



TARAPADA ROY

❖ **PRESENT POSITION:**

Assistant Professor (Since February 2009)

Department of Mechanical Engineering, National Institute of Technology Rourkela, India; Phone: +916612462507(O); +916612463507 (R)

Email: tarapada@nitrkl.ac.in; tarapadaroy@gmail.com

❖ **EDUCATIONAL QUALIFICATIONS:**

Year Education

2009 **Ph. D. (Mechanical Engineering)**

Indian Institute of Technology Guwahati

2004 **M. E. (Aerospace Engineering and Applied Mechanics)**

Indian Institute of Engineering Science and Technology Shibpur
(Formerly Bengal Engineering and Science University, Shibpur)

2002 **B. E. (Mechanical Engineering)**

Indian Institute of Engineering Science and Technology Shibpur
(Formerly Bengal Engineering College (DU), Shibpur)

❖ **RESEARCH INTERESTS:**

Nonlinear Dynamics and Chaos; Vibration and Control; Modelling of Hyperelastic and Viscoelastic Materials; Dynamic Mechanical Analysis (DMA); Visco-hyperelastic Soft Materials; Dielectric Elastomer Actuators and Soft Robotics; Nonlinear Dynamics of Viscoelastic Meta-structures/systems (Auxetic Nanocomposites/FRP Composites/FGMs); Vibration Energy Harvesting; and Finite Element Modeling and Analysis

❖ **SPONSORED R&D PROJECTS (COMPLETED: 3 AND ONGOING: 3):**

1. **Title:** Dynamics Analyses of Carbon Nanotube-Epoxy Matrix based Laminated FRP Composites Structures, **Role:** Investigator (Sole); **Sponsored by:** SERB- DST, Govt. of India (GOI), **Duration:** March, 2016 to March, 2018, **Budget Sanction:** INR 11.0 Lacs; **Status:** Completed
2. **Title:** Design and Development of Dynamic Mechanical Analyser, **Role:** Principal Investigator, **Sponsored by:** IMPRINT-I, MHRD, Govt. of India; **Budget Sanction (Fund received):** INR 360.19 Lacs; **Duration:** August 2017- March 2022; **Status:** Completed

3. **Title:** Development of functionally graded bioglass ceramic scaffold for bone tissue engineering; **Role:** Co- Principal Investigator; **Sponsored by:** SERB-DST, GOI; **Duration:** August 2017- August 2020; **Budget Sanction:** INR 78.6042 Lacs; **Status:** Completed
4. **Title:** Design and development of 2kW scalable DC-Microgrid DCMG system with grid interacting capability; **Role:** Co- Principal Investigator; **Sponsored by:** DST, GOI; **Duration:** February 2022- February 2023; **Budget Sanction:** INR 9.9 Lacs; **Status:** ONGOING
5. **Title:** Characterization of Additively Manufactured Maraging Steel 18Ni (300) Built Part: Fabrication and Dynamic Response Analysis of Topologically Optimized Auxetic Prototype Beam Aiming to Alleviate Seismic Protection of Archeological Heritage Constructions of Odisha; **Role:** Co- Principal Investigator; **Sponsored by:** State Council on Science & Technology, Science & Technology Department, Government Odisha; **Duration:** July 2022- July 2025; **Budget Sanction:** INR 10.0 Lacs; **Status:** ONGOING
6. **Title:** Dynamic Analysis and Development of Multifunctional Energy Storage Laminated Composite Structures for Electric Vehicle; **Role:** Investigator (Sole); **Sponsored by:** SERB-DST, GOI; **Duration:** March 2022- March 2025; **Budget Sanction:** INR 39.43764 Lacs; **Status:** ONGOING

❖ **PATENT FILED:**

1. S Srikant Patnaik, Kishore Kachery and Tarapada Roy, “Automated sample holders for dynamic mechanical analysis in bending and tension modes”, Application No. 202131009658, Published, April, 2021 (FER Filed on Feb, 2022)

❖ **PHD SUPERVISIONS (COMPLETED :8 and ONGOING: 2):**

1. **Name of the Student:** Mr. Benedict Thomas

Thesis Title: Vibration analysis of Carbon Nanotubes Reinforced Functionally Graded Composite Shell structures (**Degree awarded, 2016**); **Role:** Supervisor

2. **Name of the Student:** Mr. Saurabh Chandraker

Thesis Title: Modelling and Model Reduction of Viscoelastic Composite Rotor – An Operator Based Approach (**Degree awarded, 2016**); **Role:** Co- Supervisor

3. **Name of the Student:** Mr. Alok Kumar Biswal

Thesis Title: Geometric Nonlinear Finite Element and Genetic Algorithm based Optimal Vibration Energy Harvesting from Axially Functionally Graded Piezolaminated Beam (**Degree awarded, 2017**); **Role:** Co-Supervisor

4. **Name of the Student:** Mr. Ashirbad Swain

Thesis Title: Viscoelastic Modelling and Dynamic Analyses of CNTs based Composite Shell Panels (**Degree awarded, 2018**); **Role:** Supervisor

5. **Name of the Student:** Mr. Deepak Kumar Biswal

Thesis Title: Study on Buckling, Free Vibration and Parametric Resonance of Sandwich Shell Panels with Viscoelastic Material Core (**Degree awarded, 2019**); **Role: Co-Supervisor**

6. **Name of the Student:** Mr. D. Koteswara Rao

Thesis Title: Dynamic Analysis and Active Control of Functionally Graded Rotor Shaft System (**Degree awarded, 2020**); **Role: Supervisor**

7. **Name of the Student:** Mr. Krishanu Ganguly

Thesis Title: Modelling and Analysis of Various Issues in Viscoelastic Composite Rotors (**Degree awarded, 2022**); **Role: Co-Supervisor**

8. **Name of the Student:** Mr. S Srikant Patnaik

Thesis Title: Dynamic viscoelastic analysis of CNT-CFRP skewed hybrid composite shell panels (**Defense Seminar conducted on 19th August, 2022**); **Role: Supervisor**

9. **Name of student: Ms Moumita Tewary**

Thesis title: Nonlinear dynamics analysis of dielectric elastomer membrane for actuation in soft fish robots (**Ongoing: Thesis to be submitted in September 2022**); **Role: Supervisor**

10. **Name of student: Mr. Jagannath Debasis Parhi**

Thesis title: Nonlinear dynamics and chaotic phenomena in auxetic viscoelastic composite structures (**Ongoing: Thesis to be submitted in December 2022**); **Role: Supervisor**

❖ **PUBLICATIONS (IN INTERNATIONAL JOURNALS):**

1. Jagannath Debasis and Tarapada Roy, "Chaotic Vibration Analysis of Auxetic Nanocomposite Structures", *Journal of Vibration and Control*, **Accepted**, August, 2022
2. Sourabh Kumar Soni, Benedict Thomas, Ashirbad Swain and Tarapada Roy, "Functionally graded carbon nanotubes reinforced composite structures: An extensive review", *Composite Structures*, Vol. 299, 2022
3. M. Tewary and T. Roy, "Dynamic analysis of dielectric elastomer membrane for actuation in soft fish robots", *Journal of Intelligent Material Systems and Structures*, March 2022, 10.1177/1045389X221085644
4. K. Bhowmik, N. Khutia, M. Tarfaoui, M. Jana, K. Das, T. Roy, A. Bandyopadhyay, and A. R. Chowdhury, "Influence of multiwalled carbon nanotube on progressive damage of epoxy/carbon fiber reinforced structural composite", *Polymer Composites*, July 2022, 10.1002/pc.26877
5. S. S. Patnaik and T. Roy, "Viscoelastic and mechanical properties of CNT-reinforced polymer-based hybrid composite materials using hygrothermal creep", *Polymers and Polymer Composites*, 2021, 29(9_suppl), pp. S1386–S1402
6. S. S. Patnaik and T. Roy, "Vibration and damping characteristics of CNTR viscoelastic skewed shell structures under the influence of hygrothermal conditions", *Engineering with Computers*, May 2021, DOI: 10.1007/s00366-021-01411-w
7. S. S. Patnaik and T. Roy, "Vibration characteristics and damping properties of functionally graded carbon nanotubes reinforced hybrid composite skewed shell structures under hygrothermal conditions", *Journal of Vibration and Control*, 2020, DOI:10.1177/1077546320961718

8. A. Kumar Gorai, **T. Roy**, and S. Mishra, "Development of a machine learning algorithm for fault detection in a cantilever beam", *Noise and Vibration Worldwide*, <https://doi.org/10.1177/09574565211000450>, 2021
9. S.P. Sahoo, S. Datta, **T. Roy** and S. Ghosh, "Machining performance of Ti6Al4V under dry environment, pressurized air supply and water-MQL: analysis of machining-induced vibration signals and captured thermographs", *Sadhana - Academy Proceedings in Engineering Sciences*, 2021, 46(4), 208
10. K. Pandey, S. Datta, and **T. Roy**, "Machinability of Inconel 825 under nano-Al₂O₃ based Nanofluid Minimum Quantity Lubrication", *Sadhana - Academy Proceedings in Engineering Sciences*, June 2022, 10.1007/s12046-022-01888-1
11. Moumita Tewary and **Tarapada Roy**, "Nonlinear Actuation of Non-Prismatic Dielectric Elastomeric Membrane", *Soft Materials*, doi.org/10.1080/1539445X.2020.1737117, 2020
12. Rao D, K., Ashirbad Swain and **Tarapada Roy**, "Dynamic responses of bidirectional functionally graded rotor shaft", *Mechanics Based Design of Structures and Machines*, In Press, DOI:10.1080/15397734.2020.1713804, 2020
13. Chatterjee S., Sahoo S.K., Swain B., Mahapatra S.S. and **Tarapada Roy**, "Quality characterization of dissimilar laser welded joints of Ti6Al4V with AISI 304 by using copper deposition technique", *International Journal of Advanced Manufacturing Technology*, Vol.106 (9-10), PP 4577-4591, 2020
14. Anwesa Mohanty, Suraj Parida, Rabindra Kumar Behera and **Tarapada Roy**, "Vibration energy harvesting: A review" , *Journal of Advanced Dielectrics*, Vol. 9 (4), 2019
15. Ashirbad Swain and **Tarapada Roy**, "Viscoelastic Material Damping Characteristics of CNTs based Functionally Graded Composite Shell Structures", *Journal of Materials: Design and Applications*, Vol. 233 (8), 2019
16. Ashirbad Swain and **Tarapada Roy**, "Viscoelastic Modelling and Dynamic Characteristics of CNTs-CFRP-2DWF Composite Shell Structures", *Composites Part B*, Vol. 141, pp. 100-122, 2018
17. Ashirbad Swain and **Tarapada Roy**, "Viscoelastic modelling and vibration damping characteristic of Hybrid CNTs-CFRP composite shell structures", *Acta Mechanica*, Vol. 229, PP.1321–1352, 2018
18. Alok Ranjan Biswal, **Tarapada Roy** and Rabindra Kumar Behera, "Geometric Nonlinear Finite Element and Genetic algorithm based Optimal Vibration Energy Harvesting from Nonprismatic Axially Functionally Graded Piezolaminated Beam", *Journal of Vibration and Control*, Vol 24(10), 2018
19. Ashirbad Swain, Shivaprasad Baad and **Tarapada Roy**, "Modelling and Analyses of Thermo-elastic Properties of Radially Grown CNTs based Woven Fabric Hybrid Composite Materials", *Mechanics of Advanced Materials and Structures*, Vol. 24 (14), pp. 1206-1220, 2017
20. Alok Ranjan Biswal, **Tarapada Roy** and Rabindra Kumar Behera, "Optimal vibration energy harvesting from nonprismatic piezolaminated beam" *Smart Structures and Systems, An International Journal*, Vol. 19(4), pp. 403-413, 2017
21. Alok Ranjan Biswal, **Tarapada Roy** and Rabindra Kumar Behera, "Optimal Vibration Energy Harvesting from Nonprismatic Axially Functionally Graded Piezolaminated cantilever Beam using

- Genetic Algorithm”, *Journal of Intelligent Material Systems and Structures*, Vol. 28 (14), pp. 1957-1976, 2017
22. Benedict Thomas and **Tarapada Roy**, “Vibration and damping analysis of functionally graded carbon nanotubes reinforced hybrid composite shell structures”, *Journal of Vibration and Control*, Vol. 23 (11), pp. 1711-1738
 23. Ashirbad Swain, **Tarapada Roy** and BK Nanda, “Vibration Damping Characteristics of Carbon Nanotubes Based Thin Hybrid Composite Spherical Shell Structures”, *Mechanics of Advanced Materials and Structures*, Vol. 24 (2), pp. 95-113, 2017
 24. H. Roy, S. Chandraker, J.K. Dutt and **T. Roy**, “Dynamics of multilayer, multidisc viscoelastic rotor – An operator based higher order classical model”, *Journal of Sound and Vibration*, Vol. 369, PP. 87–108, 2016
 25. Benedict Thomas and **Tarapada Roy**, “Vibration analysis of functionally graded carbon nanotube-reinforced composite shell structures”, *Acta Mechanica*, Vol. 227 (2), pp. 581–599, 2016
 26. Alok Ranjan Biswal, *Tarapada Roy* and Rabindra Kumar Behera, “Genetic algorithm- and finite element-based design and analysis of nonprismatic piezolaminated beam for optimal vibration energy harvesting”, *Journal of Mechanical Engineering Science*, Vol. 230 (14), pp. 2532-2548, 2016
 27. Debabrata Gayen and **Tarapada Roy**, “Finite Element based Vibration Analysis of Functionally Graded Spinning Shaft System”, *Journal of Mechanical Engineering Science*, ImechE Part C, Vol. 228 (18), pp: 3306-3321, 2014
 28. Benedict Thomas, Prasad K Inamdar and **Tarapada Roy**, “Thermal Analysis of a Randomly Oriented Carbon Nanotube Reinforced Functionally Graded Timoshenko Beam”, *Journal of Mechanical Science and Technology*, Vol. 28 (5), pp. 1779-1788, 2014
 29. A. R Biswal, R.K. Behera and **T. Roy**, “Vibration analysis of a Timoshenko beam with transverse open crack by finite element method”, *Applied Mechanics and Materials*, Vol. 592-594, pp: 2102-2106, 2014
 30. Debabrata Gayen and **Tarapada Roy**, “Hygro-Thermal Effects on Stress Analysis of Tapered Laminated Composite Beam”, *International Journal of Composite Material*, 3(3), PP. 46-55, 2013
 31. D. Chakraborty, P.K. Rathore and **T. Roy**, “Optimal actuators locations in smart fibre reinforced polymer structures using genetic algorithm”, *Applied Mechanics and Materials*, Vol. 110-116, pp: 1178-1283, 2012
 32. **Tarapada Roy**, P Manikandan and Debabrata Chakraborty, “Improved Shell Finite Element for Piezothermoelastic Analysis of Smart Fiber Reinforced Composite Structures”, *Finite Elements in Analysis and Design*, Vol. 46 (9), pp. 710-720, 2010
 33. **Tarapada Roy** and Debabrata Chakraborty, “Genetic Algorithm based Optimal Vibration Control of Smart Fiber Reinforced Composite Shell Structures under mechanical loading and thermal gradient”, *Smart Mater. Struct., IOP*, Vol. 18 (11), pp. 1-12
 34. **Tarapada Roy** and Debabrata Chakraborty, “Optimal Vibration Control of Smart Fiber Reinforced Composite Shell Structures using Improved Genetic Algorithm”, *Journal of Sound and Vibration*, Vol. 319 (1-2), pp. 15-40, 2009

35. **Tarapada Roy** and Debabrata Chakraborty, "Genetic algorithm based optimal design for vibration control of composite shell structures using piezoelectric sensors and actuators", *International Journal of Mechanics and Materials in Design*, Vol. 5 (1), pp. 45-60, 2009
36. **Tarapada Roy** and Debabrata Chakraborty, "GA-LQR based Optimal Vibration Control of Smart FRP Composite Structures with bonded PZT patches", *Journal of Reinforced Plastics and Composites*, Vol. 28 (11), pp. 1383-1404, 2009
37. **Tarapada Roy** and Debabrata Chakraborty, "Delamination in FRP laminates with holes under transverse impact", *Materials and Design*, Vol. 29, pp. 124–132, 2008
38. **Tarapada Roy** and Amit Roychowdhury, Design of Dental Implant using Finite Element Method, *Indian Journal of Biomechanics*, Vol. 1 (2), pp. 117-122, 2007
39. **Tarapada Roy** and Debabrata Chakraborty, "Delamination in Hybrid FRP Laminates under Low Velocity Impact", *Journal of Reinforced Plastics and Composites*, Vol. 25 (18), pp. 1939-1956, 2006

❖ **PUBLICATIONS (IN NATIONAL/INTERNATIONAL CONFERENCES):**

1. Moumita Tewary and **Tarapada Roy**, "Non-linear Vibrational Actuation in Soft Convex Tapered Dielectric Elastomer" Presented in **28th International Congress on Sound and Vibration, 24th - 27th July, 2022**, Sands Expo and Convention Centre, Singapore
2. Jagannath Debasis Parhi and **Tarapada Roy**, "Nonlinear Dynamic Analysis of Auxetic GFRP Composite Structures", " Presented in **28th International Congress on Sound and Vibration, 24th -27th July, 2022**, Sands Expo and Convention Centre, Singapore
3. S. Srikant Patnaik, **Tarapada Roy** and D. Koteswar Rao, "Numerical Investigation of Vibration Characteristics and Damping Properties of CNT-Based Viscoelastic Spherical Shell Structure", Presented in **18th Asia-Pacific Vibration Conference (APVC 2019) in Sydney from the 18th - 21st November 2019**, The University of Technology Sydney (UTS)
4. Moumita Tewary and **Tarapada Roy**, "Electro-Mechanical Responses of Dielectric Elastomers", ICAMER 2019, NIT Warangal, 2nd May 2019 – 4th May 2019
5. Ashirbad Swain, Shivaprasad Baad and **Tarapada Roy**, "Evaluation of elastic properties and vibration damping characteristics of carbon nanotubes based hybrid composite shell structures", 2nd International conference on mechanics of composites, **University of Porto, Portugal, 11-14 July, 2016**
6. Ashirbad Swain and **Tarapada Roy**, "Vibration Damping Capacity of Carbon Nanotubes based Hybrid Composite Spherical Shell", **Sixth International Congress on Computational Mechanics and Simulation (ICCMS 2016)**, 27th June – 1st July 2016, Indian Institute of Technology, Bombay, India.
7. Dinesh Patil, D. Koteswara Rao and **Tarapada Roy**, "Coupled Thermo Mechanical Transient Stress Analysis of Functionally Graded Gas Turbine Rotor", **ASME, Gas Turbine India Conference**, Hyderabad, 2015

8. D. Koteswara Rao and Tarapada Roy, "Vibration Analysis of Functionally Graded Rotating Shaft System", **12th International Conference on Vibration Problems**, Indian Institute of Technology Guwahati, 2015
9. Benedict Thomas, Tarapada Roy and B. K. Nanda, "Vibration damping characteristics of Functionally Graded Carbon Nanotube-Reinforced Hybrid Composite Spherical Shell Panel", **12th International Conference on Vibration Problems**, Indian Institute of Technology Guwahati, 2015
10. Ashirbad Swain, Tarapada Roy and B. K. Nanda, "A Comparative Study on Passive Vibration Damping in Thin Carbon Nanotube based Hybrid Composite Spherical Shell Panel", **12th International Conference on Vibration Problems**, Indian Institute of Technology Guwahati, 2015
11. Jefrine Jose and Tarapada Roy, "Dynamic Analysis of Flexible Composite Manipulator", **Sixth International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM)**, Indian Institute of Technology, Kharagpur, December 29 - 31, 2014
12. D. Koteswara Rao and Tarapada Roy, "Thermomechanical Analysis of Functionally Graded Rotating shaft system", **Sixth International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM)**, Indian Institute of Technology, Kharagpur, December 29 - 31, 2014
13. Benedict Thomas, Tarapada Roy and B. K. Nanda, "Vibration Analysis of Functionally Graded Carbon Nanotube Reinforced Composite Beams in Thermal Environment", **Sixth International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM)**, Indian Institute of Technology, Kharagpur, December 29 - 31, 2014
14. Jefrine Jose and Tarapada Roy, "Vibration Analysis of Flexible Composite Manipulator", **Emerging Materials: Characterization & Application**, Kolkata, December 4 - 6, 2014
15. S. Sahoo, K. Naik , S. S. Sahoo, B. Thomas and T. Roy, "Thermo-mechanical Analysis of Functionally Graded Carbon Nanotube Reinforced Composite Timoshenko Beam", **Sixth International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM)**, Indian Institute of Technology, Kharagpur, December 29 - 31, 2014
16. Ashirbad Swain, Tarapada Roy and B. K. Nanda, "Damping in Multi Walled Carbon Nanotubes" **Sixth International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM)**, Indian Institute of Technology, Kharagpur, December 29 - 31, 2014
17. A. R. Biswal, R. K. Behera and T. Roy, "Vibration Analysis of a Cracked Timoshenko Beam", **International conference on Industrial Engineering Science and Applications (IESA)**, NIT, Durgapur, 2014
18. A. R. Biswal, R. K. Behera and T. Roy , "Vibration analysis of a Timoshenko beam with transverse open crack by Finite Element Method", **International Mechanical Engineering Congress (IMEC)**, NIT, Tiruchirappalli, Tamil Nadu, 2014
19. Benedict Thomas, Tarapada Roy and B.K. Nanda, "Free Vibration and Buckling Analysis of Functionally Graded Nanocomposite Beams Reinforced by Randomly Oriented Carbon

- Nanotubes”, **International Conference on Functional Materials (ICFM), Indian Institute of Technology**, Kharagpur, 2014
20. Benedict Thomas, Prasad Inamdar and Tarapada Roy, “Effect of Temperature Distributions on the Stresses Developed in a Carbon Nanotube Based Functionally Graded Timoshenko Beam”, **IUMRS-ICA**, Indian Institute of Science, Bangalore, India, 2013
 21. Debabrata Gayen, D. Koteswara Rao and Tarapada Roy, “Thermomechanical Vibration Analysis of Functionally Graded Rotating Shaft Using Timoshenko Beam Element”, **1st Int. Conf. on ICMME**, Goa, 2013
 22. Debabrata Gayen , Prasad K. Inamdar and Tarapada Roy, “Finite Element Analysis of Functionally Graded Rotor Shaft Using Timoshenko Beam Theory”, **Proceedings of International Conference On Advanced Engineering and Technology**, Kolkata 2013
 23. A. R. Biswal, R.K.Behera and Tarapada Roy, “Free Vibration Analysis of a Cracked Beam”, **In Proceedings of All India seminar on Recent Advances in Mechanical Engineering**, Bhubaneswar, 2013
 24. Koteswara Rao D , Blessington P. J and Tarapada Roy, “Finite Element Modeling and Analysis of Functionally Graded (FG) Composite Shell Structures”, **ICMOC**, Thuckalay, 10-11 April, 2012
 25. Debabrata Chakraborty and Tarapada Roy, “Optimal Vibration Control of Smart Fibre Reinforced Polymer Spherical Shells”, **ICCE-19**, Shanghai , 24-30 July, 2011
 26. Vicky Varghese, Tarapada Roy and Kunal Pal, “Finite Element Analysis based Design of Hip Joint Prosthesis, World congress on biotechnology”, **OMICS groups** , Hyderabad , India, 2011
 27. Vicky Varghese, Tarapada Roy and Kunal Pal , “Finite Element Analysis of Hip Joint Prosthesis”, **4th indo Australian conference on biomaterials and tissue engineering**, Gujarat , India, 2011
 28. Anindya Sundar Das, Tarapada Roy and J.K. Dutt, “Optimal Parameters of an Electromagnetic Actuator for Actively Controlling the Vibration of a Flexible RotorShaft System”, **ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS)**, Philadelphia (US), 2010
 29. Debabrata Chakraborty and Tarapada Roy, “Vibration Control of Smart Composite Shell Structures Using Genetic Algorithm”, **8th International Conference on Mechanical Engineering (ICME)**, Dhaka (Bangladesh), 2009
 30. Tarapada Roy and Debabrata Chakraborty, “LQG based Vibration Control of Curved Smart FRP Composite Structures”, **International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM)**, IIT Kharagpur, India, 2007
 31. Tarapada Roy and Debabrata Chakraborty, “Optimal Vibration Control of Smart FRP Composite Structures using GA and LQR”, **Indian Society of Theoretical & Applied Mechanics (An International meet)**, 2007
 32. Tarapada Roy and Debabrata Chakraborty, “3D Layered Finite Element for Modelling and Control of Smart FRP structures”, **2nd International Congress on Computational Mechanics and Simulation (ICCMS)**, IIT Guwahati, India, 2006

33. T. Roy, U.B. Ghosh and A. Roychowdhury, "Optimization of thread profile used in Dental Implant", **National Conference on Biomechanics (NCB)**, Indian Institute of Technology Delhi, 2004

❖ **BOOK CHAPTER:**

1. Moumita Tewary and Tarapada Roy, "Electro-Mechanical Responses of Dielectric Elastomers", Lecture Notes in Mechanical Engineering, https://link.springer.com/chapter/10.1007/978-981-15-1201-8_55, 2020

❖ **PHD/MTECH THESIS EVALUATED AND CONDUCTED THE VIVA VOCE EXAMINATION:**

- Name of the student: Mr. D. Easu, Anna University, Ref: 2007239176/PhD/AR4/22415; August, 2015
- Name of the student: Mr. P. Yuvaraj (VIT Chennai), Title of the Thesis: INVESTIGATION OF FUSION AND ARTIFICIAL DISC REPLACEMENT IN THE CERVICAL SPINE- A FINITE ELEMENT MODELING APPROACH; January, 2021
- M.Tech Thesis evaluation of Mechanical System Design and conducted of the viva Voce examination, PARALA MAHARAJA ENGINEERING COLLEGE (A Government Engineering College), April 2018

❖ **LABORATORIES DEVELOPMENT & FACILITIES CREATION FROM R&D SPONSORED PROJECTS:**

- Vibration and Control Laboratory [Developed by Dr.T. Roy]
- Printed Circuit Board (PCB) Fabrication Laboratory [Jointly Developed by Dr. T. Roy and Dr. S. Maity (Electrical Engineering Dept., NIT Rourkela)]

❖ **COURSES TAUGHT:**

- i. Design of Machine Elements (UG, Theory)
- ii. Control system Engineering (UG and PG, Theory)
- iii. Optimal Design of Mechanical Systems (PG)
- iv. Vibration based condition monitoring (PG)
- v. Optimization methods in Engineering Design (PG)
- vi. Solid Modeling and Machine Drawing (UG, Lab)
- vii. Machine Element Design Practice-I (UG, Lab)
- viii. Design Engineering Lab (UG, Final Sem)

❖ **ADMINISTRATIVE RESPONSIBILITIES:**

- Faculty advisor (BTech Mechanical Engineering Students) from July, 2010 to May 2014, Nos. of students: 100
- Faculty advisor (BTech Mechanical Engineering students) from July, 2015 to May, 2019, Nos. of students: 115
- Faculty advisor (BTech plus MTech students) from July 2015 to May, 2014, Nos. of students: 15
- Faculty advisor (MTech, Machine design and analysis) from July, 2020 to May, 2022, Nos. of students: 22

- PIC, Stress Analysis Lab, from July, 2018 to June, 2020
- PIC, Departmental Time Table, from July, 2016 to June, 2019
- PIC, Carpentry and Fitting Shop, from July, 2016 to June, 2017
- Assistant Warden, Hall of Residence, from July, 2017 to June, 2019
- PIC, Foundry and Welding Shop, from July, 2020 to June, 2021
- PIC, Departmental Library, from July, 2019 to till date
- Chairman, Purchase committee, Central Workshop, from July, 2020 to June, 2021
- Member of various academic committees (such as NBA, NAAC, New curriculum development)
- Head of Department (HoD), Central Workshop, July, 2021 to till date

❖ **ACADEMIC OUTREACH:**

- Convenor of one-day Workshop on “**Experimental Methods in Stress Analysis and Fatigue Failures**” on 22nd August, 2015
- Invited talk delivered on “**Introduction to nanocarbons and nanocomposite**” in a Workshop at Malnad College of Engineering, Hassan, Karnataka, India, 2017
- Invited talk delivered on “**FE Modelling of nanocomposite structures**” in a STC at VSSUT Burla, Odisha, India, 2017
- Delivered invited lecture in the QIP sponsored short term course on “**Engineering Materials, Design & Applications (EMDA)**” during 23rd April to 28th April, 2018 in the Department of Mechanical Engineering, VSSUT, BURLA

❖ **PERSONAL INFORMATION:**

Father’s Name: Late Sri Bhairab Roy

Mother’s Name: Smt. Parul Roy

Nationality: Indian

Gender: Male

Permanent Address: Village: Berghosh; PO: Shashpur; PS: Indas; Dist: Bankura (WB); PIN-722205

❖ **REFEREES:**

1. Dr. Debabrata Chakraborty

Professor, Department of Mechanical Engineering

Indian Institute of Technology Guwahati, India

Guwahati-781039, India

Phone (O): +91 361 2582666

Email: chakra@iitg.ernet.in

2. Dr. Santosha K. Dwivedy

Professor, Department of Mechanical Engineering

Indian Institute of Technology Guwahati, India

Guwahati-781039, India

Phone (O): +91 361 2582670

Email: dwivedy@iitg.ernet.in

3. Dr. Amit Roy Chowdhury

Professor, Department of Aerospace Engineering and Applied Mechanics

Indian Institute of Engineering Science and Technology, Shibpur

Howrah, India; Phone (O): +91 - 33 - 26684561/62/63