

2<sup>nd</sup> World Conference on **AEROSPACE ENGINEERING**

August 18-19, 2022| Webinar

**Nonlinear static and dynamic behaviour of a laminated nanocomposite plate with CNT reinforcement and nanoclay modification****Nand Jee Kanu***JSPM Narhe Technical Campus, India*

The mechanically and thermo-initiated nonlinear static and dynamic assessment of the bending response of single-walled carbon nanotubes (CNTs) fibres with a hybrid laminated composite plate made of nanoclay particles and reinforced polymer is explored under static and dynamic loading conditions. An orthotropic application of the modified Halpin-Tsai method is used to assess the effective elastic properties of the CNTs fibres on the nanoclay particle modified polymer hybrid laminated plate. The basic nonlinear dynamic formulation is developed using the theory of higher-order shear deformation and full kinematics (nonlinear). The governing equations for nonlinear dynamic systems are solved via the Newton-Raphson technique and Newmark's period integration in a user-interactive MATLAB software. On the transverse central deflection response, the effects of varying the amount of CNTs fibres and nanoclay particles, the presence of interphases around CNTs fibres and nanoclay particles, the phases of the CNTs fibres on the nanoclay particle modified polymer hybrid laminated plate, and the variations in plies of the laminated hybrid plate under clamped and simply supported conditions are all thoroughly investigated.

**Biography**

Nand Jee Kanu is a PhD Research Scholar at S. V. National Institute of Technology, Gujarat, India (An Institute of National Importance). He is working as an Assistant Professor in Department of Mechanical Engineering in JSPM Narhe Technical Campus, Pune. He is pursuing his PhD in Mechanical Engineering. He has received his M.Tech degree in Mechanical Engineering with specialization in CAD/ CAM. He has over eight years of experience in Industry and Academics. His research interests include interdisciplinary field of materials science but not limited to smart materials such as the biomimetic 4D printed materials, the self-healing composites and the biofunctional nanofibers, as well as the structural health monitoring for damage detection and characterization strategy for engineering structures.