

# ALEXANDER SMITS



Alexander (Lex) Smits, the Eugene Higgins Professor of Mechanical and Aerospace Engineering, is transferring to emeritus status after 37 years on the Princeton faculty. Lex was born in Amsterdam and moved to Melbourne, Australia, as a child. He earned his undergraduate and doctoral degrees from the University of Melbourne. After completing his Ph.D., he was a postdoctoral researcher at Imperial College London and later returned to the University of Melbourne as a research fellow before joining the faculty at Princeton in 1981. At Princeton, he was chair of the Department of Mechanical and Aerospace Engineering for 13 years, and he was the director of the Gas Dynamics Laboratory on the Forrester Campus for 33 years. He is known in the community as an outstanding educator, communicator, scholar, and leader.

Lex's research spans the field of fluid mechanics including fundamental turbulence, supersonic and hypersonic flows, bio-inspired flows, aerodynamics of sports, and novel energy harvesting concepts. He has made seminal contributions to our fundamental understanding of these kinds of flows through a combination of experiment and theory approaches. He has authored more than 240 journal articles and three books, as well as edited seven volumes. He has been awarded seven patents and helped found three companies. He has co-authored a series of influential reviews and a highly recognized undergraduate fluid mechanics textbook. He advised 87 students and postdocs, who have gone on to careers in academia, industry, and research labs all over the world.

He is perhaps best known for his transformative research of canonical wall-bounded turbulence and our ability to experimentally study such flows. These studies included the introduction of world-unique facilities and novel instrumentation, enabling detailed measurements and investigations of flows never before possible. The results were at some points controversial, with significant importance to both engineering and atmospheric flow modeling. They energized the turbulence community and are still considered a landmark achievement and the standard reference for a long list of follow-up studies.

Lex has served widely in leading the fluid mechanics and engineering communities, including as chair of the Division of Fluid Dynamics of the American Physical Society (2007–08), and in editorial capacities at the *Journal of Fluid Mechanics*, *Physics of Fluids*, *AIAA Journal*, and *efluids.com*, a specialty web portal for students and researchers in fluid dynamics.

He received several teaching awards including the President's Award for Distinguished Teaching at Princeton in 2007. He is a member of the National Academy of Engineering, and a fellow of the American Physical Society, the American Institute of Aeronautics and Astronautics, the American Society of Mechanical Engineers, the American Association for the Advancement of Science, and the Australasian Fluid Mechanics Society. He has been recognized with many awards for his scientific contributions, including the Fluids Engineering Award from the American Society of Mechanical Engineers; and the Fluid Dynamics Award, Pendray Aerospace Literature Award, and Aerodynamic Measurement Technology Award, all from the American Institute of Aeronautics and Astronautics. In 2009, he received the *Médaille de la Ville de Marseille* in recognition of his scientific and cultural contributions to the French city of La Ville de Marseille. In 2011, he received a degree *Honoris Causa* (D. Eng.) from the University of Melbourne.

Lex's unique compassion for students, his ability to engage, inspire, and support his colleagues and a deep knowledge of the subject of fluid mechanics made him a favorite teacher, adviser, and leader—a true scholar.