Preface

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This Special Issue is comprised of papers selected to focus on research connections between the fields of turbulence and combustion in a way that recognizes the seminal scientific contributions to these two fields by Professor Stephen B. Pope of Cornell

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University on the occasion of his 60th birthday. We are grateful to journal Editor Kemo Hanjalić for his gracious enabling of this special issue, which is edited by one of Steve's former students, D. C. Haworth of Penn State University, and Steve's long-time colleague, Z. Warhaft, of Cornell.

Stephen Bailey Pope was born in Nottingham, England, and educated at the Imperial College of Science and Technology, London, receiving his PhD in Mechanical Engineering under the direction of Professor James Whitelaw in 1976. He came to the US in 1977, and, after holding post-doctoral and faculty positions at Caltech and MIT, respectively, he joined the faculty at Cornell in 1982, where he has been an inspiring scholarly presence ever since. His very first paper, published in 1975 [1], continues to attract a steady stream of citations after nearly four decades. His pioneering and universally-appreciated work on probability density function modeling [2] popularized the acronym PDF, long before digital typography developed a competing interpretation. He has been a leading thinker and developer of numerous theoretical and computational techniques, including Lagrangian methods [3], efficient adaptive tabulation techniques for chemical kinetics [4], the integration of these techniques into methods for the accurate simulation of turbulent reacting flows [5, 6], and, more recently, new insights for large-eddy simulation [7]. His work is not only highly respected and well-published in the scientific research community, but also has found practical application in industry.

As noted by one of his colleagues in the field, Steve's work is forward-thinking, carefully planned, and never ad hoc. Many times, he has, in a helpful and friendly way, challenged others, including his own students and others, who have come to benefit from his input and wise counsel, to embody such attributes in their works as well. It is especially important to him that a good researcher wanting to reach higher should be observing critically, reporting objectively, and taking care to avoid flimsy or weak arguments. His own publications are characterized by unusual clarity in exposition, even when complex mathematical notation is necessary.

In addition to his accomplishments as a researcher, Steve is a dedicated educator and a leader in the scientific community. He has made substantial contributions to the education, not only of students at Cornell, but also at many other institutions, through widespread adoption of his textbook *Turbulent Flows* [8]. He has served admirably well on the editorial boards of several leading journals, especially *Physics of Fluids* and *Combustion Theory and Modelling*. He has also been a principled leader in the governance processes of learned societies in his field, with a strong commitment to fairness and integrity.

Professor Pope is a Fellow of the Royal Society in the United Kingdom, and a member of the US National Academy of Engineering. Appropriately, his accomplishments in combustion and turbulence have been recognized with both the Zeldovich Gold Medal of the Combustion Institute (2008) and the Fluid Dynamics Prize of the American Physical Society (2009). One of Steve's former students remarks that, physically, he looks exactly the same as he did 25 years ago. Those who have known him closely for a long time, including ourselves, can no doubt testify that Steve's capacity and appetite for intellectual excellence are as keen as ever, if not even sharper than earlier in his distinguished career. We thank Steve for his enormous contributions to both the science and the health of our community, and look forward to much more from him in the years to come.

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