For Immediate Release: August 16, 2023

PRESS RELEASE

Reetesh Ranjan, Assistant Professor in the Department of Mechanical Engineering, University of Tennessee at Chattanooga, USA delivers lecture on Large Eddy Simulation of Turbulent Flows Using Physics based Multi-scale Models.

Reetesh Ranjan, Assistant Professor in the Department of Mechanical Engineering, The University of Tennessee at Chattanooga, USA today delivered a lecture titled, Large Eddy Simulation of Turbulent flows using physics based Multistage Models at seminar hall of Mechanical Engineering Department of IIT (ISM) during which he said, "Large Eddy Simulation provides a computationally efficient strategy for the investigation of such turbulent flows but has associated challenges".

LES is a mathematical mode for turbulence used in computational fluid dynamics.

Prof Ranjan who is senior member of the Food Dynamics Technical Committee of AIAA, where he is also serving as the chair of CFD Sub Committee discussed the associated challenges of Large Eddy Simulation of Turbulent flows using physics based Multistage Models during his lecture held from 4 p.m. and apprised the gathering comprising of students and faculty members about two different approaches in this regard.

"The first approach developed for non-reacting turbulent flows and referred to as two level simulation model utilizes a scale decomposition strategy to obtain explicit solutions of small scales instead of modelling them" said Prof Ranjan.

"The second approach referred to as the reaction rate closure in LES using the Linear Eddy Mixing Model at the Sub grid level is designed for the investigation of chemically reacting turbulent flows" further said Prof Ranjan and presented these application along with models to demonstrate their efficacy compared to other LES approaches.

Prof Ranjan received M.S and PhD in Theoretical and Applied Mathematics in 2008 and 2012 respectively from The University of Illinois at Urbana-Champaign and B Tech in Mechanical Engineering from IIT Kanpur in 2004.

He worked in school of Aerospace Engineering at Georgia Institute of Technology from 2013 to 2019 as a post-doctoral fellow, research engineer and senior research engineer.

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