. 278-301 (2014).
28. "Subgrid-scale backscatter in reacting and inert supersonic hydrogen-air turbulent mixing layers," J O'Brien, J Urzay, M Ihme, P Moin, and A Saghafian, *Journal of Fluid Mechanics*, Vol. 743, pp. 554-584 (2014).
29. "A dynamic slip boundary condition for wall-modeled large-eddy simulation," ST Bose and P Moin, *Physics of Fluids*, Vol. 26(1), 015104 (2014).
30. "An improved dynamic non-equilibrium wall-model for large eddy simulation," GI Park and P Moin, *Physics of Fluids*, Vol. 26(1), pp. 37-48 (2014).
31. "Direct numerical simulation of complete H-type and K-type transitions with implications for dynamics of turbulent boundary layers," T Sayadi, CW Hamman, and P Moin, *Journal of Fluid Mechanics*, Vol. 724, pp. 480-509 (2013).
32. "Application of vortex identification schemes to direct numerical simulation data of a transitional boundary layer," B Pierce, P Moin, T Sayadi, *Physics of Fluids*, Vol. 25, 015102 (2013).
33. "On the use of the Ffowcs Williams-Hawkings equation to predict far-field jet noise from large eddy simulations," S Mendez, M Shoenybi, SK Lele, and P Moin, *International Journal of Aeroacoustics*, Vol. 12(1- 2), pp. 1-20 (2013).