ME Seminar

How circulation accommodates walls

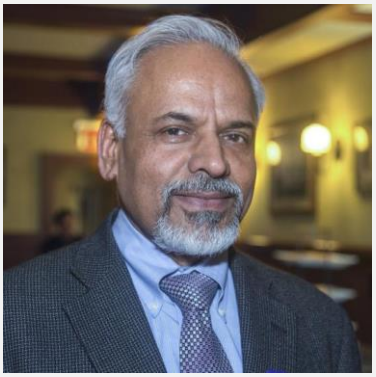
K.R. Sreenivasan
New York University

ABSTRACT

Circulation is a familiar quantity to all fluid dynamicists. In turbulence theory, however, it is of recent origin (in so far as significant results are concerned). After 80 years of persistence with Kolmogorov's idea of using velocity differences to diagnose universality, the consideration of circulation around loops of various sizes has shown its power and usefulness. We examine some properties of circulation in the wall-free case and contrast them with those in the presence of walls.

ABOUT THE SPEAKER

K. R. Sreenivasan is University Professor of Physics, Mathematics, and Engineering at New York University, where he holds the Kleiner Chair in Innovation. He received his Ph.D. from the Indian Institute of Science (IISc). His research spans turbulence, nonlinear and statistical physics, astrophysical fluid mechanics, and cryogenic helium. He served for 22 years as the Horald W. Cheel Professor at Yale, later becoming Director of the Institute for Physical Science and Technology at the University of Maryland. From 2003 to 2009, he was Director of the Abdus Salam International Centre for Theoretical Physics (ICTP). He is a member of several leading academies worldwide, and his honors include the Guggenheim Fellowship, the Fluid Dynamics Prize and the Leo Kadanoff Prize of the American Physical Society, the ASME Medal, the G.I. Taylor Medal, the von Kàrmàn Medal, the International Panetti–Ferrari Prize, and Brazil's National Order of Scientific Merit.



7th January 2026, 4:00 PM, AR Auditorium, Department of Mechanical Engineering, IISc