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“*Something about Fluid Mechanics*”



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Biography: Jim Riley, the PACCAR Professor of Engineering, is a fluid dynamicist whose research and teaching emphasize transitioning and turbulent flows. He has worked extensively on a broad range of problems, among them turbulent dispersion, two-phase flows, boundary layer transition, free shear flows, chemically-reacting flows, and geophysical flows. He is a pioneer in the development and application of direct numerical simulation to transitioning and turbulent flows. His current research emphasizes turbulent, chemically-reacting flows and also waves and turbulence in density-stratified flows and rotating flows. His classroom teaching mainly involves courses in fluid mechanics, both at the undergraduate and graduate levels. At the undergraduate level, Professor Riley helped develop a new course, ME431, Advanced Fluid Mechanics, in which students are introduced to the application of commercial computers codes to problems involving fluid mechanics. At the graduate level he teaches courses on introductory fluid mechanics, and on hydrodynamic stability and turbulence; he recently introduced new courses on turbulence modeling and on large-eddy simulation of turbulence.

Professor Riley, a member of the Washington State Academy of Sciences, is a Fellow of the American Physical Society, and is a past chair of its Division of Fluid Dynamics; he is also a Fellow of the American Society of Mechanical Engineers and a Fellow of the Institute of Physics. While on sabbatical at Joseph Fourier University in Grenoble, France, Professor Riley occupied the visiting chair in industrial mathematics. More recently he was a senior fellow at the Isaac Newton Institute for Mathematical Sciences at Cambridge University, Cambridge, U.K.

Among his editorial responsibilities, Professor Riley is an associate editor for the *Journal of Fluid Mechanics*, is a member of the Editorial Committee for the *Annual Review of Fluid Mechanics*, is an associate editor for the *Applied Mechanics Reviews*, and is also an associate editor for the *Journal of Turbulence*.