



## **Dr. Vishesh Ranjan Kar**

**Assistant Professor**

**Department of Mechanical Engineering,  
National Institute of Technology Jamshedpur, India**

**Email : [visheshkar@gmail.com](mailto:visheshkar@gmail.com)**

**[vishesh.me@nitjsr.ac.in](mailto:vishesh.me@nitjsr.ac.in)**

**Contact: (+91) 9439569975**

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 05 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 and Institute of Engineers (India). His *h*-index is more than 20 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: 29<sup>th</sup> 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: 10+)***

### **Teaching Experience**

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

### **Research Experience**

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

### **Industrial Experience**

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

## ***Sponsored Research Projects: Completed: 01, Ongoing: 02, In Process: 03***

**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.

**3. Title:** Design and Development of Flexible and Multipurpose Conveyor System.

**Agency:** National Initiative for Design Innovation, MHRD, Govt. of India

**Duration:** 2018-2020, **Role:** Principal Investigator, **Status:** Ongoing.

**4. Title:** Development of mathematical models, methods and algorithms to assess the dynamic behavior of viscoelastic composite pipelines conveying fluid.

**Agency:** International Cooperation (Bilateral), DST, Govt. of India.

**Duration:** 2020-2023 **Role:** Principal Investigator, **Status:** Under Evaluation.

**5. Title:** Thermoelastic Characterization of Hybrid CNT-Reinforced Ceramic Matrix Composite Gas Turbine Blades: Experimental and Numerical Investigation.

**Agency:** Core Research Grant, SERB, Govt. of India. **Duration:** 2020-2023

**Role:** Principal Investigator, **Status:** Under Evaluation.

**6. Title:** Design and Development of Light-Weight Pylon Prosthesis Made of Hybrid Nanocomposites.

**Agency:** Core Research Grant, SERB, Govt. of India. **Duration:** 2020-2023

**Role:** Co-Principal Investigator, **Status:** Under Evaluation.

### ***Thesis Supervision***

- **Doctoral Program:** On-going: **04**
- **Master's Program:** Completed: **02**, Ongoing: **04**
- **Bachelor's Program:** Completed: **12**

### **Publication details (Total: 61, h-index: 21, Total citations: 1000+)**

- Journal Articles: Indexed in **SCI/SCIE: 24, ESCI: 01**
- Conference Proceedings Indexed in **Scopus/CPCI: 10**
- 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*)

### ***Reviewed articles of Reputed 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/Advisory committee member/Session chair in Conferences and others***

- 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, 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, India 7 Jan 2020.
- Member of Technical program committee in International Conference on Trends in Material Science and Inventive Materials (**ICTMIM 2021**) is being organized on 14-15, May 2021 Organized by JCT College of Engineering and Technology, Tamil Nadu, India.
- Member of Technical program committee in 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.
- Member of National advisory committee of International Conference on Design Automation and Control (**ICDAC 2020**) in Vellore Institute of Technology Vellore, India on 6-8 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 29<sup>th</sup> May 2019.
- Member of National advisory committee of National Conference on Emerging Trends in Manufacturing & Automation Engineering (**NCMAE-2018**) held in ASET, Amity University, Gwalior, India on 12<sup>th</sup> Oct 2018.
- Lecture-cum-interactive talk on “**Research and Technological Advancements in Dynamic Industrial and Business Environment**” at Women Institute of Technology, Dehradun on 11<sup>th</sup> Aug 2018 under TEQIP III activities.
- Session Chair of 14<sup>th</sup> International Conference on Science Engineering & Technology (**ICSET-2017**) at VIT University, Vellore on 3<sup>rd</sup> May 2017.

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

- Convener of 1<sup>st</sup> **National Conference on Materials, Mechanics & Modelling (NCMMM2020)** at NIT Jamshedpur, India to be scheduled on 29-30 Aug 2020.

- Coordinator of One Week Workshop on "*Finite Element Structural Analysis using ANSYS*" at Department of Mechanical Engineering, NIT Jamshedpur during 20<sup>th</sup> May – 25<sup>th</sup> 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 17<sup>th</sup> Dec - 21<sup>st</sup> 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 9<sup>th</sup> Aug 2017.
- Coordinator of guest lecture on "*Solid-Fluid Interaction*" by Dr. N. Kulashakaran, Head-Virtual Engg., Chrysler India Automobiles (P) Ltd., Kandanchavady at VIT University, Vellore on 23<sup>rd</sup> March 2017.
- Course Instructor of *SolidWorks Training Program* at NIT Rourkela from 6<sup>th</sup> July to 17<sup>th</sup> July 2015.
- Faculty facilitator of "*Training Programme on PRO-E and ANSYS*" at Jindal Training Center, JSPL, Raigarh (C.G.) from 28<sup>th</sup> May to 10<sup>th</sup> June 2012.
- Faculty Instructor of *AutoCAD Training* at O.P. Jindal Institute of Technology, Raigarh (C.G.) from 25<sup>th</sup> to 26<sup>th</sup> 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***

- Member of Research & Consultancy Committee of NIT Jamshedpur (23<sup>rd</sup> June 2020 to till date)
- Professor-In-Charge Student Technical Activities in NIT Jamshedpur (1<sup>st</sup> 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 5<sup>th</sup> 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***

Name	Vishesh Ranjan Kar
Born	30 <sup>th</sup> 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: 61, h-index: 20+, Total citations: 1000+)

Journal Articles: Indexed in SCI/SCIE: **24**, ESCI: **01**

Conference Proceedings Indexed in Scopus/CPCI: **10**

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

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

### Published Articles in Reputed Journals (Total SCI/SCIE: 24)

1. 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>
2. 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>
3. 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>.
4. **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>
5. **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>
6. 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>
7. **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>
8. **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>.



9. **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>.
10. **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>
11. **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>
12. **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)
13. 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>
14. 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>
15. 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>.
16. 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>
17. 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>
18. 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>

19. 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>
20. 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>
21. 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>
22. 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>
23. 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>
24. 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: 11**

1. Karakoti A, Pandey S, Kar V R (2020) Free Vibration Response of P-FGM and S-FGM sandwich shell panels: A comparison, *Materials Today: Proceedings*, ISSN 2214-7853 <https://doi.org/10.1016/j.matpr.2020.05.131> (Article in Press)
2. Karakoti A, Pandey S, Kar V R (2020) Bending Analysis of Sandwich Shell Panels with Exponentially Graded Core, *Materials Today: Proceedings*, ISSN 2214-7853 <https://doi.org/10.1016/j.matpr.2020.05.132> (Article in Press)
3. Joshi K K, Kar V R (2020) Bending analysis of bi-dimensional functionally graded plate using FEA *Materials Today: Proceedings*, ISSN: 2214-7853. <https://doi.org/10.1016/j.matpr.2020.02.371>(Article in Press)

4. Karakoti A, Jena S, **Kar V R**, Jayakrishna K, (2020) Free vibration behavior of corrugated functionally graded composite panel, *Materials Today: Proceedings*, 22(4) 2957-2963, ISSN 2214-7853, <https://doi.org/10.1016/j.matpr.2020.03.430>
5. Kar V R, T.R. Mahapatra, Panda S K (2016) Thermal buckling of shear deformable functionally graded singly/doubly curved shell panel with TD and TID properties. *Advances in Materials Research* 5(4): 205-221. (ISSN: 2234-0912).  
<https://doi.org/10.12989/amr.2016.5.4.205>
6. Panda, S.K., Mahapatra, T.R., **Kar, V.R.** (2017) Nonlinear Finite Element Solution of Post-buckling Responses of FGM Panel Structure under Elevated Thermal Load and TD and TID Properties, MATEC Web of Conferences, 109, 05005.  
<https://doi.org/10.1051/mateconf/201710905005>
7. Mouli, B.C., **Kar, V.R.**, Ramji, K., Rajesh, M. (2018) Free vibration of functionally graded conical shell *Materials Today: Proceedings*, 5 (6), pp. 14302-14308.  
<https://doi.org/10.1016/j.matpr.2018.03.012>.
8. **Kar, V.R.**, Panda, S.K. (2015) Effect of temperature on stability behaviour of functionally graded spherical panel *IOP Conference Series: Materials Science and Engineering*, 75 (1), 012014. <https://doi.org/10.1088/1757-899X/75/1/012014>
9. Mandhatha P. S., Reddy K. V. L. S. S., Tripathy P., **Kar V R**. (2018) Effect of Perforation on the Bending Behavior of Temperature-Dependent Carbon Nanotube Reinforced Composite Plate, *Advanced Science Letters* 24, 5919–5922.  
<https://doi.org/10.1166/asl.2018.12220>.
10. Krishnan S. Y., Caitanya A. K., Tripathy P., **Kar V. R.** (2018) Free Vibration Behavior of Carbon Nanotube Reinforced Composite Conical Shell Panel under Thermal Environment. *Advanced Science Letters* 24, 5915–5918. <https://doi.org/10.1166/asl.2018.12220>.
11. **Kar, V.R.**, Panda, S.K (2013). Free vibration responses of functionally graded spherical shell panels using finite element method, *ASME 2013 Gas Turbine India Conference*, GTINDIA 2013. <https://doi.org/10.1115/GTINDIA2013-3693>

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

1. **Kar V. R.**, Karakoti A., Jena S., Tripathy P, Jayakrishna K., Rajesh M, Reddy D. M. and Sultan M.T.H., Modeling and Analysis of Functionally Graded Biocomposite Plate Structure using Higher-Order Kinematics, *Structural Health Monitoring System for Synthetic, Hybrid and Natural Fiber Composites*, **Composites Science and Technology (Springer)**, *In Press*.
2. Sai I, Reddy D M, Jayakrishna K, Rajesh M, **Kar V R**, Damage Characterization of Composite Stiffened Panel Subjected to Low Velocity Impact, *Structural Health*

*Monitoring System for Synthetic, Hybrid and Natural Fiber Composites*, **Composites Science and Technology (Springer)**, *In Press*.

3. Rajesh M, Jayakrishna K, Reddy D M, Mugesh K, **Kar V R**, Experimental Characterization for Natural Fiber and Hybrid Composites, *Structural Health Monitoring System for Synthetic, Hybrid and Natural Fiber Composites*, **Composites Science and Technology (Springer)**, *In Press*.
4. Jayakrishna K, Soundhar A, Rajesh M, Reddy D. M., **Kar V R**, Natural fiber composite for structural applications, *Structural Health Monitoring System for Synthetic, Hybrid and Natural Fiber Composites*, **Composites Science and Technology (Springer)**, *In Press*.
5. Jayakrishna K, Kar V R, Sultan M. T. H., Rajesh M., Material Selection for Aerospace Components, *Sustainable Composites for Aerospace Applications*, 1<sup>st</sup> Edition, **Woodhead Publishing Series in Composites Science and Technology 2018 (Elsevier)**, pp. 1-18. ISBN 978-0-08-102131-6. <https://doi.org/10.1016/B978-0-08-102131-6.00001-3>
6. **Kar V R**, Panda S K, Tripathy P, Jayakrishna K, Rajesh M, Karakoti A, Manikandan M, Deformation characteristics of functionally graded composite panels using finite element approximation, *Modelling of Damage Processes of Bio Composites, Fibre Reinforced Composites and Hybrid Composites*. 1<sup>st</sup> Edition, **Woodhead Publishing Series in Composites Science and Technology 2019 (Elsevier)**, pp. 212-229 ISBN: 978-0-08-102289-4. <https://doi.org/10.1016/B978-0-08-102289-4.00012-6>
7. Karakoti A, Tripathy P, **Kar V R**, Jayakrishna K, Rajesh M., Manikanadan M, Finite Element Modelling of Natural Fibre Based Hybrid Composites, *Modelling of Damage Processes of Bio Composites, Fibre Reinforced Composites and Hybrid Composites*, 1<sup>st</sup> Edition, **Woodhead Publishing Series in Composites Science and Technology 2019 (Elsevier)**, pp. 1-18 ISBN: 978-0-08-102289-4. <https://doi.org/10.1016/B978-0-08-102289-4.00001-1>
8. Verma R., Shukla A., Jayakrishna K., **Kar V. R.**, Rajesh M., Thirumalini S., Manikandan M., Structural health monitoring in aerospace composites, *Structural Health Monitoring of Biocomposites, Fibre Reinforced Composites and Hybrid Composites*. 1<sup>st</sup> Edition, **Woodhead Publishing Series in Composites Science and Technology 2019 (Elsevier)**, pp. 33-52 ISBN: 978-0-08-102291-7. <https://doi.org/10.1016/B978-0-08-102291-7.00003-4>
9. Shukla A., Verma R., Jayakrishna K., **Kar V. R.**, Rajesh M., Thirumalini S., Manikandan M., Recent advances and trends in Structural health monitoring, *Structural Health Monitoring of Biocomposites, Fibre Reinforced Composites and Hybrid Composites*, 1<sup>st</sup> Edition, **Woodhead Publishing Series in Composites Science and Technology 2019**

(Elsevier), pp. 53-76 ISBN: 978-0-08-102291-7. <https://doi.org/10.1016/B978-0-08-102291-7.00004-6>

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### **International Conferences/Symposiums (Total: 21)**

1. Karakoti A, Pandey S, Kar V R, Free Vibration Response of P-FGM and S-FGM sandwich shell panels: A comparison, International Conference on Aspects of Materials Science and Engineering (ICAMSE 2020), Panjab University, Chandigarh, India, May 29-30, 2020.
2. Karakoti A, Pandey S, Kar V R, Bending Analysis of Sandwich Shell Panels with Exponentially Graded Core, International Conference on Aspects of Materials Science and Engineering (ICAMSE 2020), Panjab University, Chandigarh, India, May 29-30, 2020. (*Received Best Paper Presentation Award*)
3. Joshi K K, Kar V R, Bending analysis of bi-dimensional functionally graded plate using FEA 10<sup>th</sup> International Conference on “Materials Processing and Characterization” (ICMPC-2020), GLA University, Mathura, India. 21-23 Feb 2020.
4. Chaudhary S K, Kar V R, Shukla K K, Deformation Behavior of Functionally Graded Carbon Nanotube Reinforced Composite Panel with Cut-outs under Thermomechanical Loading, 7th International Congress on Computational Mechanics and Simulation (ICCMS 2019), IIT Mandi, India, 11-13 December 2019.
5. Jena S, Karakoti A, Kar V R, Jayakrishna K., Sultan M.T.H., Deformation characteristics of functionally graded bio-composite plate using higher-order shear deformation kinematics, 5<sup>th</sup> International Conference on Computational Methods in Engineering and Health Sciences, (ICCMEH 2019), University of Putra Malaysia, July 16-17, 2019.
6. Joshi K K, Behera R K, Kar V R, Influence of Point Mass over FGM Plate for Vibration Signature in Different Boundary Conditions, 4<sup>th</sup> International Conference on Materials and Manufacturing Engineering (ICMME-2019) organized by Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Kancheepuram, Tamil Nadu, India, March 21-22, 2019.
7. Jena S, Karakoti A, Kar V R, Jayakrishna K, Free vibration behavior of corrugated functionally graded composite panel, 2<sup>nd</sup> International Conference on Materials

Manufacturing and Modelling, (**ICMMM 2019**), VIT Vellore, Vellore, India, 29 March 2019.

8. Karakoti A, **Kar V R**, Free vibration analysis of corrugated laminated composite panel, International Conference on Contemporary Design and Analysis of Manufacturing and Industrial Engineering systems (**CDAMIES 2018**), NIT Tiruchirappalli, India, Jan 18-20, 2018. (*Received Best Paper Award*)
9. Gupta A., Chandra Mouli B., Ahmed M. O., **Kar V. R.**, Thermal Free Vibration of Truncated Conical Metal/Ceramic FGM Panel with Temperature-Dependent Material Properties, World summit on Advances in Science Engineering and Technology (**Cambridge Summit 2018**), University of Cambridge, UK, Jan 4-6, 2018.
10. Chandra Mouli B., **Kar V. R.**, Ramji K., Rajesh M., Free vibration of functionally graded conical shell” 1<sup>st</sup> International conference on Advanced Functional Materials (**ICAFM 2017**) 3-5 May 2017.
11. Panda S K, T.R. Mahapatra, **Kar V R**, Nonlinear Finite Element Solution of Post-buckling Responses of FGM Panel Structure under Elevated Thermal Load and TD and TID Properties, International Conference on Advanced Technologies in Manufacturing and Materials Engineering(**ATMME 2017**) Bangkok, Thailand 5-7 January, 2017.
12. Mandhatha P. S., Reddy K. V. L. S. S., Tripathy P., **Kar V R.**, Effect of Perforation on the Bending Behavior of Temperature-Dependent Carbon Nanotube Reinforced Composite Plate, 1<sup>st</sup> International conference on Nanoscience and Nanotechnology (**ICNAN 2016**), VIT University, Vellore, India, 19-21 Oct 2016.
13. Krishnan S. Y., Caitanya A. K., Tripathy P., **Kar V. R.**, Free Vibration Behavior of Carbon Nanotube Reinforced Composite Conical Shell Panel under Thermal Environment. 1<sup>st</sup> International conference on Nanoscience and Nanotechnology (**ICNAN 2016**), VIT University, Vellore, India 19-21 Oct 2016.
14. Katariya P K, Panda S K, **Kar V R**, Free Vibration Analysis of Skew Laminated Composite Curved Shell Panels, International Conference on Computer Aided Engineering (**CAE-2015**), GITAM University, Hyderabad, India. 10-12 Dec, 2015.
15. **Kar V R**, Panda S K, Thermal buckling of temperature dependent functionally graded cylindrical panel, 5<sup>th</sup> International & 26<sup>th</sup> All India Manufacturing Technology, Design and Research Conference (**AIMTDR 2014**) IIT Guwahati, India, 12–14 Dec 2014.
16. **Kar V R**, Panda S K, Bending responses of functionally graded cylindrical panel, International Conference on Emerging Materials and Processes (**ICEMP 2014**), CSIR-IMMT, Bhubaneswar, India. 26-28 Feb 2014.
17. **Kar V R**, Panda S K, Nonlinear bending responses of functionally graded cylindrical panels, International Conference on Functional Materials (**ICFM 2014**) IIT Kharagpur, India. 5<sup>th</sup> -7<sup>th</sup> Feb 2014.

18. **Kar V R**, Panda S K, Bending behaviour of functionally graded spherical shell panels, 2<sup>nd</sup> KIIT International Symposium on Advances in Automotive Technology (2<sup>nd</sup> **KIIT SAAT-2013**), KIIT, Bhubaneswar, India. 20-21 Dec 2013.
19. **Kar V R**, Panda S K, Thermal Stability Analysis of Functionally Graded Panels, International Conference on Structural Engineering and Mechanics (**ICSEM 2013**) NIT-Rourkela, India. 20-22 Dec 2013.
20. **Kar V R**, Panda S K, Free Vibration Responses of Functionally Graded Spherical Shell Panels using Finite Element Method, ASME 2013 Gas Turbine India Conference (**ASME GTINDIA2013**), CSIR-NAL, Bangalore, India. 5-6 Dec 2013.
21. **Kar V R**, Panda S K, Scope and study of functionally graded plate structures in automotives, 1<sup>st</sup> KIIT International Symposium on Advances in Automotive Technology (1<sup>st</sup> **KIIT SAAT-2013**), KIIT, Bhubaneswar, India. 11-12 Jan 2013.

#### **National Conferences (Total: 05)**

1. Chandra Mouli B., Jena S., Ramji K., **Kar V R**. Effect of temperature on the free vibration of functionally graded conical shell panel, National Seminar on Aerospace Structures (**NASAS XIX**), VIT University, Vellore, India. 23-25 Feb 2017.
2. **Kar V R**, Panda S K, Effect of volume fraction on the nonlinear flexural behaviour of shear deformable functionally graded plate, 5<sup>th</sup> National Conference on Processing and Characterization of Materials (**NCPCM 2015**), NIT Rourkela, India. 12-13 Dec 2015.
3. **Kar V R**, Panda S K, Effect of temperature on stability behaviour of functionally graded spherical panel, 4<sup>th</sup> National Conference on Processing and Characterization of Materials (**NCPCM 2014**), NIT Rourkela, India. 5-6 Dec 2014.
4. **Kar V R**, Panda S K, Free vibration responses of functionally graded cylindrical shell panels using finite element method, **All India Seminar on Recent Advances in Mechanical Engineering**, Institute of Engineers (India), Bhubaneswar, India. 16-17 March 2013.
5. **Kar V R**, **R K Singh**, Panda S K. Effect of gradation on bending behaviour of functionally graded spherical panels, 3<sup>th</sup> National Conference on Processing and Characterization of Materials (**NCPCM 2013**), NIT Rourkela, India. 6-7 Dec 2013.