

CURRICULUM VITAE
(abbreviated)

James J. Riley

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General biographical information

Basic Data

Name: James J. Riley
Professor Emeritus, Mechanical Engineering

Educational History

Degrees: Ph.D., Fluid Mechanics, The Johns Hopkins University, 1972
Thesis supervisor: Stanley Corrsin
B.A., Physics, Rockhurst College, 1965

Employment History

Acting chair, Mechanical Engineering, University of Washington,
1997 to 1999
Professor Emeritus, Mechanical Engineering, University of Washington,
2018 to present
Professor, Mechanical Engineering, University of Washington,
1985 to 2018
Adjunct Professor, Applied Mathematics, University of Washington,
1985 to 2018
Adjunct Professor, Aeronautics & Astronautics, University of Washington,
2011 to present
Associate Professor, Mechanical Engineering, University of Washington,
1983 to 1985
Department Manager and Program Manager, Flow Industries, Inc.,
1977 to 1983
Senior Research Scientist, Flow Industries, Inc., 1975 to 1983
Research Scientist, Flow Industries, Inc., 1973 to 1975
Research Physicist, Naval Research Laboratory, 1972 to 1973
Post-Doctoral Visiting Scientist, National Center for
Atmospheric Research, 1971 to 1972
Chaire de Mathematiques Industrielles, l'Université Joseph Fourier,
Grenoble, France, 1989 to 1992 (part-time,
visiting chaired position)

Awards/Honors:

National Academy of Engineering
Washington State Academy of Sciences
Senior Visiting Fellow, Isaac Newton Institute,
Cambridge University, Cambridge, U.K.
NATO Research & Technology Organization Lecturer,
Universidad Politecnica de Madrid, Spain
Director's Award, US Geological Service (2010)
Invited lecturer, Midwest Universities Lecture Tour (twice)
Visiting Award from Université Paul Sabatier,
Toulouse, France (twice)
PACCAR Professor of Engineering
Fellow, American Physical Society (1988)
Chair, Division of Fluid Dynamics, American Physical Society (twice)
Fellow, American Society of Mechanical Engineers (2003)
Fellow, American Association for the Advancement of Science (2018)
Fellow, Institute of Physics (2004)
Senior Scientific Fellow, Battelle Pacific Northwest National
Laboratories (1989)
Chaire de Mathematiques Industrielles, l'Université Joseph Fourier,
Grenoble, France (visiting chaired professorship)
Fellow, Center for Turbulence Research (Stanford/NASA Ames)
German Government Sabbatical Leave Fellowship
Australian Government Gleddon Visiting Fellowship
2016 Success Story, U. S. Navy
High Performance Computing Program
Honored in Special Session,
International Symposium on Stratified Flows (2016)
College of Engineering Faculty Research Award (2018)
Member, Johns Hopkins University Society of Scholars (2021)

Consulting:

Nu Power Technologies (board of advisors), May, 2002 to 2005
Midwest Dental Products, March, 2000 to March, 2001
Northwest Research Associates, 1990 to present
Battelle Pacific Northwest National Laboratories, 1989 to present
Corbis, Inc., 1995
Los Alamos National Laboratory, 1992
Flow Industries, Inc., 1983 to 1985

Publications

1. Refereed Archival Journal Publications

- Tiwari, A., J. J. Riley, and S. Devasia. 2022. “Low distortion information propagation with noise suppression in swarm networks”, submitted to the *Proc. Natl. Acad. Sci.*
- Riley, J. J., M. M. P. Couchman. 2022. “The effect of Prandtl number on decaying stratified turbulence”, submitted to the *J. Turbulence*.
- Blakeley, B. C., B. J. Olson, and J. J. Riley. “On the evolution of scalar iso-surface area density in a turbulent mixing layer”, submitted to the *J. Fluid Mech.*
- Mashayek, J. Guila, L. Baker, A. N. Garabato, L. Cimoli, and J. J. Riley. “Mountains to climb: on the role of seamounts in upwelling of deep ocean waters”, submitted to *Nature Ocean*.
- Riley, J. J. 2022. “How does turbulence mix a stratified fluid?”, *J. Fluid Mech.*, **952**: F1.
- Blakeley, B. C., B. J. Britton, and J. J. Riley. 2022. “Self-similarity of scalar iso-surface area in a temporal mixing layer”, *J. Fluid Mech.*, **951**, A44.
- Shete, K. P., D. J. Boucher, J. J. Riley, and S. de Bruyn Kops. 2022. “Effects of viscous-convective subrange on passive scalar statistics at high Reynolds number”, *Phys. Rev. Fluids*, **7**(2): 024601.
- Guan, Y., J. J. Riley, and I. Novosselov. 2020. “Three-dimensional electroconvective vortices in cross flow”, *Phys. Rev. E*, **101**(3):033103.
- Perfect, B., N. Kumar, and J. J. Riley. 2020. “Energetics of seamount wakes. Part II: Wave fluxes”, **50**(5):1383-1398.
- Perfect, B., N. Kumar, and J. J. Riley. 2020. “Energetics of seamount wakes. Part I: Energy exchange”, *J. Phys. Ocean*, **50**(5):1365-1382.
- Guan, Y., J. J. Riley, and I. Novosselov. 2020. “Three-dimensional electroconvective vortices in cross flow”, *Phys. Rev. E*, **101**(3): 033103.
- Watanabe, T., J. J. Riley, K. Nagata, K. Matsude, and R. Onishi. 2019. “Hairpin vortices and highly elongated flow structures in a stably-stratified shear layer”, *J. Fluid Mech.*, **878**:37-61.
- Blakeley, B. C., W. Wang, and J. J. Riley. 2019. “On the kinematics of scalar iso-surfaces in decaying homogeneous, isotropic turbulence”, *J. Turb.*, **20**(10): 661-680.
- de Bruyn Kops, S. M., and J. J. Riley. 2019. “The effects of stable stratification on the decay of initially isotropic homogeneous turbulence”, *J. Fluid Mech.*, **860**: 787-821.
- Perfect, B. H., J. J. Riley, and N. Kumar. 2018. “Vortex structures in the wake of an idealized seamount in stratified, rotating flow”, *Geophys. Res. Ltrs.*, **45**(17): 9098-9105.
- Watanabe, T., J. J. Riley, K. Nagata, R. Onishi, and K. Matsuda. 2018. “A localized turbulent mixing layer in a uniformly stratified environment”, *J. Fluid Mech.*, **849**: 245-276.
- Gregg, M. C. E. A. D’Asaro, J. J. Riley, and E. Kunze. 2018. “Mixing efficiency in the ocean”, *Annu. Rev. Mar. Sci.*, bf 10:443-474, 2018.
- Watanabe, T., J. J. Riley, and K. Hagata. 2017. “Turbulent entrainment across turbulent/nonturbulent interfaces in stably stratified mixing layers”, *Phys. Rev. Fluids*, **2**(10): 104803.

- Riley, J. J., O. Flores, and A. R. Horner-Devine. 2017. “On the dynamics of turbulence near a free surface”, *J. Fluid Mech.*, **821**:248-265.
- Watanabe, T., J. J. Riley, and K. Nagata. 2016. “Effects of stable stratification on turbulent/non-turbulent interfaces in turbulent mixing layers”, *Phys. Rev. Fluids*, **1**:044301.
- Watanabe, T., J. J. Riley, S. M. de Bruyn Kops, P. J. Diamessis, and Q. Zhou. 2016. “Turbulent/non-turbulent interfaces in wakes in stably stratified fluids”, *J. Fluid Mech.*, **797**:R1.
- Sudharsan, M., S. L. Brunton, and J. J. Riley. 2016. “Lagrangian coherent structures and inertial particle dynamics”, *Phys. Rev. E*, **93**(3):033108.
- Thyng, K. M., J. J. Riley, and J. Thomson. 2013. “Inference of turbulence parameters from a ROMS simulation using the k - ϵ closure scheme”, *Ocean Modeling*, **72**:104-118.
- Hinz, D. F., T.-Y. Kim, J. J. Riley, and E. Fried. 2013. “*a priori* testing of α -regularisation models as subgrid-scale closures for large-eddy simulations”, *J. Turbulence*, **14**(6):1-20.
- McGah, P. M., D. F. Leotta, K. W. Beach, R. E. Zierler, J. J. Riley, and A. Aliseda. 2012. “Hemodynamic conditions in a failing peripheral artery bypass graft”, *J. Vasc. Surg.*, **56**(2):403-409.
- Kim, J. H., et al. 2012. “Immunosensor towards low-cost, rapid diagnosis of tuberculosis”, *Lab on a Chip*, **12**(8):1437-1440.
- Lee, H. B., et al. 2012. “Enhanced bioreaction efficiency of a microfluidic mixing toward high-throughput and low-cost bioassays”, **12**(1-4):143-156.
- Kongthon, J., J. H. Chung, J. J. Riley, and S. Devasia. 2011. “Dynamics of cilia-based microfluidic devices”, **133**(5):051012.
- Flores, O., and J. J. Riley. 2011. “Analysis of turbulence collapse in the stably stratified surface layer using direct numerical simulation”, *Bound. Layer Meteor.*, **139**(2):241-259.
- McGah, P. M., D. F. Leotta, K. W. Beach, J. J. Riley, and A. Aliseda. 2011. “A longitudinal study of remodeling in a revised peripheral artery bypass graft using 3D ultrasound imaging and computational hemodynamics”, *J. Biomech. Engr.-Trans. ASME*, **133**(4):041008.
- Schumacher, K. R., J. J. Riley, and B. A. Finlayson. 2011. “Turbulence in ferrofluids in channel flow with steady and oscillating magnetic fields”, *Phys. Rev. E*, **83**(1):016307.
- Wetchagarun, S., and J. J. Riley. 2010. “Dispersion and temperature statistics of inertial particles in isotropic turbulence”, *Phys. Fluids*, **22**(6):063301.
- Schumacher, K. R., J. J. Riley and B. A. Finlayson. 2010. “Effects of an oscillating magnetic field on homogeneous ferrofluid turbulence”, *Phys. Rev. E*, **81**(1):016317.
- Oh, K., B. Smith, S. Devasia, J. J. Riley, and J. H. Chung. 2010. “Characterization of mixing performance for bio-mimetic silicone cilia”, *Microfluid. Nanofluid.*, **9**(4-5):645-655.
- Oh, K., J. H. Chung, S. Devasia, and J. J. Riley. 2009. “Bio-mimetic silicone cilia for microfluidic manipulation”, *Lab on a Chip*, **9**(11):1561-1566.

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- Berrouk, A. K., D. E. Stock, D. Lawrence and J. J. Riley. 2008. "Heavy particle dispersion from a point source in turbulent pipe flow", *Int. J. Multiphase Flow*, **34**(10), pp. 916-923.
- Nichols-Pagel, G. A., D. B. Percival, P. G. Reinhall, and J. J. Riley. 2008. "Should structure functions be used to estimate power laws in turbulence? A comparative study", *Physica D – Nonlin. Phen.*, **237**(5), pp. 665-677.
- Schumacher, K. R., J. J. Riley, and B. A. Finlayson. 2008. "Homogeneous turbulence in ferrofluids with a steady magnetic field", *J. Fluid Mech.*, **599**, pp. 1-28.
- Riley, J. J., and E. Lindborg. 2008. "Stratified turbulence: a possible interpretation of some geophysical turbulence measurements", *J. Atmos. Sci.*, **65**(7), pp 2416-2424.
- E. Lindborg and J. J. Riley. 2007. "A condition on the average Richardson number for weak nonlinearity of internal gravity waves", *Tellus Series A – Dyn. Meteorol. and Ocean.*, **59**(5), pp. 781-784.
- Berrouk, A. S., D. Laurence, J. J. Riley, and D. E. Stock. 2007. "Stochastic modeling of heavy particle dispersion by subfilter motion for LES of high Reynolds number pipe flow", *J. Turbulence*, **8**(50), pp. 1-20.
- Oh, K., J.-H. Chung, J. J. Riley, Y.-L. Liu, and W.-K. Liu. 2007. "Fluid flow-assisted dielectrophoretic assembly of nonowires", *Langmuir*, **23**(23), pp. 11932-11940.
- Nichols, J. W., P. J. Schmidt, and J. J. Riley. 2007. "Self-sustained oscillations in variable-density jets", *J. Fluid Mech.*, **582**, pp. 341-376.
- Riley, J. J. 2006. "Review of large-eddy simulation of non-premixed turbulent combustion", *J. Fluids Engr. – Trans. ASME*, Vol. 128(2), pp. 209-215.
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- Mitarai, S., G. Kosály, and J. J. Riley. 2004. "A new Lagrangian flamelet model for local flame extinction and re-ignition", *Comb. Flame*, Vol. 137(3), pp. 306-319.
- Sripakagorn, P., G. Kosály, and J. J. Riley. 2004. "Investigation of the influence of the initial Reynolds number on extinction and reignition", *Comb. Flame*, Vol. 136, pp. 351-363.
- Mitarai, S., J. J. Riley, and G. Kosály. 2003. "A Lagrangian study of scalar diffusion in isotropic turbulence with chemical reaction", *Phys. Fluids*, Vol. 15, pp. 3856-3866.
- Martin, S. M., G. Kosály, J. C. Kramlich, and J. J. Riley. 2003. "The premixed conditional moment closure method applied to idealized lean premixed gas turbine combustors", *J. Engr. for Gas Turbines and Power*, Vol. 125, pp. 895-900.
- Riley, J. J., and S. M. de Bruyn Kops. 2003. "Dynamics of turbulence strongly influenced by buoyancy", *Phys. Fluids*, Vol. 15, pp. 2047-2059.
- de Bruyn Kops, S. M., and J. J. Riley. 2003. "Large-eddy simulation of a reacting scalar mixing layer with Arrhenius chemistry", *Comp. and Math. with Applns.*, Vol. 46, pp. 547-569.
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- de Bruyn Kops, S. M., J. J. Riley, and G. Kosály. 2001. "Direct numerical simulation of reacting scalar mixing layers", *Phys. Fluids*, Vol. 13, pp. 1450-1465.
- de Bruyn Kops, S. M., and J. J. Riley. 2001. "Mixing models for large-eddy simulation of non-premixed turbulent combustion", *J. Fluids Engr.-T. ASME*, Vol. 123, pp. 341-346.
- de Bruyn Kops, S. M., and J. J. Riley. 2001. "Large-eddy simulation of non-premixed reacting flows with Arrhenius chemistry", *Comp. Math. with Applications*, to appear.
- de Bruyn Kops, S. M., and J. J. Riley. 2000. "Re-examining the thermal mixing layer with numerical simulations", *Phys. Fluids*, Vol. 12, pp. 185-192.
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- Cook, A. W., and J. J. Riley. 1998. "Subgrid-scale modeling for turbulent, reacting flows", *Comb. Flame*, Vol. 112, pp. 593-606.
- de Bruyn Kops, S. M., and J. J. Riley. 1998. "Direct numerical simulation of laboratory experiments in isotropic turbulence", *Phys. Fluids*, Vol. 10(9), pp. 2125-2127.
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- Slinn, D. N., and J. J. Riley. 1998. "Turbulent dynamics of a critically reflecting internal gravity wave", *Theoret. Comp. Fl. Dyn.*, Vol. 11, pp. 281-303.
- de Bruyn Kops, S. M., J. J. Riley, G. Kosály and A. W. Cook. 1998. "Investigation of modeling for non-premixed turbulent combustion", *Flow, Turb. Comb.*, Vol. 60, pp. 105-122.
- Cook, A. W., J. J. Riley, and G. Kosály. 1997. "A laminar flamelet approach to subgrid-scale chemistry in turbulent flows", *Comb. Flame*, Vol. 109, pp. 332-341.
- de Bruyn Kops, S. M., and J. J. Riley. 1997. "Scalar transport characteristics of the linear-eddy model", *Comb. Flame*, Vol. 112, pp. 253-260.
- Montgomery, C. J., G. Kosály, and J. J. Riley. 1997. "Direct numerical simulation of turbulent nonpremixed combustion with multistep hydrogen-oxygen kinetics", *Comb. Flame*, Vol. 109, pp. 113-144.
- Cook, A. W., and J. J. Riley. 1996. "Direct numerical simulation of a turbulent reactive plume on a parallel computer", *J. Comp. Physics*, Vol. 129, pp. 263-283.
- Lombard, P. N., and J. J. Riley. 1996. "Instability and breakdown of internal gravity waves. 1. Linear stability analysis", *Phys. Fluids*, Vol. 8, pp. 3271-3287.
- Slinn, D. N., and J. J. Riley. 1996. "Turbulent mixing in the oceanic boundary layer caused by internal wave reflection from sloping terrain", *Dynam. Atmos. Oceans*, Vol. 24, pp. 51-62.
- Lombard, P. N., and J. J. Riley. 1996. "On the breakdown into turbulence of propagating internal waves", *Dynam. Atmos. Oceans*, Vol. 23, pp. 345-355.
- Métais, O., P. Bartello, E. Garnier, J. J. Riley, and M. Lesieur. 1996. "Inverse cascade in stably-stratified rotating turbulence", *Dyn. Atmos. Oceans*, Vol. 23, pp. 193-203.
- Metais, O., C. Flores, S. Yanase, J. J. Riley and M. Lesieur. 1995. "Rotating free-shear flows. Part 2. Numerical simulations", *J. Fluid Mech.*, Vol. 293, pp. 47-80.
- Winters, K. B., Lombard, P. N., J. J. Riley, and E. D'Asaro. 1995. "Available potential energy and mixing in density-stratified fluids", *J. Fluid Mech.*, Vol. 289, pp. 115-128.

- Cook, A. W., and J. J. Riley. 1994. "A subgrid model for equilibrium chemistry in turbulent flows", *Phys. Fl.*, Vol. 6(8), pp. 2868-2870.
- Mell, W. E., V. Nilsen, G. Kosály, and J. J. Riley. 1994. "Investigation of closure models for nonpremixed turbulent reacting flows", *Phys. Fl.*, Vol. 6(3), pp. 1331-1356.
- Mell, W. E., V. Nilsen, G. Kosály, and J. J. Riley. 1993. "Direct numerical simulation investigation of the conditional moment closure model for nonpremixed turbulent reacting flows", *Combust. Sci. Tech.*, Vol. 91, pp. 179-186.
- Yanase, S., C. Flores, O. Métais, and J. J. Riley. 1993. "Rotating free shear flows. Part 1: linear stability analysis", *Phys. Fl.*, Vol. 5(11), pp. 2725-2737.
- Montgomery, C. J., G. Kosály, and J. J. Riley. 1993. "Direct numerical simulation of turbulent reacting flow using a reduced hydrogen-oxygen mechanism", *Combust. Flame*, Vol. 95, pp. 247-260.
- Winters, K. B., and J. J. Riley. 1992. "Instability of internal waves near a critical level", *Dynam. Atmos. Oceans*, Vol. 16, pp. 249-278.
- Chen, C., J. J. Riley, and P. A. McMurtry. 1991. "An investigation of Favre averaging in turbulent flows with chemical reaction", *Combust. Flame*, Vol. 87, pp. 257-277.
- Lelong, M.-P., and J. J. Riley. 1991. "Internal wave-vortical mode interactions in strongly stratified flows", *J. Fluid Mech.*, Vol. 232, pp. 1-19.
- Mell, W. E., G. Kosaly, and J. J. Riley. 1991. "The length-scale dependence of scalar mixing", *Phys. Fl.*, Vol. 3A(10), pp. 2472-2477.
- Frank, A., B. Balick, and J. Riley. 1990. "Stellar Wind Paleontology - Shells and Halos of Planetary Nebula", *Astron. J.*, Vol. 100, pp. 1903-1914.
- Jou, W.-H., and J. J. Riley. 1989. "Progress in direct numerical simulations of turbulent reacting flows", *AIAA J.*, Vol. 27(11), pp. 1543-1556.
- McMurtry, P. A., J. J. Riley, and R. W. Metcalfe. 1989. "Effects of Heat Release on Large-Scale Structures in Turbulent Mixing Layers", *J. Fluid Mech.*, Vol. 199, pp. 297-332.
- Staquet, C., and J. J. Riley. 1989. "On the Velocity Field Associated with Potential Vorticity", *Dyn. Atmos. Oceans*, Vol. 14, pp. 93-123.
- Soetrisno, M., D. S. Eberhardt, J. J. Riley, and P. A. McMurtry. 1989. "A Study of Inviscid, Supersonic Mixing Layers Using a Second-Order TVD Scheme", *AIAA J.*, Vol. 27, pp. 1770-1778.
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- Metcalfe, R. W., S. A. Orszag, M. E. Brachet, S. Menon, and J. J. Riley. 1987. "Secondary Instability of a Temporally-Growing Mixing Layer", *J. Fluid Mech.*, Vol. 184, pp. 207-243.
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- Gore, R. A., C. T. Crowe, T. R. Troutt, and J. J. Riley. 1985. "A Numerical Study of Particle Dispersion in Large-Scale Structures", *Multi-Phase Flow and Heat Transfer*, HTD Vol. 47, Bk. No. 600304.
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- Riley, J. J., and S. Corrsin. 1974. "The Relation of Turbulent Diffusivities to Lagrangian Velocity Statistics for the Simplest Shear Flow", *J. Geophys. Res.*, Vol. 79, pp. 1768-1771.
- Riley, J. J., and G. S. Patterson, Jr. 1974. "Diffusion Experiments with Numerically Integrated Isotropic Turbulence", *Phys. Fl.*, Vol. 17, pp. 292-297.
- Riley, J. J. 1973. "Relating One-Point Concentration Moments of a Chemical Reactant to the Lagrangian Probability Density", *Phys. Fl.*, Vol. 16, pp. 1161-1162.
- Herring, J. R., J. J. Riley, G. S. Patterson, Jr., and R. H. Kraichnan. 1973. "Growth of Uncertainty in Decaying Isotropic Turbulence", *J. Atmos. Sci.*, Vol. 30, pp. 997-1006.

6.2 Recent Conference Proceedings

- Riley, J. J., T. Watanabe, S. M. de Bruyn Kops, P. Diamessis, and Q. Zhou. 2016. "On the dynamics of turbulent/non-turbulent interfaces in stably-stratified fluids", Royal Society Colloquium on Stratified Turbulence in the 21st Century, Chicheley Hall, UK.
- Riley, J. J., O. Flores, and S. M. de Bruyn Kops. 2015. "Analogies between stratified turbulence, near free surface turbulence, and thin layer turbulence", Euromech Colloquium 567, Cambridge, UK.
- Riley, J. J., O. Flores, and S. M. de Bruyn Kops. 2014. "On analogies between stratified turbulence, near free surface turbulence, and thin layer turbulence", Fundamental Aspects of Geophysical Turbulence, Nagoya, Japan.
- Riley, J. J., and O. Flores. 2013. "On dynamical similarities between flows with inhibited vertical motions", LANL Ocean Turbulence Conference, Sante Fe, NM.
- Riley, J. J., O. Flores, and A. R. Horner-Devine. 2012. "On the dynamics of homogeneous turbulence near a stress-free surface", ICTAM 2012, Beijing, China.
- Riley, J. J., and K. Thyng. 2011. "Some fluid dynamical issues in the siting of turbines for tidal energy", ASME-JSME-KSME, Hamamatsu, Japan.
- Riley, J. J., and V. Vasan. 2009. "On spectral energy transfer in strongly stratified flows", Euromech Colloquium 512, Turin, Italy.
- Riley, J. J., and V. Vasan. 2009. "On spectral energy transfer in strongly stratified flows", 12th European Turbulence Conference, Marburg, Germany.
- Oh, K., J.-H. Chung, S. Devasia, and J. J. Riley. 2007. "Fluid manipulation by bio-mimetic cilia", ASME Conference IMECE 2007-42376.

- McKay, B., D. Iamratanakul, K. Oh, J.-H. Chung, J. J. Riley, and S. Devasia. 2007. “Added-mass effect in modeling of cilia-based (vibrating cantilever-type) devices for microfluidic systems”, ASME Conference IMECE 2007-42160.
- Berrouk, A., A. Douce, D. Laurence, J. J. Riley, and D. E. Stock. 2006. “RANS and LES of particle dispersion in turbulent pipe flow: comparisons with experimental results”, Proceedings of ASME/FED 2006.

2. Chapters of Books:

- Riley, J. J. 2023. “Turbulent Mixing”, to appear in *Turbulent Flows in Natural and Human-Made Environments*, E. R. Bou-Zeid and S. Sarkar, editors, Elsevier.
- Riley, J. J. 2021. “Turbulence in stably stratified fluids”, in *Advanced Approaches in Turbulence*: 483-523, P. Durbin, editor, Elsevier.
- Flores, O., and J. J. Riley. 2018. “Energy balance in stably-stratified, wall-bounded turbulence”, in *Mixing and Dispersion in Flows Dominated by Rotation and Buoyancy*, H. J. H. Clercx and G. F. van Heijst, ed., Springer.
- Riley, J. J., and E. Lindborg. 2013. “Recent progress in stratified turbulence”, in *Ten Chapters in Turbulence*, P. A. Davidson, Y. Kaneda, and K. R. Sreenivasan, ed., Cambridge University Press.
- Meneveau, C., and J. J. Riley. 2011. “Stanley Corrsin”, in *A Voyage through Turbulence*, P. A. Davidson, Y. Kaneda, K. Moffat, and K. R. Sreenivasan, ed., Cambridge University Press.
- Riley, J. J. 2007. “Intermediate-scale dynamics of the upper troposphere and stratosphere”, in *Large-Scale Disasters: Prediction, Control, and Mitigation*, M. Gad-el-Hak, ed., Cambridge University Press.
- de Bruyn Kops, S. M., J. J. Riley, and K. B. Winters. 2004. “Reynolds and Froude number scaling in stably-stratified flows”, in *Reynolds Number Scaling in Turbulent Flow*, A. J. Smits (Ed.), Kluwer Academic Publishers.
- Riley, J. J., and M.-P. Lelong. 2000. “Fluid Motions in the presence of strong stable stratification”, *Ann. Rev. Fluid Mech.*, (invited article), Vol. 32, pp. 613-657.
- Riley, J. J. 1999. “Turbulent Combustion Modeling”, in *Transition, Turbulence and Combustion Modeling*, (invited article) A. Hanifi et al., eds., Kluwer Academic.
- Cook, A. W., and J. J. Riley. 1998. “Progress in subgrid-scale combustion modeling”, in *Computational Fluid Dynamics Review 1997*, (invited article) M. Hafez, ed., Wiley.
- Riley, J. J. 1996. “Numerical simulation of variable-density, reacting flows”, in *Computational Fluid Dynamics*, (invited article) M. Lesieur, P. Comte and J. Zinn-Justin, eds., Elsevier.
- Métais, O., J. J. Riley, and M. Lesieur. 1993. “Numerical Simulations of Stably-Stratified, Rotating Turbulence”, in *Stably-Stratified Flows: Flow & Dispersion over Topography*, I. P. Castro & N. J. Rockliff, eds., Oxford University Press, to appear; also in *Selected Papers from the Ninth Symposium on Turbulent Shear Flows*, Springer-Verlag.
- Riley, J. J., M.-P. Lelong, and D. N. Slinn. 1991. “Organized structures in strongly stratified flows”, in *Turbulence and Coherent Structures*, O. Métais and M. Lesieur, eds., Kluwer Academic Publishers.

- Staquet, C., and J. J. Riley. 1989. “A Numerical Study of a Stably-Stratified Mixing Layer”, in *Turbulent Shear Flows 6*, Springer-Verlag, pp. 381-397.
- Riley, J. J., and P. A. McMurtry. 1989. “The Use of Direct Numerical Simulation in the Study of Turbulent, Chemically-Reacting Flows”, in *Turbulent Reacting Flows, Vol. 2. Structure and Predictive Schemes*, (invited article) ed. by R. Borghi and S. N. B. Murthy, Springer-Verlag, pp. 486-514.
- Riley, J. J., M. Gad-el-Hak, and R. W. Metcalfe. 1988. “Compliant Surfaces”, *Ann. Rev. Fluid Mech.*, (invited article) Vol. 20, pp. 393-420.
- Riley, J. J., and M. Gad-el-Hak. 1984. “Some Insights into Transitional and Turbulent Boundary Layers”, invited paper for the Conference on Fundamentals in Fluid Mechanics, Northwestern University, June; in *Frontiers in Fluid Mechanics*, ed. by S. H. Davis and J. L. Lumley, Springer-Verlag, pp. 123-155.
- Riley, J. J., R. W. Metcalfe, and M. A. Weissman. 1981. “Direct Numerical Simulations of Homogeneous Turbulence in Density-Stratified Fluids”, presented at the Workshop on Nonlinear Properties of Internal Waves, January; in *Nonlinear Properties of Internal Waves*, AIP Conference Proceedings No. 76, ed. by B. J. West, pp. 79-112.
- Weissman, M. A., R. W. Metcalfe, and J. J. Riley. 1981. “Nonlinear Internal Wave Interactions”, presented at the Workshop on Nonlinear Properties of Internal Waves, January; in *Nonlinear Properties of Internal Waves*, AIP Conference Proceedings No. 76, ed. by B. J. West, pp. 253-266.
- Riley, J. J., and R. W. Metcalfe. 1980. “Direct Numerical Simulations of the Turbulent Wake of an Axisymmetric Body”, *Selected Papers from the 2nd Symposium on Turbulent Shear Flows*, Springer-Verlag, Berlin, pp. 78-93.
- Riley, J. J., and R. W. Metcalfe. 1980. “Direct Numerical Simulations of a Perturbed, Turbulent Mixing Layer”, AIAA-80-O274, presented at the 18th Aerospace Sciences Meeting, January, 30 pages.

6.5 Conference Presentations

- B. C. Blakeley, J. J. Riley, D. W. Storti, and W. Wang. 2017. “On the kinematics of scalar iso-surfaces in turbulent flow”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- J. J. Riley and S. M. de Bruyn Kops. 2017. “The effect of stable stratification on initially homogeneous, isotropic turbulence”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- B. Perfect, J. J. Riley, J. Thomson, and E. Fay. 2015. “A study of water wave wakes of Washington State ferries”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- T. Watanabe, J. J. Riley, S. M. de Bruyn Kops, P. Diamessis, and Q. Zhou. 2015. “Characteristics of turbulent/non-turbulent interfaces in wakes in stably-stratified fluids”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- S. M. de Bruyn Kops, and J. J. Riley. 2014. “Initially isotropic turbulence subject to stabilizing stratification”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.

- S. Madhavan, S. Brunton, and J. J. Riley. 2014. “Lagrangian coherent structures and the dynamics of inertial particles”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- R. Keedy, J. J. Riley, and A. Aliseda. 2014. “Probability density function analysis of turbulent condensation using GPU hardware”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Keedy, R., J. J. Riley, and A. Aliseda. 2013. “The effect of viscosity gradients on the stability of the turbulent round jet”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Wang, W., J. J. Riley, and J. C. Kramlich. 2012. “On the kinematics of scalar iso-surfaces in a turbulent flow”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Riley, J. J., O. Flores, and A. R. Horner-Devine. 2012. “On the dynamics of homogeneous turbulence near a stress-free surface”, International Conference on Theoretical and Applied Mechanics, August.
- Riley, J. J. 2012. “On the kinematics of scalar iso-surfaces in a turbulent flow”, Connections Between Regularized and Large-Eddy Simulation Methods in Turbulence, May.
- Riley, J. J. 2011. “Some fluid dynamical issues in the siting of turbines for tidal energy”, ASME-JSME-KSME Joint Fluids Engineering Conference, July.
- Flores, O., and J. J. Riley. 2011. “On the dynamic of homogeneous turbulence near a stress-free surface”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Flores, O., J. J. Riley, N. Malaya, and R. Moser. 2010. “Stable stratification in turbulent Ekman layers”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- McGah, P., D. Leotta, K. Beach, J. J. Riley, and A. Aliseda. 2010. “Hemodynamic simulations in dialysis access fistulae”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Riley, J. J., V. Vasan, O. Flores and P.-K. Yeung. 2009. “On spectral energy transfer in strongly stratified flows”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Riley, J. J., and O. Flores. 2009. “Numerical simulations of stable atmospheric boundary layers”, ARO Atmospheric Sciences Overview, January.
- Schwarzkopf, J., C. Crowe, J. J. Riley, and P. Dutta. 2008. “Effect of particles on the dissipation of dissipation coefficient in the $k-\epsilon$ model”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Vasan, V., O. Grundestam, J. J. Riley, and P.-K. Yeung. 2008. “Direct numerical simulations of stratified turbulence at high Reynolds numbers”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Riley, J. J., and E. Lindborg. 2007. “Stratified turbulence: a possible interpretation of some geophysical turbulence measurements”, Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.

- Wetchagarun, S., and J. J. Riley. 2007. "The behavior of the temperature of small inertial particles", Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Oh, K., J.-H. Chung, S. Devasia, and J. J. Riley. 2007. "Fluid manipulation by bio-mimetic cilia", ASME Conference IMECE 2007-42376.
- McKay, B., D. Iamratanakul, K. Oh, J.-H. Chung, J. J. Riley, and S. Devasia. 2007. "Added-mass effect in modeling of cilia-based (vibrating cantilever-type) devices for microfluidic systems", ASME Conference IMECE 2007-42160.
- Oh, K., J.-H. Chung, S. Devasia, and J. J. Riley. 2007. COMSOL Workshop, University of Washington.
- Wetchagarun, S., and J. J. Riley. 2006. "A numerical study of subgrid-scale effects on particle statistics in a particle-laden turbulent flow: *a priori* testing", Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, November.
- Berrouk, A., A. Douce, D. Laurence, J. J. Riley, and D. E. Stock. 2006. "RANS and LES of particle dispersion in turbulent pipe flow: comparisons with experimental results", ASME 2006 Joint U.S.-European Fluids Engineering Summer Meeting, Miami, July.
- Berrouk, A., D. Laurence, and D. E. Stock. 2006. "A validation study of RANS and large-eddy simulations of particle dispersion in turbulent pipe flow", Euromech Colloquium-477: Particle-laden flow, University of Twente, June.
- Lindborg, E., and J. J. Riley. 2006. "The $k^{-5/3}$ energy spectrum in the open ocean: a new interpretation", European Geosciences Union, Vienna, April.

3. Miscellaneous

- Adrian, R. J., C. Meneveau, R. D. Moser and J. J. Riley. 2000. "Final Report on 'Turbulence Measurements for LES' Workshop", available on the World Wide Web at: www.me.washington.edu/les.
- Contributor to the CD-ROM entitled *Leonardo da Vinci*, published by Corbis, Inc., 1996

4. Additional

Numerous other papers in the proceedings of meetings, conferences, workshops and symposia; numerous industrial reports

Other Scholarly Activities

1. Invited Seminars

University of Pittsburgh, January, 2020
Woods Hole Oceanographic Institute, July, 2019
Stanford University, February, 2019
University of California, San Diego, April, 2018
University of Notre Dame, April, 2018
University of Southern California, November, 2017
University of Toronto, April, 2017
Texas Tech University
 President's Distinguished Lecture Series, October, 2015.
University of Houston, November, 2013
University of British Columbia, January, 2012
Okinawa Institute for Science and Technology, July, 2011.
National Center for Atmospheric Research, Boulder, June, 2010.
University of Texas, Austin, March, 2010.
Stanford University, March, 2010.
St. Andrews University, December, 2008.
Cambridge University, November, 2008.
Imperial College London, October, 2008.
Northwestern University, March, 2008.
University of Notre Dame, March, 2008.
Illinois Institute of Technology, March, 2008.
University of Illinois CU, March, 2008.
Purdue University, March, 2008.
Washington State University, November, 2007.
University of Michigan, September, 2007.
Michigan State University, September, 2007.
Iowa State University, September, 2007.
University of Wisconsin, September, 2007.
University of Minnesota, September, 2007.
Institut de Recherche sur les Phénomènes Hors Equilibre,
 Marseille, France, July, 2007.
Institut de Mecanique des Fluides, Toulouse, France, July, 2006
Northwest Research Associates, Bellevue, Washington, September, 2005
University of Western Australia, Perth, Australia, June, 2004
Royal Melbourne Institute of Technology, Melbourne, Australia, June, 2004
Monash University, Melbourne, Australia, June, 2004
Curtin University of Technology, Perth Western Australia, May, 2004
University of Western Australia, Perth, Western Australia, April, 2004
California Institute of Technology, November, 2003
Technische Universität Berlin, June, 2003
Politecnico di Milano, May, 2003
Institut für Technische Mechanik, RWTH Aachen, May, 2003

Technische Universität München, April, 2003
 University of Washington, Aeronautics & Astronautics, January, 2003
 Arizona State University, April, 2001
 University of California, San Diego, April, 2001
 Stanford University, March, 2001
 Lawrence Livermore National Laboratory, July, 1999
 California Institute of Technology, January, 1999
 Stanford University, July, 1998
 Lawrence Livermore National Laboratory, July, 1998 (2 seminars)
 Battelle PNNL, August, 1997
 University of Washington, Civil Engineering, January, 1997
 Johns Hopkins University, May, 1996
 University of Maryland, May, 1996
 University of California, Irvine, April, 1996
 University of California, San Diego, April, 1996
 Midwest Lecture Tour: Notre Dame U., Illinois Institute of Technology,
 U. Illinois, Champagne-Urbana, Purdue U., March, 1996
 Midwest Lecture Tour: U. Michigan, Michigan St. U., Northwestern U.,
 U. Minnesota, October, 1995
 University of Southern California, March, 1995
 University of Western Australia, Perth, September, 1994
 University of Sydney, Australia, September, 1994
 California Institute of Technology, January, 1992
 University of Southern California, January, 1992
 Los Alamos National Laboratory, November, 1991
 Lawrence Livermore National Laboratory, May, 1991
 Universidad de Zaragoza, Spain, September, 1990
 Centre National de Recherches Meteorologiques, Toulouse, France,
 August, 1990
 École Centrale de Lyon, France, July, 1990
 Politecnico di Torino, Italy, June, 1990 (2 seminars)
 Institut de Mécanique de Grenoble, France, May, 1990
 University of Houston, February, 1990
 Boeing Commercial Airplane Company, October, 1989
 Arizona State University, September, 1989
 University of Arizona, August, 1989
 Northwest Research Associates, January, 1989
 Stanford University Series on Turbulence in the Environment,
 February, 1988
 Battelle PNNL, December, 1987
 Arizona State University, October, 1987

2. Invited Presentations at Meetings/Workshops

Fundamental Aspects of Geophysical Turbulence
Nagoya, Japan, March, 2018

International Symposium on Stratified Flows
San Diego, August, 2016

Keynote Speaker, Canadian Society of Mechanical Engineering
Annual Meeting, July, 2016

Stratified Turbulence in the 21st Century
The Royal Society
The Royal Society at Chicheley Hall, UK, March, 2016

Waves and Turbulence in Rotating,
Stratified and Electrically-Conducting Fluids
Oxford, UK, September, 2015

Fundamental Aspects of Geophysical Turbulence
National Center for Atmospheric Research
Boulder, CO, August, 2015

International Centre for Mechanical Sciences
Mixing and Dispersion in Flows Dominated by
Rotation and Buoyancy
Series of Lectures
Udine, Italy, July, 2015

Keynote Speaker, Euromech Colloquium 567
Turbulent Mixing in Stratified Flows
Cambridge University, Cambridge, UK, March, 2015

Waves and Turbulence in Geophysics
Cambridge University, Cambridge, UK, July, 2014

Fundamental Aspects of Geophysical Turbulence
Nagoya, Japan, March, 2014

Los Alamos Ocean Turbulence Conference
Sante Fe, NM, June, 2013.

International Conference on Theoretical and Applied Mechanics
Beijing, China, August, 2012

European Turbulence Conference
Warsaw, Poland, September, 2011

Plenary Speaker, ASME-JSME-KSME
Joint Fluids Engineering Conference
Hamamatsu, Japan, July, 2011

Plenary speaker, Annual Meeting of the Division of
Fluid Dynamics of the American Physical Society,
November, 2010.

Keynote speaker, NCAR Geophysical Turbulence Workshop,
National Center for Atmospheric Research
Boulder, CO, August, 2010

Euromech Colloquium on Small-Scale Turbulence,
Turin, Italy, October, 2009.
Could not attend, health-related issue.

International Symposium on Turbulence,
Beijing, November, 2009.
Could not attend, health-related issue.

Plenary Speaker, 12th European Turbulence Conference,
Marberg, Germany, September, 2009.
Could not attend, health-related issue.

Workshop on Inertial Range Dynamics and Mixing,
Cambridge, UK, September, 2008.

IUTAM Workshop: Rotating Stratified Turbulence and
Turbulence in the Atmosphere and Oceans,
Cambridge, UK, December, 2008.

Keynote speaker, Density Effects in Fluid Dynamics Workshop,
Los Alamos National Laboratory, December, 2007

Institute for Mathematical Sciences Turbulence Workshop,
Imperial College London, March, 2007

Keynote speaker, Sedona International Workshop on Stable
Atmospheric Boundary Layers, November, 2006

Spontaneous Imbalance Workshop, Seattle, August, 2006

Keynote speaker, Geophysical Turbulence Workshop,
National Center for Atmospheric Research,
Boulder, July, 2005

LES/SGS Workshop, California Institute of Technology, November, 2003

31st AIAA Fluid Dynamics Conference, June, 2001

IUTAM 2001, invited session chair and discussion moderator, June

ASME Fluids Engineering Summer Meeting, Symposium on the
Role of Industry in Developing Fluid Power Generating Systems,
May, 2001

European Geophysical Society, April, 2000, Nice, France

NSF Workshop on Turbulence Measurements for LES, October, 1999

Second AFOSR Conference on DNS and LES, June, 1999, Rutgers

Workshop on the Role of DNS in Turbulence Research, March, 1999,
University of California, Santa Barbara

Mexican Physical Society, Annual Meeting, October, 1998

Sandia National Laboratory, June, 1998,
DOE Scientific Simulation Initiative Workshop

European Summer School on Turbulence, June, 1998, Stockholm
(series of lectures)

Lawrence Livermore National Laboratory, June, 1997,
Workshop on Turbulent Transport and Numerical Modeling

Sandia National Laboratory, Combustion Modeling Workshop,
September, 1997

Los Alamos National Laboratory, June, 1997,
 Workshop on Turbulence and Transport Modeling
 Workshop on Computing the Future II, June, 1997
 National Center for Atmospheric Research, August, 1996,
 Workshop on Stratified and Rotating Turbulence
 American Water Resource Association, November, 1996,
 Annual Meeting
 American Physical Society, November, 1995
 48th Meeting of the Division of Fluid Dynamics
 Los Alamos National Laboratory, May, 1995
 Nonlinear Phenomena in Ocean Dynamics
 EUROMECH 339, Internal Waves, Turbulence and Mixing
 in Stratified Fluids, Lyon, France, September, 1995
 EUROMECH Course on Computational Fluid Mechanics, Les Houches,
 France, June, 1993 (series of lectures)
 Thirteenth Symposium on Turbulence
 University of Missouri, Rolla, September 1992
 Los Alamos National Laboratory, Reactive Turbulence Workshop,
 Center for Nonlinear Studies (2 papers), August, 1992
 University of Hawaii Workshop on the Dynamics of Oceanic Internal
 Gravity Waves, January, 1991
 NASA Langley Research Center/ICASE Combustion Workshop,
 October, 1989
 American Meteorology Society, April, 1989
 Seventh Conference on Atmospheric and Oceanic Waves
 and Stability
 American Physical Society, November, 1998
 41st Meeting of the Division of Fluid Dynamics
 Brown University/Yale University Free Shear Flows Conference, June, 1988
 United States-France Joint Workshop on Turbulent Reacting Flows,
 Rouen, France, July, 1987
 Symposium on Prospects of Turbulence Research, the National Center for
 Atmospheric Research, June, 1987
 American Institute of Aeronautics and Astronautics
 Fluid Dynamics and Plasma Dynamics Meeting, June, 1987
 Second International Symposium on Stratified Flows, Caltech, January, 1987
 American Meteorology Society, November, 1985
 Seventh Symposium on Turbulence and Diffusion
 Société Française de Physique Congrès National, Nice, September, 1985
 International Workshop: Puzzles in Free Shear Layers, Brown University,
 November, 1984
 Conference on Fundamentals in Fluid Mechanics, Northwestern University,
 June, 1984

3. Additional

Numerous other presentations at meetings, conferences, workshops
and symposia

4. Professional Society Memberships

American Physical Society
American Society of Mechanical Engineers
American Institute of Aeronautics and Astronautics
American Meteorological Society
American Association for the Advancement of Science

Recent Service

Mechanical Engineering:

Member, Faculty Affairs Committee; Chair AY2004/5,
AY2005/6, AY2006/7, AY2009/10, AY2010/11,
AY2011/12, AY2012/13, AY2013/14
AY2014/15, AY2015/16, AY2016/17, AY17/18
Chair, Faculty Search Committee, 2013/2014
Chair, Faculty Search Committee, 2006
Member, Faculty Search Committee, 2011

College of Engineering

ACC Director Search Committee, 2022
Member, Associate Dean Search Committee, 2005
Member, Council on Promotion & Tenure, 2007/8, 2016/17, 2017/18
Member, CoE Graduate Fellowship Selection Committee,
2012, 2013
Member, CoE Endowment Committee, 2014

University of Washington

Chair, Advisory Committee for Atmospheric Sciences
10-year Program Review
Member, Advisory Review Committee for the Director of the
Applied Physics Laboratory

American Physical Society

Chair Elect, Vice-Chair, Chair, Division of Fluid Dynamics
2011, 2012, 2013
Chair, Fluid Dynamics Program Committee, 2012
Chair, Fellowship Committee, 2012

Highline Community College

Member, Engineering Advisory Council
Member, Board of Directors, Highline Community College Foundation

5. Professional Society and Other Service

American Physical Society

Chair, Annual Meeting of the Division of Fluid Dynamics, 2004

Chair, Division of Fluid Dynamics, 1997

Past Chair, Chair elect, Vice-Chair, Division of Fluid Dynamics,
1995-1998

Secretary/Treasurer, Division of Fluid Dynamics, 1992-1995

Co-organizer for the Workshop on Turbulence Measurements for LES,

sponsored by the NSF, AFOSR, DARPA, DOE, October, 1999

Co-organizer for the Workshop on the Role of DNS in Turbulence

Research, sponsored by the NSF and the Institute of Theoretical

Physics, University of California, Santa Barbara, March, 1999

Associate Editor, *Journal of Fluid Mechanics*

Editorial Committee, *Annual Review of Fluid Mechanics*

Associate Editor, *Journal of Turbulence*

Associate Editor, *Applied Mechanics Reviews*

Associate Editor, 2006 issue of *Annual Review of Fluid Mechanics*

American Institute of Physics

Advisory Committee for Selection of Editor of the *Physics of
Fluids*, 1998

National Science Foundation

Chair, National Visiting Committee, Fluid Mechanics Multi-Media
Project, 1998-2001

National Science Foundation, Workshop on Supercomputer Usage,

Chairman of the Fluid Mechanics Committee, December, 1983

American Meteorological Society

Member, Committee on Boundary Layers and Turbulence (twice)

Chair, Committee on Boundary Layers and Turbulence, 1987-1988

Chair, Symposium on Turbulence and Diffusion, 1988