

IEI Technical Webinar

📅 Thursday, October 9, 2025 (index.html) / 04:00 PM - 06:00 PM IST



FLOW TO FUNCTION INTEGRATING COMPRESSIBLE FLOW AND ROTO-DYNAMICS FOR NEXT-GENERATION ENGINEERING

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Theme :

From Flow to Function: Integrating compressible flows and Roto-dynamics for Next-Generation Engineering.

This webinar brings together two experts to explore the critical link between complex fluid behavior and the mechanical design of rotating systems. The first part of the session, led by a fluid mechanics and aerospace expert, will delve into the challenges of DNS and LES of compressible flows flow and how it impacts high-speed applications. The second part, led by a design and roto-dynamics specialist, will then demonstrate how these fluidic insights are directly applied to the mechanical design and stability of rotating machinery. The combined discussion will highlight how interdisciplinary collaboration is essential for creating safe, efficient, and innovative systems in both the aerospace and mechanical engineering fields.



Webinar Agenda

Part 1: The Physics of Turbulence

- Speaker: Expert in Turbulence, Fluid Mechanics, Aerospace

- Topics:

- Understanding the nature of turbulent flows in rotating environments (e.g., inside jet engines, turbines).
- The impact of turbulence on performance, efficiency, and structural integrity.
- Advanced simulation and modelling techniques used to predict turbulent behavior.

Part 2: The Engineering of Roto-dynamics

- Speaker: Expert in Design, Roto-dynamics, Mechanical Engineering

- Topics:

- Fundamentals of roto-dynamics and the design principles of rotating machinery.
- How fluid-induced forces (from turbulence) are managed in a design context.
- Case studies on optimizing rotating parts to withstand and leverage fluid forces.

Combined Session:

- Joint Q&A: A moderated discussion between both speakers, focusing on the synergy and challenges at the intersection of their fields.

ORGANIZED BY: THE INSTITUTION OF ENGINEERS (INDIA)

HOSTED BY: THE INSTITUTION OF ENGINEERS (INDIA) , HQ

UNDER THE AEGIS OF MECHANICAL ENGINEERING DIVISION

Panelist



Dr. Somnath Ghosh, Associate Professor, Department of Aerospace Engineering, IIT Kharagpur

PANELIST



Dr. Haraprasad Roy, Associate professor in National Institute of Technology, Rourkela

PANELIST



Dr. Subho Mukherjee , Associate Professor, Department of Mechanical Engineering at IEM Kolkata.

MODERATOR

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