ME Seminar

From wall jets and boundary layers to clouds - laboratory studies for atmospheric turbulence at IITM

Dr. Shivsai Ajit Dixit, Indian Institute of Tropical Meteorology (IITM), Pune, India

ABSTRACT

The Fluid Dynamics Laboratory (FDL) at the Indian Institute of Tropical Meteorology (IITM), Pune was established ten years ago with the aim to study model flows of interest to atmospheric and oceanic sciences, under controlled conditions, to decipher underlying essential physics. Experimental investigations on wall jets, a zeroth-order laboratory analogue of the turbulence in atmospheric low level jets, have been carried out over the past six years or so. This talk presents important results from these wall jet studies. Another line of work is the theoretical study of the scaling of friction in wall bounded turbulent flows. Remarkable new scaling ideas have emerged out of it leading to a universal description of friction that was elusive so far.

ABOUT THE SPEAKER

Dr. Shivsai Ajit Dixit holds a BE in Mechanical Engineering from the Government College of Engineering, Pune, where he worked under Prof. P. V. Mandke. He earned his ME in Aerospace Engineering from IISc in 2003, specializing in Propulsion, Atomization, and Sprays under Prof. B. N. Raghunandan, and was awarded the Best ME Student Award and placed on the Roll of Honour in the Aerospace Engineering Department. Dr. Dixit completed his PhD in Aerospace Engineering from IISc in 2010 under Prof. O. N. Ramesh, focusing on Aerodynamics and Boundary Layer Turbulence, and received the Best PhD Thesis Award in the department. From 2010 to 2013, he served as an Assistant Professor of Mechanical Engineering at Cummins College of Engineering, Pune. Since 2014, Dr. Dixit has been a Scientist-F at the Indian Institute of Tropical Meteorology (IITM), Pune, where he is the Principal Investigator of the Fluid Dynamics Laboratory and the Next-Generation Cloud Chamber Facility.

January 2, 2024, 12:00 NOON, AR Auditorium, Mechanical Engineering, IISc