Dr. P. Jeyaraj
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EDUCATION

- Ph.D. Machine Design Section, Department of Mechanical Engineering,IIT Madras, 2009.
- M.E. Computer Aided Design, Government College of Engineering Salem, Tamilnadu, India. 2002
- B.E. Mechanical Engineering, Madurai Kamaraj University, Tamilnadu, India. 1999

EXPERIENCE

- Associate Professor, Department of Mechanical Engineering, NIT Karnataka Surathkal, India, from May 2018
- Assistant Professor, Department of Mechanical Engineering, NIT Karnataka Surathkal, India. from November 2012 to May 2018
- Associate Professor, Department of Mechanical Engineering, Kalasalingam University, Tamilnadu, India, from July 2011 to November 2012
- Associate Professor, School of Mechanical and Building Sciences, VIT University, Tamilnadu, India, from August 2009 to June 2011
- Research Scholar, Machine Design Section, IIT Madras, India, August 2005 to August 2009,
- Lecturer, Department of Mechanical Engineering, Dr. Mahalingam College of Engineering and Technology, Pollachi, India, from July 2002 to July 2005

HONORS AND AWARDS

- Featured in world's top 2% scientists list of Stanford University
- Young Scientist, SERB-DST India, 2012
- Scholarship granted from MHRD, Govt. of India for pursuing M.E. and Ph.D.
- Qualified in GATE 2000

RESEARCH INTEREST

- Dynamic behavior of structures under thermal load
- Vibro-Acoustic behavior of Composite Structures
- Natural Fiber Polymer Composites

FUNDED PROJECTS

- Principal Investigator of project titled, Investigation on Passive Damping Capability of Natural Fiber Reinforced Composite and Visco-elastic Sandwich Structures, SERB-DST Fast Track of Rs. 11.39 Lakhs (SR/FTP/ETA-64/2012 dated 21/12/2012) - **Completed**
- Co Principal Investigator of a project titled Vibration based structural health monitoring and progressive failure analysis of a rotating tapered composite plate (No. 1682) Aeronautical Research and Development Board (ARDB) Rs. 6.728 Lakhs - **Completed**
- Principal Investigator of project titled, Experimental and Numerical Investigation on Buckling and Vibration Behavior of Non-Uniformly Heated Laminated Polymer Nano Composite Plate", Structures Panel, Aeronautical Research and Development Board, Rs. 16.03 Lakhs-**Completed**
- Principal Investigator of project titled, "Development of biodegradable micro perforated panel with non-uniform cross-section through 3D printing for sound absorption applications", Core Research Grant, SERB-DST, Rs. 36.22 Lakhs - **Ongoing**

Research/Project Guidance

PhD

Completed: 06 Ongoing: 06

M.Tech (Research)

Completed: 2 Ongoing: 1

M.Tech (Regular): 17

B. Tech Batches : 10

Research Resources Developed

- Experimental test rig to predict thermal buckling strength of non-uniformly heated beam/plate/ cylindrical panel like structures
- Rayleigh Integral code to find acoustic response characteristics of plates
- Experimental methodology to predict buckling and free vibration characteristics of beam like structures under axial compression using universal testing machine
- Experimental set-up to perform free and forced vibration analysis of simple structures.
- Developed Ritz code to find buckling and free vibration of beam made of different kinds of materials

TEACHING

• UG Courses
– Mechanics of Machines (Core), Analysis and Design of Machine Components (Core), Machine Dynamics and Vibration (Core), Mechanical Vibration and Acoustics (Elective)
• PG Courses
– Mathematical Methods for Engineers (Core), Mechanical Vibrations (Elective), Finite Element Analysis (Elective) , Engineering Acoustics (Elective)

PUBLICATIONS IN INTERNATIONAL JOURNALS (SCI-indexed, in last five years)

1. Rajesh, M and **P Jeyaraj**, Dynamic Mechanical Analysis and Free Vibration Behavior of Intra-ply Woven Natural Fiber Hybrid Polymer Composite, Journal of Reinforced Plastics and Composites, 2016, 35, 228-242. https://doi.org/10.1177/0731684415611973

2. Vinod S. Bhagat, **Jeyaraj Pitchaimani** and S.M. Murigendrappa, Buckling and Vibration behavior of a Non-uniformly Heated Isotropic Cylindrical Panel, Structural Engineering and Mechanics, An International Journal, 2016, 57, 543-567. http://dx.doi.org/10.12989/scs.20

3. Nivish George, **P. Jeyaraj** and S. M. Murigendrappa, Buckling and Free Vibration of Non- Uniformly Heated FG-CNT Polymer Nano Composite Plate, International Journal of Structural Stability and Dynamics, 2016, 1750064. http://dx.doi.org/10.1142/S021945541750064X

4. Nivish George, **Jeyaraj Pitchaimani**, SM Murigendrappa, MC Lenin Babu, Vibroacoustic behavior of functionally graded carbon nanotube reinforced polymer nano composite plates, Journal of Materials: Design and Applications, Proceedings of the Institution of Mechanical Engineers, Part L, 2016, DOI: 10.1177/1464420716640301.

5. MP Arunkumar, **Jeyaraj Pitchaimani**, KV Gangadharan, M C Lenin Babu, Influence of nature of core on vibro acoustic behavior of sandwich aerospace structures, Aerospace Science and Technology, 2016, 56, 155-167. http://dx.doi.org/10.1016/j.ast.2016.07.009

6. M P Arunkumar, M Jagadeesh, **Jeyaraj Pitchaimani**, K V Gangadharan and M C Lenin Babu, Sound radiation and transmission loss characteristics of a honeycomb sandwich panel with composite facings: Effect of inherent material damping Journal of Sound and Vibration, 2016, 383, 221-232. http://dx.doi.org/10.1016/j.jsv.2016.07.028

7. Vinod S. Bhagat, **Jeyaraj Pitchaimani** and S.M. Murigendrappa, "Buckling and dynamic characteristics of a laminated cylindrical panel under non-uniform thermal load", Steel and Composite Structures, 2016, 22(6), 1359-1389. DOI: 10.12989/scs.2016.22.6.1359

8. M Rajesh, SP Singh, J**eyaraj Pitchaimani**, Mechanical behavior of woven natural fiber fabric composites: Effect of weaving architecture, intra-ply hybridization and stacking sequence of fabrics, Journal of Industrial Textiles, 2018, 47 (5), 938-959. https://doi.org/10.1177/1528083716679157

9. M Rajesh and **Jeyaraj Pitchaimani**, Dynamic mechanical and free vibration behaviour of natural fiber braided fabric composite: Comparison with conventional and knitted fabric composites, Polymer Composites, 2016, https://doi.org/10.1002/pc.24234.

10. Nivish George, **P Jeyaraj**, SM Murigendrappa, "Buckling of non-uniformly heated isotropic beam: Experimental and theoretical investigations", Thin-Walled Structures, 2016, 108, 245-255 http://dx.doi.org/10.1016/j.tws.2016.08.019

11. MP Arunkumar, **Jeyaraj Pitchaimani**, KV Gangadharan, "Bending and free vibration analysis of foam-filled truss core sandwich panel", Journal of Sandwich Structures and Materials, 2016, https://doi.org/10.1177/1099636216670612

12. MP Arunkumar, **Jeyaraj Pitchaimani**, KV Gangadharan, M C Lenin Babu, Sound transmission loss characteristics of sandwich aircraft panels: Influence of nature of core, Journal of Sandwich Structures and Materials, 2017, 19, 26-48. https://doi.org/10.1177/1099636216652580

13. M Rajesh, **Jeyaraj Pitchaimani**, Experimental Investigation on Buckling and Free Vibration Behavior of Woven Natural Fiber Fabric Composite Under Axial Compression, Composite Structures, 2017, 163, 302-311. http://dx.doi.org/10.1016/j.compstruct.2016.12.046

14. M Rajesh, **Jeyaraj Pitchaimani**, Mechanical Properties of Natural Fiber Braided Yarn Woven Composite: Comparison with Conventional Yarn Woven Composite, Journal of Bionic Engineering, 2017, 14, 141-150. http://dx.-doi.org/10.1016/S1672-6529(16)60385-2

15. M Rajesh, **Jeyaraj Pitchaimani,** Mechanical and Dynamic Mechanical Behavior of Novel Glass/Natural Fiber Intra-ply Woven Polyester Composites, Sadhana, 2017, 42 (7), pp.1215-1223.

16. M Rajesh, **Jeyaraj Pitchaimani**, Mechanical characterization of natural fiber intra-ply fabric polymer composites: Influence of chemical modifications", Journal of Reinforced Plastics and Composites, 2017, 36 (22), pp. 1651-1664.

17. Vinod Bhagat, **Jeyaraj Pitchaimani,** "Experimental Investigation on Buckling Strength of Cylindrical Panel: Effect of Non-Uniform Temperature Field", International Journal of Non-Linear Mechanics, 2018, 99, 247-257.

18. Shushanth Ashok and **Jeyaraj Pitchaimani**, "Buckling Behavior of Non-Uniformly Heated Tapered Laminated Composite Plates with Ply Drop-off", International Journal of Structural Stability and Dynamics, 2018, 18 (12).

19. M.P. Arunkumar, **Jeyaraj Pitchaimani**, K.V. Gangadharan, M.C. Leninbabu, "Vibroacoustic response and sound transmission loss characteristics of truss core sandwich panel filled with foam", Aerospace Science and Technology, 2018, 78, 1-11.

20. Nivish George and **Jeyaraj P**, "Non-uniform heat effects on buckling of laminated composite beam: experimental investigations", International Journal of Structural Stability and Dynamics, 2018; 18 (12).

21. S. Waddar , **Jeyaraj Pitchaimani**, M. Doddamani,, "Influence of axial compression loads on buckling and free vibration response of surface modified fly ash cenosphere/epoxy syntactic foams", Journal of Composite Materials, 2018, 52 (19), 2621-2630.

22. S. Waddar , **Jeyaraj Pitchaimani,** M. Doddamani,, "Snap-through buckling of fly ash cenosphere/epoxy syntactic foams under thermal environment", Thin-Walled Structures(SCI), 2018, 131, 417-427.

23. S. Waddar , **Jeyaraj Pitchaimani**, M. Doddamani, Nikhil Gupta "Buckling and free vibration behavior of cenosphere/epoxy syntactic foams under axial compressive loading", ASTM Materials Performance and Characterization, 2018, 7 (1), 532-546.

24. S. Waddar , **Jeyaraj Pitchaimani**, M. Doddamani, Ever J Barbero, "Buckling and vibration behaviour of syntactic foam core sandwich beam with natural fiber composite facings under axial compressive loads", Composites Part B: Engineering , 2019, 175, 107133.

25. Nagamadhu M., **Jeyaraj P.**, G.C. Mohan Kumar, "Characterization and Mechanical Properties of Sisal Fabric Reinforced Polyvinyl Alcohol Green Composites: Effect of Composition and Loading Direction", Material Research Express, 2019, 6, 125320.

26. Nagamadhu M., **Jeyaraj P.**, G.C. Mohan Kumar, "Influence of Textile Properties on Dynamic Mechanical Behavior of Epoxy Composite Reinforced with Woven Sisal Fabrics", Sadhana (SCI-E), 2020, 45 (1), 1-10.

27. S. Waddar , **Jeyaraj Pitchaimani**, M. Doddamani,"Effect of thermal loading on syntactic foam sandwich composite", Polymer Composites, 2020, 1-11.

28. P Breunig, V Damodaran, K Shahapurkar, S Waddar, M Doddamani, **P Jeyaraj**, P Prabhakar, "Dynamic impact behavior of syntactic foam core sandwich composites", Journal of Composite Materials, 2020, 54, 4, 535-547.

29. V Gunasekaran, **Jeyaraj Pitchaimani,** LBM Chinnapandi, "Analytical investigation on free vibration frequencies of polymer nano composite plate: Effect of grapheme grading and non-uniform edge loading", Materials Today Communications, 2020, 24, 100910.

30. Ashishkumar, Vijay G, **Jeyaraj Pitchaimani**, M C Leninbabu, "Acoustic response behavior of porous 3D graphene foam plate" Applied Acoustics, 2020, 169, 107431.

31. Twinkle C. M. ,Nithun C, **Jeyaraj Pitchaimani,** Vasudevan Rajamohan, "Modal Analysis of Cylindrical Panels at Elevated Temperatures under Non-Uniform Heating Conditions: Experimental Investigation", Proceedings of the iMeche, Part C: Journal of Mechanical Engineering Science, 2020, 235 (5), 812-828.

32. Amol Gilorkar, Rajesh Murugan and **Jeyaraj Pitchaimani,** "Thermal Buckling of Sisal and Glass Hybrid Woven Composites: Experimental Investigation", Composites Part C Open Access,2020, 2, 100012.

33. M P Arunkumar, **Jeyaraj Pitchaimani**, KV Gangadharan, CVSN Reddy, "Numerical and experimental study on dynamic characteristics of honeycomb core sandwich panel from equivalent 2D model", Sadhana, 2020, 45 (1), 1-6

34. C M Twinkle, **Jeyaraj Pitchaimani**, V Rajamohan, "Free vibration modes of rectangular plate under non-uniform heating: An experimental investigation", Structures, 2020,28, 1802-1817.

35. V Bhagat, **Jeyaraj Pitchaimani**, "Meta-heuristic optimization of buckling and fundamental frequency of laminated cylindrical panel under graded temperature fields", 2020, Polymers and Polymer Composites, 0967391120974155.

36. H S Bharath, A Sawardekar, S Waddar, **P Jeyaraj,** M Doddamani, "Mechancial behavior of 3D printed syntactic foam composites", 2020, Composite Structures, 112832.

37. H S Bharath, S Waddar, SI Bekinal, **P Jeyaraj**, M Doddamani, "Effect of axial compression on dynamic response of concurrently printed sandwich", Composite Structures, 2021, 259, 113223.

38. R Sailesh, L Yuvaraj, **J Pitchaimani**, M Doddamani, LBM Chinnapandi, "Acoustic behaviour of 3D printed biodegradable micro-perforated panels with varying perforation cross-sections", Applied Acoustics, 2021, 174, 107769.

39. C M Twinkle, **Jeyaraj Pitchaimani**, "Free vibration and stability of graphene platelet reinforced porous nanocomposite cylindrical panel: Influence of grading, porosity and non-uniform edge loads", Engineering Structures, 2021, 230, 111670.

40. S Kanakannavar, **Jeyaraj Pitchaimani**, "Fabrication and mechanical properties of braided flax fabric polylactic acid bio-composites", The Journal of The Textile Institute, 2021, 1-13.

41. S Kanakannavar, **Jeyaraj Pitchaimani** "Thermal buckling of braided flax woven polylactic acid composites", Journal of Reinforced Plastics and Composites, 2021, 40 (7-8), 261- 272.

42. S Kanakannavar, **Jeyaraj Pitchaimani**, A Thalla, M Rajesh, "Biodegradation properties and thermogravimetric analysis of 3D braided flax PLA textile composites", Journal of Industrial Textiles, 2021, 15280837211010666.

43. S Kanakannavar, **Jeyaraj Pitchaimani**, "Fracture toughness of flax braided yarn woven PLA composites", International Journal of Polymer Analysis and Characterization, 2021, 26 (4), 364-379.

44. V Gunasekaran, **Jeyaraj Pitchaimani**, and LBM Chinnapandi, "Acoustic radiation and transmission loss of FG-Graphene composite plate under nonuniform edge loading", European Journal of Mechanics-A/Solids, 2021, 88, 1042491.
45. **Jeyaraj Pitchaimani**, Gupta, P., Rajamohan, V., Polit, O., Manickam, G. Acoustic fluid–structure study of 2D cavity with composite curved flexible walls using graphene platelets reinforcement by higher-order finite element approach, Composite Structures, 2021, 272, 114180.
46. Richa Priyanka, C. M. Twinkle, J**eyaraj Pitchaimani**, Stability and free vibration of porous FGM beam:Influence of graded porosity, grapheme platelets, and axially varying loads, Engineering with Computers, 2021, Published on-line.