# Dr. Vishesh Ranjan Kar

**Assistant Professor**

**Department of Mechanical Engineering,**

**National Institute of Technology Jamshedpur, India**

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Web of Science Researcher ID: **G-7962-2015**

ORCID ID: **0000-0003-2888-666X**

Scopus Author ID**:** **56078326500**

Google Scholar ID: **2Or-7FAAAAAJ**

Publons**:** **2397220**

Vidwan ID: **92811**


## *Research Background and Interests*

- Computational Solid Mechanics
- Nonlinear Finite Element Methods
- Curved Structures
- Vibration & Stability
- Shape Optimisation
- Advanced Composites
- Layered/Graded Structures
- Bio-Composites
- Multi-directional FGM

**Dr. Kar** is presently working as an Assistant Professor in the Department of Mechanical Engineering, National Institute of Technology Jamshedpur, India. He completed his doctoral program under Prof. S. K. Panda, Department of Mechanical Engineering at NIT Rourkela in 2015 as a full-time research scholar in the field of Computational Solid Mechanics. His research interests are Nonlinear Finite Element Method, Advanced Composite Structures, Computational Mechanics and Shape Optimization. He authored (and co-authored) over 60 research articles in peer reviewed journals, books and conferences in the field of modeling and analysis of composite structures. He is also Editorial Board Member of Journal of the Mechanical Behavior of Materials (De Gruyter). Currently, he is handling various research projects as Principal Investigator (and Co-PI) funded by various government agencies. Presently, he is supervising 06 PhD students in the area of advanced composite structures. He is the recipient of Research Award 2016 from VIT University, India; Early Career Research Award 2017 from DST, Government of India; Young Scientist 2019 from Venus International Foundation, India; and Preeminent Researcher Award 2019 from International Institute of Organized Research, India in association with Western Sydney University, Australia. He is a recognized reviewer of many reputed international journals of his domain. He is a lifetime member of Indian Society for Applied Mechanics. His articles are highly cited by many researchers worldwide with total citation of 1200+ and *h*-index is 22 in Google Scholar and Scopus.

## *Academic Qualifications*

**Dec 2015** **Ph.D. in Mechanical Engineering with 9.91 CGPA**

National Institute of Technology Rourkela, India

Date of Defence Viva-Voce: 29th Dec 2015

Thesis Title: *"**Nonlinear Thermoelastic Static, Vibration and Buckling Behaviour of Functionally Graded Shell Panel"***

Ph.D. Supervisor: Prof. S. K. Panda

**July 2010** **M.Tech. in Design Engineering with 7.60 CGPA**

College of Engineering, Pune, India

Thesis Title: *"**Analysis and Optimization of Automotive Anti-roll Bar Through Finite Element Analysis**"*

Thesis Supervisor: Prof. M. G. Karnik

**April 2007** **B.E. in Mechanical Engineering with 8.01 CGPA**

M. P. Christian College of Engineering & Technology, Bhilai, C.G.

Pt. Ravishankar Shukla University Raipur, Chhattisgarh, India

## *Professional and Academic Awards/Achievements/Fellowships Received*

- **Preeminent Researcher Award 2019** from International Institute of Organized Research, India in association with Western Sydney University, Australia.
- **Young Scientist-2019** (Mechanical Engineering) Award in Venus International Research Award (VIRA-2019) from Venus International Foundation, Chennai, India.
- **Early Career Research Award-2017 from SERB, Department of Science and Technology, Govt. of India.**
- **Research Award 2016** from VIT University, Vellore, India.
- Institute fellowship received from MHRD for Ph.D. (Sep. 2012 to Dec 2015).
- Institute fellowship received from MHRD for M.Tech. (July 2007 to July 2009).
- Industrial fellowship received from TATA TC SPRINGS Ltd.,Pune: A group of TATA AutoComp System (July 2008 to May 2009).
- Qualified GATE-2007 in Mechanical Engineering with All India Rank 543
- ***Who's Who* in Engineering Education**, Academic Keys, 2018.

- Outstanding Reviewer, International Journal of Mechanical Sciences, Elsevier, Amsterdam, Netherlands, Nov 2017.
- Outstanding Reviewer, Thin-Walled Structures, Elsevier, Amsterdam, Netherlands, Aug 2017.
- **Most Cited (Top 25) articles** in Steel and Composite Structures; Journal of Sandwich Structures and Materials; Advances in Materials Research.

## *Academic/Research/Industrial Experiences (Total Experience in years: 11+)*

### ***Teaching Experience***

- Assistant Professor in the Department of Mechanical Engineering at **National Institute of Technology Jamshedpur** from 22nd June 2018 till date.
- Assistant Professor (Sr.) in the School of Mechanical Engineering at **Vellore Institute of Technology, Vellore, Tamil Nadu** from 1st June 2016 to 8th June 2018.
- Associate Professor in the Department of Mechanical Engineering at **Raghu Engineering College, Visakhapatnam, Andhra Pradesh** from 22nd Jan 2016 to 26th April 2016.
- Assistant Professor in the Department of Mechanical Engineering at **O. P. Jindal Institute of Technology**, **Raigarh**, **Chhattisgarh** (*Now*, ***OP Jindal University***) from 18th Aug 2011 to 10th Sep 2012.
- Assistant Professor in the Department of Mechanical Engineering at **Pragati College of Engg. & Management, Raipur, Chhattisgarh** from 2nd Aug 2010 to 16th Aug 2011.

### ***Research Experience***

- Full-time research scholar in the **Department of Mechanical Engineering at National Institute of Technology Rourkela**, Odisha from 13th Sep 2012 to 29th Dec 2015.

### ***Industrial Experience***

- Project Trainee in Design & Development Department at **TATA TC Springs Ltd., Pune**, **India** from 15th July 2008 to 25th May 2009.

***UG/PG Subjects Taught at NIT Jamshedpur***

***PG Courses***

- Advanced Finite Element Method (Spring 2019-20; 2020-21)
- Computational Methods in Engineering (Autumn 2019-20; 2020-21)
- Mechatronics and Automation (Spring 2018-19)
- Finite Element Methods (Autumn 2018-19)

***UG Courses***

- Engineering Mechanics, (Autumn/Spring 2019-20; 2020-21)
- Automobile Engineering (Spring 2018-19)
- Engineering Graphics (Autumn 2018-19)

## *Sponsored Research Projects: Completed: 01, Ongoing: 01, In Process: 02*

**1**. **Title:** Effect of Perforation and Corrugation on the Nonlinear Flexural and Vibration Behaviour of Heated Layered/Graded Composite Panels under Various Loading/Support Conditions.

**Agency:** Science and Engineering Research Board (SERB), DST, Govt. of India,

**Duration:** 2017-2020 **Role:** Principal Investigator, **Status:** Completed.

**2. Title:** Experimental Investigation on the Micro-EDM Characteristics of Aluminium based Composites.

**Agency:** Collaborative Research Scheme, NPIU, TEQIP-III, Govt. of India.

**Duration:** 2019-2020. **Role:** Co-Principal Investigator, **Status:** Ongoing.

## *Thesis Supervision*

- ***Doctoral Program:*** On-going: **06**
- **Master's Program:** Competed: **05**, Ongoing: **04**
- **Bachelor's Program:** Completed: **18**

## Doctoral Thesis (PhD)

| SN | Name/Reg. No. | Research Area | Joining Date | Supervisor/Co-Supervisor (if any) | Status |
|---|---|---|---|---|---|
| 1. | Shyam Kumar Chaudhary (2018RSME008) | Nonlinear analysis of Perforated Composite Structures | July 2018 | Dr. V. R. Kar and Prof. K. K. Shukla | Ongoing |
| 2. | Kamal Joshi (2018RSME024) | Elastoplastic Behavior of Heterogeneous Materials | January 2019 | Dr. V. R. Kar | Ongoing |
| 3. | Samarjeet Kumar (2019RSME007) | Coupled Thermoelasticity, Heat Transfer Analysis | July 2019 | Dr. V. R. Kar | Ongoing |
| 4. | Abhilash Karakoti (2019RSME010) | Blast Analysis of Sandwich Composite structures | July 2019 | Dr. S. Pandey and Dr. V. R. Kar | Ongoing |
| 5. | Souvik Singh Rathore (2019RSME011) | Analysis and Optimization of Energy Efficient CMC Blades | July 2019 | Prof. Sanjay and Dr. V. R. Kar | Ongoing |
| 6. | Mrityunjay Kumar (19DR0090) (Enrolled in IIT Dhanbad) | Smart Composite Materials & Structures | July 2019 | Dr. M. L. Chandravanshi (IIT Dhanbad) and Dr. V. R. Kar | Ongoing |

## Masters' Thesis (MTech)

| | | | | |
|---|---|---|---|---|
| 1 | S. Mohd. Bilal | Transient analysis of functionally graded carbon nanotube reinforced composite (FG-CNTRC) plate | 2018-2021<br>NIT Jamshedpur | Completed |
| 2 | Mayank Kumar Ghosh | Vibrational behavior of sandwich composite with auxetic Core | 2019-21<br>NIT Jamshedpur | Completed |
| 3. | Shubham Pattanayak | Performance analysis of wind turbine blade with different pitch angle using Fluid Solid Interaction | 2019-21<br>NIT Jamshedpur | Completed |
| 4 | Zeeshan Hassan | Analysis of sandwich composite structures | 2018-2021<br>NIT Jamshedpur | Submitted |
| 5 | Vivekkumar S. Gaurkhede | Design and upgradation of Robotic Manipulator | 2017-18<br>VIT, Vellore | Completed |
| 6 | Onkar Ajay Mane | Product development in Ring spinning machine | 2017-18<br>VIT, Vellore | Completed |

## Publication details (**Total: 66, h-index: 22, Total citations: 1100+**)

- Journal Articles: Indexed in **SCI/SCIE**: **28, ESCI**: **02**
- Conference Proceedings Indexed in **Scopus/CPCI**: **15**
- Conferences: **21** International + **05** National
- Book Chapters: **10** (**In Elsevier/Springer**)

## *Editorial Board Member of International Journal*

- Journal of the Mechanical Behavior of Materials (*De Gruyter*)

## *Editor of Conference Proceedings/Books/Souvenirs*

- **Book "Advanced Composite Materials and Structures: Modeling and Analysis**" to be published in **CRC Press/Taylor & Francis**
- **Materials, Mechanics and Modeling** (NCMMM2020), **AIP Conference Proceedings** 2341, 010001 (2021); https://doi.org/10.1063/12.0003887 ISBN: 978-0-7354-4095-1.
- **Shodh Pravah 2021**, Vol 2, Issue 1, An Annual Research Bulletin of NIT Jamshedpur.
- **Ancient Indian Science and Technology (AIST 2021)**
- **Research Conclave 2021**

## *Reviewer of Reputed International Journals*

- Composites Part-B (Elsevier)
- Journal of Low Frequency Noise, Vibration and Active Control (Sage)
- Mechanics Based Design of Structures and Machines (Taylor and Francis)
- International Journal of Mechanics and Materials in Design (Springer)
- Shock and Vibration (Hindawi)
- The Proceedings of the Institution of Mechanical Engineers, Part C (Sage)
- Applied Mathematical Modelling (Elsevier)
- International Journal of Mechanical Sciences (Elsevier)
- Thin-Walled Structures (Elsevier)
- Journal of Aerospace Engineering (ASCE)
- Geomechanics and Engineering (Techno Press)
- Steel and Composite Structures (Techno Press)
- International Journal of Energy Research (Wiley)
- Structural Engineering and Mechanics (Techno Press)
- Grey Systems: Theory and Application (Emerald)
- Latin American Journal of Solids & Structures (Marcílio Alves)

## *Keynote/Invited Talks in Conferences/Symposiums/Workshops/FDPs*

(Keynote: 02, Expert Talks: 11)

- Expert talk on "***Advanced Composites for Defence Applications: Modelling and Simulation Challenges***" in 2-Days webinar on Next Gen. Defence Technologies organized by Gautam Buddha University, Noida, U.P., India during August 19-20, 2021.

- Session lecture on "**Research, Innovation and Ranking**" in 6-Days Webinar on National Education Policy (NEP-2020) at NIT Jamshedpur, India during August 3-10, 2021.

- Keynote lecture on "***Finite Element Solutions of Multi-directional Functionally Graded Structures***" in 3rd International Conference on Recent Advances in Mechanical Infrastructure (ICRAM 2021) at IITRAM, Ahmedabad, Gujarat, India, during 6th - 8th August 2021.

- Expert talk on "***Thermomechanical Analysis of Advanced Materials & Structures***" in AICTE Training and Learning (ATAL) Academics Programme on Engineering Modelling and Simulation using CFD at NIT Jamshedpur during June 21-25, 2021.

- Expert talk on "***Optimization of Automotive Suspension"*** in AICTE Training and Learning (ATAL) Academics Programme on Optimization Technique in Engineering Application at NIT Jamshedpur during January 18-22, 2021.

- Expert talk on "***How to write a good research project proposal***" in One-day online FDP on "Research Methodologies" sponsored by SERB, DST, Govt, of India, at NIT Jamshedpur, India on Sept. 19, 2020.

- Expert talk on "***Finite Element Analysis of Composite Materials-II***" on 11-09-2020 in the AICTE Sponsored Six Days Virtual Short Term Training Programme (STTP) on "Finite Element Method for Engineering Applications (Phase II)." from 7-12 Sept 2020.

- Expert talk on "***Finite Element Analysis of Composite Materials-I***" in AICTE Sponsored Six days Virtual STTP on "Finite Element Method for Engineering Applications (Phase I)." organized by Sri Sairam Engineering College, Chennai, India from 3rd-8th Aug 2020.

- Expert talk on "***Finite Element Analysis***" in Department of Mechanical Engineering, G. H. Raisoni Institute of Engineering and Technology, Pune on 8th Aug 2020.

- Expert talk on "***Key factors needed to be included in Research Proposal"*** at One Week Virtual FDP on "Funding Opportunities for Engineering Teachers & Technical Paper Writing" organised by Rajarambapu Institute of Technology, Islampur, Maharashtra, India from 15th-19th June, 2020.

- Keynote lecture on "***Deformation behaviour of functionally graded sinusoidally-corrugated structure - A nonlinear finite element approach"*** in International conference on Design, Automation and Control (**ICDAC 2020**) at Vellore Institute of Technology Vellore, Tamil Nadu, India on 7 Jan 2020.
- Session Talk on "***Modelling and Simulation of Advanced Composite Structures***" at TEQIP Sponsored Six Days Short-term course on Recent Developments in Surface Coating and Composite Materials (**RDSCCM-2019**) in Department of Production and Industrial Engineering, NIT Jamshedpur on 29th May 2019.
- Expert talk on "**Research and Technological Advancements in Dynamic Industrial and Business Environment**" at Women Institute of Technology, Dehradun on 11th Aug 2018 under TEQIP III activities.

## *Session/Track Chair/Co-Chair in Symposiums/Conferences*

- Session Chair in "Virtual Seminar on Applied Mechanics (VSAM-4)" at NIT Jamshedpur in association with Indian Society for Applied Mechanics (ISAM) on 30-31 July 2021.
- Session Chair in 14th International Conference on Science Engineering & Technology **(ICSET-2017)** at VIT University, Vellore on 3rd May 2017.

## *Advisory Member in Symposiums/Conferences*

- International Conference (Virtual Mode) on Simulation, Automation & Smart Manufacturing (SASM 2021), Organised by GLA University, Mathura, UP, India during August 20-21, 2021.
- International Conference on Progressive Research in Industrial & Mechanical Engineering (PRIME - 2021) at NIT Patna, India during August 5-7, 2021.
- International Conference on Trends in Material Science and Inventive Materials (**ICTMIM 2021**) organized by JCT College of Engineering and Technology, Tamil Nadu, India on 14-15, May 2021.
- 4th International Conference on Inventive Material Science Applications, (**ICIMA 2021),** PPG Institute of Technology during 28-29, April 2021 held in its premises in Coimbatore, Tamil Nadu, India.
- International Conference on Design Automation and Control (**ICDAC 2020**) in Vellore Institute of Technology Vellore, India on 6-8 Jan 2020.
- National Conference on Emerging Trends in Manufacturing & Automation Engineering (**NCMAE-2018**) held in ASET, Amity University, Gwalior, India on 12th Oct 2018.

## *Conferences/Training Programs/Workshops/Guest Lectures Organized*

- Convener of **International Conference on Materials, Mechanics & Modelling** (**ICMMM2021**) at NIT Jamshedpur, India, to be held on 3-5 Dec 2021.
- Convener of 6-Days National Online Workshop of **Ancient Indian Science and Technology** (**AIST 2021**) at NIT Jamshedpur during 5-10 July 2021.
- Convener of One day workshop on **Use of Indian Languages in Institutions of Higher Education and Research in Science and Technology,** organized by NIT Jamshedpur and CSIR-NML, Jamshedpur on July 3, 2021.
- Convener of **Research Conclave 2021** at NIT Jamshedpur during 25-27 Feb 2021.
- Convener of **1st National Conference on Materials, Mechanics & Modelling** (**NCMMM2020**) at NIT Jamshedpur, India during 29-30 Aug 2020.
- Convener of Two Days National Webinar On **Inculcation of Research Culture in Academic Institutions (IRCAI 2020)** at NIT Jamshedpur during 5-6 Sept 2020.
- Coordinator of One Week Workshop on "***Finite Element Structural Analysis using ANSYS***" at Department of Mechanical Engineering, NIT Jamshedpur during 20th May – 25th May 2019.
- Joint Coordinator of TEQIP Sponsored One Week Short-term Program on "***Recent Developments and Innovations in Futuristic Materials"*** at Department of Mechanical Engineering, NIT Jamshedpur during 17th Dec - 21st Dec 2018.
- Coordinator of guest lecture on "***Experimental Stress Analysis***" by Prof. G. C. Mohan Kumar, Professor, NIT K, Surathkal at VIT University, Vellore on 9th Aug 2017.
- Coordinator of guest lecture on "***Solid-Fluid Interaction***" by Dr. N. Kulashekharan, Head-Virtual Engg., Chrysler India Automobiles (P) Ltd., Kandanchavady at VIT University, Vellore on 23rd March 2017.
- Course Instructor of ***SolidWorks Training Program*** at NIT Rourkela from 6th July to 17th July 2015.
- Faculty facilitator of "***Training Programme on PRO-E and ANSYS***" at Jindal Training Center, JSPL, Raigarh (C.G.) from 28th May to 10th June 2012.
- Faculty Instructor of ***AutoCAD Training*** at O.P. Jindal Institute of Technology, Raigarh (C.G.) from 25th to 26th April 2012.

## *Membership of Professional Bodies*

- Indian Society for Applied Mechanics (LM00140)
- Institute of Engineers (India ) (M-1690382)
- International Association of Engineers (IAENG: 176183)
- Science and Engineering Institute (SCIEI: 201707040001)
- International Association of Advanced Materials (IAAM: 8410301912827)

## *Major Administrative Roles and Responsibilities*

- Associate Dean (Research & Consultant) in NIT Jamshedpur (1st Oct 2020 to till date)
- Convener and Member of NIRF-2021 Committee in NIT Jamshedpur (19th Nov 2020 to till date)
- Member of Research & Consultancy Committee of NIT Jamshedpur (23rd June 2020 to till date)
- Professor-In-Charge Student Technical Activities in NIT Jamshedpur (1st Feb 2019 to till date)
- Professor In-charge of Engineering Mechanics Lab in NIT Jamshedpur from July 2019 to till date.
- Member of National Board of Accreditation (NBA) Committee in NIT Jamshedpur (2018-2019).
- Committee member of National Level "*Smart India Hackathon-2019"* in NIT Jamshedpur (2-3 March 2019).
- Faculty Co-ordinator of Culture event in NASAS XIX 2017 Conference, VIT University, Vellore (23-25 Feb 2017).
- Assistant Chief Superintendent of Term-End Exam (University level) in VIT University, Vellore (Winter 2016-17, Fall 2017-18).
- Faculty Co-ordinator of '*Festivity 2017-A culture Festival of VIT Employees' in VIT University*, Vellore on 5th Sep 2017.
- Faculty facilitator of "*Novateur-Mining the Minds"*, The Innovation Zone in Technorollix 2012, held in OPJIT, Raigarh on 23-25 Feb 2012.
- Head of the Department of Mechanical & Civil Engineering in PCEM, Raipur (2010-11).

## *Personal Details*

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|---|---|
| Name | Vishesh Ranjan Kar |
| Born | 30th Oct 1984, Raipur (Chhattisgarh), India |
| Nationality | Indian |
| Gender | Male |
| Languages | English, Hindi, Oriya |
| Hobbies | Playing different Musical Instruments, Travelling. |
| Mailing Address | Department of Mechanical Engineering, National Institute of Technology Jamshedpur, 831014, Jharkhand, India. |

# Publication details (Total: 66, h-index: 22+, Total citations: 1200+)

Journal Articles: Indexed in SCI/SCIE: **28,** ESCI: **02**

Conference Proceedings Indexed in Scopus/CPCI: **15**

Conferences: **21** International + **05** National

Book Chapters: **10** (In Elsevier/Springer)

***Published Articles in Reputed Journals*** **(Total SCI/SCIE: 28)**

1. Karakoti A, Pandey S, Kar V R (2021), Dynamic Responses Analysis of P and S-FGM Sandwich Cylindrical Shell Panels Using a New Layewise Method, Structural Engineering and Mechanics (***Accepted***)
2. Chaudhary S K, **Kar V R**, Shukla K K (2021), Flexural Behaviour of Perforated Functionally Graded Composite Panels under Complex Loading Conditions: A Higher-Order Finite Element Approach, ***Journal of Aerospace Engineering-ASCE*** 34 (6),04021081. https://doi.org/10.1061/(ASCE)AS.1943-5525.0001334
3. Joshi K K, **Kar V R** (2021), Effect of material heterogeneity on the deformation behaviour of multidirectional (1D/2D/3D) functionally graded composite panels, ***Engineering Computations***, In Press. https://doi.org/10.1108/EC-06-2020-0301
4. Soni S K, Thomas B, **Kar V R** (2020) A Comprehensive Review on CNTs and CNT-Reinforced Composites: Syntheses, Characteristics and Applications, ***Materials Today Communications,*** 25, 101546. https://doi.org/10.1016/j.mtcomm.2020.101546
5. Pankaj S, **Kar V R**, Sudhagar P E (2020), On the numerical modelling and analysis of multi-directional functionally graded composite structures: A review, ***Composite Structures***, 236, 111837. (ISSN:0263-8223).

   https://doi.org/10.1016/j.compstruct.2019.111837

6. Karakoti A, **Kar V R** (2019), Deformation characteristics of sinusoidally-corrugated composite panel- A higher-order finite element approach, ***Composite Structures,*** **216 151–158** (ISSN: 0263-8223). https://doi.org/10.1016/j.compstruct.2019.02.097
7. Chandra Mouli B, Ramji K, **Kar V R**, Panda S K, Anil K, and Pandey H K (2018), Numerical study of temperature dependent eigenfrequency responses of tilted functionally graded shallow shell structures, ***Structural Engineering and Mechanics*** 68(5):527-536. (ISSN: 1225-4568) http://dx.doi.org/10.12989/sem.2018.68.5.527.

8. **Kar V R**, Panda S K (2017) Large-amplitude vibration of functionally graded doubly-curved panels under heat conduction, ***AIAA Journal*** 55(12): 4376-4386. (ISSN: 0001-1452) https://doi.org/10.2514/1.J055878
9. **Kar V R**, T.R. Mahapatra, Panda S K (2017) Effect of different temperature load on thermal postbuckling behaviour of functionally graded shallow curved shell panels, ***Composite Structures*** 160:1236–1247. (ISSN: 0263-8223). https://doi.org/10.1016/j.compstruct.2016.10.125
10. Mahapatra T R, **Kar V R**, Panda S K, Mehar K (2017) Nonlinear thermoelastic deflection of temperature dependent FGM curved shallow shell under nonlinear thermal loading, ***Journal of Thermal Stresses,*** 40(9):1184–1199. (ISSN: 0149-5739). https://doi.org/10.1080/01495739.2017.1302788
11. **Kar V R**, Panda S K (2017) Post-buckling behaviour of shear deformable functionally graded spherical shell panel under uniform and non-uniform thermal environment, ***Journal of Thermal Stresses,*** 40(1): 25–39. (ISSN: 0149-5739). https://doi.org/10.1080/01495739.2016.1207118
12. **Kar V R**, Panda S K (2016) Post-buckling behaviour of shear deformable functionally graded curved shell panel under edge compression, ***International Journal of Mechanical Sciences*** 115:318-324. (ISSN: 0020-7403). https://doi.org/10.1016/j.ijmecsci.2016.07.014.
13. **Kar V R,** Panda S K (2016) Nonlinear thermomechanical behavior of functionally graded material cylindrical/hyperbolic/elliptical shell panel with temperature-dependent and temperature-independent properties, ***Journal of Pressure Vessel Technology-Transactions of the ASME*** 138(6), 061206. (ISSN: 0094-9930). http://dx.doi.org/10.1115/1.4033701.
14. **Kar V R,** Panda S K (2016) Geometrical nonlinear free vibration analysis of FGM spherical panel under nonlinear thermal loading with TD and TID properties. ***Journal of Thermal Stresses,*** 39(8): 942-959. (ISSN: 0149-5739). https://doi.org/10.1080/01495739.2016.1188623
15. **Kar V R**, Panda S K (2016) Nonlinear free vibration of functionally graded doubly curved shear deformable panels using finite element method, ***Journal of Vibration and Control,*** 22(7):1935-1949. (ISSN: 1077-5463) https://doi.org/10.1177/1077546314545102
16. **Kar V R**, Panda S K (2016) Nonlinear thermomechanical deformation behaviour of P-FGM spherical shallow shell panel, ***Chinese Journal of Aeronautics***, 29:173-183. Doi: https://doi.org/10.1016/j.cja.2015.12.007. (ISSN: 1000-9361)
17. Mahapatra T R, **Kar V R**, Panda S K (2016) Large amplitude free vibration analysis of laminated composite spherical panel under hygrothermal environment, ***International Journal of Structural Stability and Dynamics,*** 16(3):1450105. (ISSN: 0219-4554) https://doi.org/10.1142/S0219455414501053

**18.** Mahapatra T R, **Kar V R**, Panda S K (2016) Large amplitude bending behaviour of laminated composite curved panels**,** ***Engineering Computations***, 33(1):116 -138. (ISSN: 0264-4401) https://doi.org/10.1108/EC-05-2014-0119

**19.** Mehar K, Panda S K, Dehengia A, **Kar V R** (2016) Vibration analysis of functionally graded carbon nanotube reinforced composite plate in thermal environment. ***Journal of Sandwich Structures and Materials,*** 18(2):2151-2173. (ISSN:1099-6362) https://doi.org/10.1177/1099636215613324.

**20.** Mahapatra T R, **Kar V R,** Panda S K (2016) Nonlinear flexural analysis of laminated composite spherical shells under hygro-thermo-mechanical loading-a micromechanical approach. ***International Journal of Computational Method*** 13(3), 1650015. (ISSN: 0219-8762) https://doi.org/10.1142/S0219876216500158

**21.** Mahapatra T R, Panda S K, **Kar V R** (2016) Geometrically nonlinear flexural analysis of hygro-thermo-elastic laminated composite doubly curved shell panel. ***International Journal of Mechanics & Materials in Design***, 12(2):153–171. (ISSN: 1569-1713). https://doi.org/10.1007/s10999-015-9299-9

**22.** Mahapatra T R, Panda S K, **Kar V R** (2016) Nonlinear hygro-thermo-elastic vibration analysis of doubly curved composite shell panel using finite element micromechanical model, ***Mechanics of Advanced Materials and Structures,*** 23(11):1343-1359. (ISSN: 1537-6494). https://doi.org/10.1080/15376494.2015.1085606

**23. Kar V R,** Panda S K (2015) Thermoelastic analysis of functionally graded doubly curved shell panels using nonlinear finite element method, ***Composite Structures,*** 129: 202-212. (ISSN: 0263-8223) https://doi.org/10.1016/j.compstruct.2015.04.006

**24. Kar V R**, Panda S K (2015) Large deformation bending analysis of functionally graded spherical shell using FEM, ***Structural Engineering and Mechanics*** 53(4):661-679. (ISSN: 1225-4568) http://dx.doi.org/10.12989/sem.2015.53.4.661

**25. Kar V R**, Panda S K (2015) Nonlinear flexural vibration of shear deformable functionally graded spherical shell panel, ***Steel and Composite Structures,*** 18(3):693-709. (ISSN: 1229-9367) https://doi.org/10.12989/scs.2015.18.3.693

**26. Kar V R**, Panda S K (2015) Free vibration responses of temperature dependent functionally graded doubly curved panels under thermal environment**,** ***Latin American Journal of Solids & Structures,*** 12(11): 2006-2024. (ISSN: 1679-7825) http://dx.doi.org/10.1590/1679-78251691

**27. Kar V R**, Mahapatra T R, Panda S K (2015) Nonlinear flexural analysis of laminated composite flat panel under hygro-thermo-mechanical loading**,** ***Steel and Composite Structures***, 19(4):1011-1033. (ISSN: 1229-9367)

http://dx.doi.org/10.12989/scs.2015.19.4.1011

28. Mahapatra T R, **Kar V R**, Panda S K (2015) Nonlinear free vibration analysis of laminated composite doubly curved shell panel in hygrothermal environment, ***Journal of Sandwich Structures and Materials***, 17(5):511-545. (ISSN: 1099-6362) https://doi.org/10.1177/1099636215577363.

***Published Articles/Conference Proceedings in* ESCI/CPCI/Scopus Indexed Journals: 17**

1. Karakoti A, Pandey S, **Kar V R** (2021), Transient analyses of FGM sandwich cylindrical shell panels under air-blast load, ***AIP Conference Proceedings*** 2341:020014. https://doi.org/10.1063/5.0050139
2. Jena S, Karakoti A, **Kar V R**, Jayakrishna K, Sultan M T H (2021) Deformation characteristics of functionally graded bio-composite plate using higher-order shear deformation kinematics, ***Journal of Computational Methods in Sciences and Engineering***, 21 (3): 593-598. 10.3233/JCM-200044
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