



Institute of Infrastructure, Technology, Research And Management

(Department of Mechanical and Aerospace Engineering)

INVITED TALK

Development and structural analysis of biomimetic flapping wings

Prof. Sudhir kamle

Professor, Department of Aerospace Engineering
Indian Institute of Technology, Kanpur



About Speaker

Prof. Sudhir Kamle has a B.Tech. (in 1977) and M.Tech (in 1979) from IIT Kanpur in Aeronautical Engineering. He did his PhD from the schools of Aeronautics and Astronautics from Purdue University, USA in 1984. His research interest lately has been in smartmaterials, biomimetic structures like flapping wings. Some of the administrative positions which he has held include JEE vice-chairman (1994-95), GATE chairman(2011-13), Head Aerospace Engineering(2013-2016),Chief Vigilance Officer (2016-2019), Head National Wind Tunnel facility(2019-2021). Currently, he is working as a visiting professor in the department of Astronomy, Astrophysics and space engineering at IIT Indore.

Abstract:

Biomimetic structures refer to structures that draws inspiration from biological entities such as animals. Natural fliers flex their wings to attain desirable flight characteristics. Flexibility features in wings are more prominent during flapping flight and induce flexural and torsional deformations. These structural deformations are influenced by the aerodynamic forces and moments, and vice-versa. Bioinspired wings can achieve aerodynamic performance comparable to natural wings, when fabricated and examined in accordance with the characteristics and environment of flapping. This talk will focus on the development of nanocomposite materials for bioinspired wings and investigation of aerostructure behaviour of nanocomposite flapping wing model. Wind tunnel results for structural deformation obtained using digital image correlation will also be presented.



9th February 2024



Time

11:00 am - onwards



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Department of Mechanical and Aerospace Engineering