

VIJAYA CHALIVENDRA
Professor
Department of Mechanical Engineering

HIGHER EDUCATION

A. Degrees

- 2003** **Ph.D., University of Rhode Island, U.S.A**
Experimental & Analytical Fracture in Graded Materials
Adviser: Prof. Arun Shukla
- 1997** **M.S., Sri Venkateswara University, Tirupati, India**
Technology Management in RDBMS framework
- 1993** **B.S., Sri Venkateswara University, Tirupati, India**
Mechanical Engineering

B. Additional Education

- 2003-2005** **Postdoctoral Research Fellow, California Institute of Technology**
Experimental Validation of large-scale simulations
Adviser: Prof. Ares Rosakis

HONORS & AWARDS

- Fellow, American Society for Mechanical Engineers (ASME)
- 2026 National Distinction Award, UMass Dartmouth
- 2025 M.M. Frocht Award, Society for Experimental Mechanics
- 2024 COE Faculty Award for Excellence in Equity, Diversity and Inclusion
- 2023 Outstanding Undergraduate Faculty Research Mentor Award, UMassD
- Research Recognition Award 2020-21, UMassD
- Technical Editor for Experimental Mechanics Journal (Springer) from 2013-present
- Arkema distinguished speaker, April 2024
- Chair, Composites, Hybrid and Multifunctional Materials Technical Division, Society for Experimental Mechanics, 2020-2022

- Keynote speaker in International Hybrid Conference on Nano Structured Materials and Polymers, Kerala, India, May 12-14, 2023
- Keynote talk in "China-ASEAN Smart Manufacturing Frontier Technology Development Forum", Guizhou Normal University, December 10-11, 2022
- Keynote speaker in 5th International Nanotechnology Virtual Conference & Expo, April 2021
- Keynote speaker in Online Conference on Chemistry & Nanoscience, January 2021
- Keynote speaker in TechConnect Conference, Boston, MA, June 2019
- Chair, Dynamic Behavior of Materials Technical Division, Society for Experimental Mechanics, 2010-2012
- Guest Editor for Special Issue on Dynamic Behavior of Materials for Experimental Mechanics journal (Springer), February 2012.
- University Graduate Fellowship, University of Rhode Island (2002-2003)
- Excellent Paper Award, Student Symposium on Mechanics and Packaging, May 2003 (sponsored by Society for Experimental Mechanics)
- The Outstanding Paper Award, Society for Experimental Mechanics Graduate Student Symposium, May 2002.

EXPERIENCE:

A. Teaching Experience

2017- Now	Professor , Department of Mechanical Engineering University of Massachusetts Dartmouth
2011-2017	Associate Professor , Department of Mechanical Engineering University of Massachusetts Dartmouth
2005-2011	Assistant Professor , Department of Mechanical Engineering University of Massachusetts Dartmouth
2000-2003	Teaching Assistant , Department of Mechanical Engineering University of Rhode Island
1998-1999	Full-time Lecturer , Department of Mechanical Engineering Koneru Lakshmaiah College of Engineering, Vijayawada, India

B. Industrial Experience

- 1997-1998** **Senior Officer**, Industrial Engineering,
Tata Refractories Ltd., Orissa, India
- 1993-1994** **Deputy Engineer**, Research & Development
Bharat Electronics Ltd., Andhra Pradesh, India

ACADEMIC AND PROFESSIONAL ACHIVEMENTS:

A. Research Grants Received

1. "Acquisition of Nanoindentation facility", **National Science Foundation**, \$103,969, 2006-2007. (PI: Chalivendra; co-PIs: Paul Calvert, Balram Singh)
2. "Boron Nitride-Polyurethane Nanocomposites: A New Type of Acoustically Clear, High Thermal Conductivity Encapsulants", **Office of Naval Research**, \$140,000, 2007-2010. (PI: Chalivendra; No co-PI)
3. "Nano-scale embrittlement of textile fibers", **National Textile Center**, \$74,120, 2008-2011. (PI: Chalivendra; co-PI: Paul Calvert)
4. "Collaborative Research: Electrical Response of Conductive Polymer Grafted Carbon Nanotube Reinforced Copolymers under Quasi-static and Dynamic Loading", **National Science Foundation**, \$140,776, 2009-2012. (PI: Chalivendra; No co-PI)
5. "Design and Characterization of Graded Metallic Bone Implants", \$50,000, **College of Engineering Cluster grant**, 2009-2011. (PI: Chalivendra, co-PIs: Sherif El Wakil, Sankha Bhowmick, Nima Rahbar)
6. "Development of micro-tensile tester operated in atomic force microscopy," \$27,799, **National Science Foundation**, 2010-2011. (PI: Chalivendra; No co-PI)
7. "Mechanical Characterization of Gelatinous Mesoglea of Sea Jelly Bodies for Regeneration of Synthetic Hydrogels," \$18,031, **Center for Regenerative Biomaterials**, 2009-2010. (PI: Chalivendra; No co-PI)
8. "Statistical Modeling and Contact Analysis of Fractal Topography for Radio-Frequency (RF)-MEMS", \$269,000, **National Science Foundation**, 2011-2014. (co-PI: Chalivendra, PI: Wenzhen Huang)
9. "Greener High Strength, Lightweight and Low Cost Structural Composites using Sustainable Natural Fibers" \$40,000, **Massachusetts Technology Transfer Center**, 2012-2013. (PI: Chalivendra, co-PI: Yong Kim)
10. "Novel textile based personal injury preventing cushioning pad material", \$25,000, **Commercial Ventures and Intellectual Property**, 2012-2013. (co-PI: Chalivendra, PI: Yong Kim)
11. "Non-invasive detection of biomolecules secretion from living cells using peptide nanotube arrays," \$25,080, Jan-June 2015, **Provost's Multidisciplinary Seed Funding**. (co-PI: Chalivendra, PI: Milana Vasudev)
12. "Degradation and biocompatibility of microbially synthesized

- poly(hydroxybutyrate-co-hydroxyhexanoate) polymer:impact on mechanical stability and medical applications," \$12,100, Jan-June 2015, **Provost's Multidisciplinary Seed Funding**. (co-PI: Chalivendra, PI: Christopher Brigham)
13. "Mechanics of Multi-functional Biocomposites" \$291,954, **National Science Foundation**, Duration: 07/01/2016-06/30/2020 (PI: Chalivendra, co-PI: Yong Kim).
 14. "Applying Flock technology to Warfighter Needs in Military Helmet pads," \$158,206, **US.Army Natick Laboratory**, Duration: 07/10/15 - 04/10/17 (co-PI: Chalivendra, PI: Yong Kim)
 15. "Fundamental evaluation of FEAM and FEAM structures relative to optimizing their impact energy absorption and functional properties," \$84,182, PI, **Corsair Innovations**, Duration: 01/28/16 - 01/27/18. (PI: Chalivendra)
 16. "Mechanical characterization of composite structures," \$10,000, PI, **Raytheon**, Duration: 01/01/16 - 06/30/16. (PI: Chalivendra)
 17. "Fabrication of Pre-flocked Carbon Fabric Pre-preg Sheet Materials," \$15,250, PI, **Wright Patterson Air Force Base**, Duration: 06/01/15-08/30/15. (PI: Chalivendra)
 18. "A computational and experimental study of self-assemble peptide nanotubes for energy applications," \$13,000, co-PI, **Provost's Multidisciplinary Seed Funding**. This project will be completed in August 2016. (co-PI: Chalivendra, PI: Maricris Mayes)
 19. "In vivo Degradation of polyhydroxyalkanoate biodegradable plastic fibers in a mouse model system," \$13,600, co-PI, **Provost's Multidisciplinary Seed Funding**. This project will be completed in August 2016. (co-PI: Chalivendra, PI: Christopher Brigham)
 20. "Energy Absorbing Materials for Mitigating Head and Other Impact Injuries," **S&T President's award**, \$125, 000, 2016 (co-PI: Chalivendra, PI: Yong Kim).
 21. "Mechanics of Multi-functional Biocomposites" \$291,954, National Science Foundation, Duration: 07/01/2016-06/30/2019. (PI: Chalivendra, co-PI: Yong Kim).
 22. "Bio-based, biodegradable plastics: from "waste to treasure" with a medical focus," **S&T President's award**, \$25, 000, 2016 (co-PI: Chalivendra, PI: Christopher Brigham).
 23. "Acquisition of State-of-the-Art High-Speed Video Camera for Capturing Dynamic Deformation under Impact loads," **DOD-DURIP**, \$235,000, Duration: 05/01/17-04/30/18. (PI: Chalivendra, co-PI: Yong Kim).
 24. "Damage Detection in Carbon Nanotubes Embedded and Carbon Fibers Flocked Multi-functional Laminated Composites," **Army Research Laboratory**, \$150,000, 09/26/17-09/25/20. (PI: Chalivendra, co-PI: Yong Kim).
 25. "MRI: Acquisition of a Scanning Electron Microscope," **National Science Foundation**, \$240,329, 2017-2020, (co-PI: Chalivendra, PI: Vasudev).
 26. "Multiscale Modeling with Machine Learning for Optimal Design of 3D Printed Polymers in Biomedical Implants," **Multidisciplinary Seed Funding Program**, \$ 29,541, 01/25/18-12/31/18, (co-PI: Chalivendra, PI: Jun Li).
 27. National Football League Head Health Challenge Symposium, **NFL Travel Grant**, \$1,000, November 2019.
 28. "Creating the Ultimate Ballistic Body Armor (UBBA) Material Structure," **Massachusetts Technology Transfer Center (MTTC)**, \$19,600, 12/01/19-08/31/20, (co-PI: Chalivendra, PI: Yong Kim).

29. "Marine Sensing Technology for Acoustic Detection and Damage Monitoring through Embedded Composite Conductors," **Marine Undersea Technology (MUST), Office of Naval Research**, \$296,427, 2020-23. (PI: Chalivendra)
30. "High strain rate testing of steels for tank car applications," **ArcelorMittal USA Research & Development Center**, IN, \$31,005, 2020-21. (PI: Chalivendra)
31. "Evaluating the Inhibition of Glycation on Bone Mechanical and Cellular Behavior," **Provost's Multidisciplinary Seed Funding**, \$25,000, 2022. (co-PI: Chalivendra; PI: Lamya Karim)
32. "REU Site: Advanced Interdisciplinary Materials Research for Maritime Applications," **National Science Foundation**, \$430,631, 2022-25 (PI: Chalivendra)
33. "Flocked Reticulated Foam (FRF) Air-Purifying Filter Media", **MassVentures**, \$16,250, 12/12/22-08/31/23. (co-PI: Chalivendra; PI: Yong Kim)
34. "Integrated Multiscale Computational and Experimental Investigations on Fracture of Additively Manufactured Polymer Composites" **National Science Foundation**, \$405,320 07/01/2023-05/31/2024. (co-PI: Chalivendra; PI: Jun Li); Dr. Jun Li transferred an amount of \$328, 638 from the awarded amount and the remaining amount of \$76, 682 was spent to support a doctoral student at UMassD. The co-PI (Chalivendra) served as the primary advisor for this student.
35. "The Accelerated Engineering Leadership (AccEL) Project," **National Science Foundation**, 1,498,020, 09/21-08/27. (co-PI: Chalivendra; PI: Tracie Ferreira)
36. "Effect of Stress Fields and Arctic Conditions on Damage Sensing in Marine Composites," **Marine Undersea Technology (MUST), Office of Naval Research**, \$197,058, 2024-26. (PI: Chalivendra)
37. "Fabrication and Characterization of Marine Materials for Blue Economy," **Blue Economy Initiatives Capital Project, UMass Dartmouth**, \$856,420, 2024. (PI: Chalivendra)
38. "Integrated Multiscale Computational and Experimental Investigations on Fracture of Additively Manufactured Polymer Composites," **National Science Foundation, (subaward from Embry Riddle Aeronautical University)**, \$103,765. 2024-26. (PI: Chalivendra)
39. "Biodegradable Fishing Nets and Marine Ropes to Prevent Ghost Fishing," **Blue Economy Initiative, UMass Dartmouth**, \$175,000, 03/18/2024-12/31/2026. (PI: Chalivendra)
40. "Fabrication and Experimental & Numerical Investigation of Composite Hose used for Undersea Applications," **Marine Undersea Technology (MUST), Office of Naval Research**, \$322,860, 2025-28. (PI: Chalivendra)
41. "REU Site: Advanced Interdisciplinary Materials Research for Maritime Applications," **National Science Foundation**, \$408,434, 2025-28 (PI: Chalivendra)

B. Books edited and Book Chapters

1. Chalivendra, V., Gardea, F. (2023) Mechanics of Composite, Hybrid & Multi-functional Materials, Volume 5, Proceedings of the 2022 Annual Conference on Experimental and Applied Mechanics, Springer. <https://doi.org/10.1007/978-3-031-17445-2>

2. Chalivendra V. (2023) Polymeric Nanocomposite Materials for Sensor Applications, In: Parameswaranpillai J., Ganguly S. (eds) Polymeric Nanocomposite Materials for Sensor Applications. Woodhead Publishing: Elsevier. <https://doi.org/10.1016/B978-0-323-98830-8.00006-0>
3. Chalivendra V. (2022) Damage Sensing in Natural Fiber/Epoxy Composites. In: Mavinkere Rangappa S., Parameswaranpillai J., Siengchin S., Thomas S. (eds) Handbook of Epoxy/Fiber Composites. Springer, Singapore. https://doi.org/10.1007/978-981-15-8141-0_48-1
4. Chalivendra, V., Beese, A.M., Berke, R. (2021) Mechanics of Composite, Hybrid and Multifunctional Materials, Fracture, Fatigue, Failure and Damage Evolution, Volume 3, Proceedings of the 2021 Annual Conference on Experimental and Applied Mechanics, Springer. <https://link.springer.com/book/10.1007/978-3-030-86741-6>
5. Singh, R.P., Chalivendra, V.B. (2020) Mechanics of Composite, Hybrid and Multifunctional Materials, Proceedings of the 2020 Annual Conference on Experimental and Applied Mechanics, Springer. <https://link.springer.com/book/10.1007/978-3-030-59868-6>
6. Kim, Y.K., Chalivendra, V. (2020) "Natural fibre composites (NFCs) for construction and automotive industries," Handbook of Natural Fibres, Woodhead Publishing, 469-498. <https://doi.org/10.1016/B978-0-12-818782-1.00014-6>
7. Chalivendra, V.B., Song, B., Casem, D. (2012) Proceedings of Dynamic Behavior of Materials, Springer. [DOI:10.1007/978-1-4614-4238-7_1](https://doi.org/10.1007/978-1-4614-4238-7_1)

C. Published Refereed Journal Articles

(*graduate student author, **undergraduate student author)

106. Leng, Z.*, Brise, R.**, Li, J., Chalivendra, V (2026) "Dynamic mixed-mode fracture mechanics of additively manufactured acrylonitrile butadiene Styrene/SiO₂ nanocomposites, Engineering Fracture Mechanics, 338, 112071. <https://doi.org/10.1016/j.engfracmech.2026.112071>
105. Joseph, D.*, Li, D., Chalivendra, V. (2026) "Fracture behavior of ionically bonded polyampholyte hydrogels," *Polymer Bulletin*, 83:300. <https://doi.org/10.1007/s00289-026-06363-z>
104. Plummer, E., Gonzalez, J., Chalivendra V. "Evaluating damage in adhesive joints of intraply hybrid composites under quasi-static tension," *Journal of Composite Materials*, Published online, Doi:10.1177/00219983251415149.
103. Shonar, M.*, Li, D., Chalivendra, V. (2025) "Mode-I and mixed-mode fracture behavior of stitch polymer-induced hydrogel-hydrogel interfacial topohesion," *Engineering Fracture Mechanics*, <https://doi.org/10.1016/j.engfracmech.2025.111430>.
102. Joseph, D.*, Brise, R.M.**, Li, D., Chalivendra, V. (2025) "Interfacial Fracture of Hydrogen-Bonded Double Network Hydrogels," *Polymer Engineering and Science*, 1-18. <https://doi.org/10.1002/pen.70054>
101. Narkhede, N.N.*, Chalivendra, V. (2025) "Prediction of Mechanical and Fracture Properties of Lightweight Polyurethane Composites Using Machine Learning Methods," *Journal of Composite Science*, 9, 271. <https://doi.org/10.3390/jcs9060271>

100. Leng, Z.*, Li, J., Chalivendra, V (2025) "Effect of printing orientation on mixed-mode fracture criterion of additively manufactured acrylonitrile butadiene styrene," *Polymer Engineering and Science*, 2015; 1–15. DOI: 10.1002/pen.27193
99. Lincon, M.L.*, Eichenlaub, J**, Encarnacion A**, Shonar M, Chalivendra, V. (2025) "Damage monitoring in hybrid composites under projectile impact loading," *Journal of Composite Materials*, DOI: 10.1177/00219983251329106.
98. Lincon, M.I.*, Chalivendra, V.B. (2024) "Piezo resistance response prediction in multifunctional hybrid composites under dynamic loading conditions using machine learning methods," *Journal of Mechanical Engineering Science*, <https://doi.org/10.1177/09544062241290374>
97. Joseph, D., Lincon, M.I., Chalivendra, V. (2024) "Dynamic fracture characterization of glass fiber composites reinforced with through-thickness nylon fibers," *Polymer-Plastics Technology and Materials*, 1–14. <https://doi.org/10.1080/25740881.2024.24083>
96. Lincon, M., Chaudhary, B., Matos, H., Chalivendra, V.B., Shukla, A. (2024) "Failure Analysis and Piezo-resistance Response of Intralaminar Glass/Carbon Hybrid Composites Under Blast Loading Conditions," *ASME Journal of Engineering Materials and Technology*, 147(1): 011003. <https://doi.org/10.1115/1.4065763>
95. Lincon, M.I.*, Chalivendra, V.B. (2024) "Dynamic mode-I fracture toughness and damage sensing characterization in additively manufactured ABS nanocomposites," *International Journal of Advanced Manufacturing Technology*, <https://doi.org/10.1007/s00170-024-13950-9>
94. Stanford, Z**., Shonar, M., Chalivendra, V. (2024) "Quasi-Static Fracture Toughness and Damage Monitoring in Liquid Metal Reinforced Hybrid Composites," *Journal of Composites Science*, 8, 25. <https://doi.org/10.3390/jcs8010025>
93. Correia, J.*, Chalivendra, V., Kim, Y. (2023) "Novel Fiber-Based Padding Materials for Football Helmets," *Fibers*, 11, 96. <https://doi.org/10.3390/fib11110096>
92. Sousa, R.**., Chalivendra, V. (2023) "Electro-mechanical behavior of multi-functional glass fiber composites under dynamic Mode-I fracture loading," *Journal of Composite Materials*, <https://doi.org/10.1177/00219983231201697>
91. Lincon, M.*, Chalivendra, V. (2023) " Dynamic Fracture Toughness and Damage Monitoring in Hybrid Composites," *Applied Composite Materials*, 30, 1907-1928. <https://doi.org/10.1007/s10443-023-10156-2>
90. Shonar, M.**., Chalivendra, V., (2023) "Piezoresistive Damage Sensing and Mechanical Characteristics of Carbon/Glass Hybrid Thermoplastic Composites," *Journal of Composite Materials*, 57(11), 1909-1926.
89. Lincon, M.I.*, Chalivendra, V. (2022) "High Strain Rate Damage Sensing in Intra-ply Hybrid Composites Under Dynamic Shear Loading," *International Journal of Impact Engineering*, 17, 104439. <https://doi.org/10.1016/j.ijimpeng.2022.104439>
88. Vaidya, R., Rezaee, T., Edwards, T., Bender, R., Vickneswaran, A., Chalivendra, V. Karim, L. (2022) "Accumulation of fluorescent advanced glycation end products and carboxymethyl-lysine in human cortical and trabecular bone," *Bone Reports*, 17. 101634.

87. Letizia, J.**, Chalivendra, V., Li, D. (2022) "Effect of Shear Angle and Printing Orientation on Shear Constitutive Response of Additively Manufactured Acrylonitrile Butadiene Styrene," *Polymers*, 14, 2484. <https://doi.org/10.3390/polym14122484>
86. Joyal, N., Chang, Y.C., Shonar, M.**, Chalivendra, V., Shen, C. (2022) "Solid polymer electrolytes with hydrates for structural supercapacitors," *Journal of Energy Storage*, 51, 104459.
85. Rabbi, M.F.*, Chalivendra, V.B. (2021) "Improvement in Interfacial Fracture Toughness of Multi-Material Additively Manufactured Composites Through Thermal Annealing," *Forces in Mechanics*, 5, 100051. <https://doi.org/10.1016/j.finmec.2021.100051>
84. Pires, M.**, Chalivendra, V.B. (2022) "In-Situ Damage Sensing in Intra-ply Glass/Carbon Laminate Composites under Shear Loading," *Journal of Composite Materials*, 56(2) 213–222.
83. Yesmin, N.*, Chalivendra, V.B. (2021) "Electromagnetic Shielding Effectiveness of Glass Fiber/Epoxy Laminated Composites with Multi-Scale Reinforcements," *Journal of Composites Science*, 5(8), 204. <https://doi.org/10.3390/jcs5080204>
82. Kim, Y.K., Chalivendra, V.B., Lewis, A.F., Fasel, B. (2021) "Designing flocked energy-absorbing material layers into sport and military helmet pads," *Textile Research Journal*, 2021. DOI: 10.1177/00405175211010689
81. Rabbi, M.F.*. Chalivendra, V. (2021) "Interfacial Fracture Characterization of Multi-Material Additively Manufactured Polymer Composites," *Composites Part C: Open Access*. <https://doi.org/10.1016/j.jcomc.2021.100145>
80. Meninno, C.**, Chalivendra, V. (2021) "Damage detection in intra-ply glass/carbon laminated composites under Mode-I and Mode-II fracture loadings" *Composites Part B*. 218, 108924. <https://doi.org/10.1016/j.compositesb.2021.108924>
79. O'Donnell, J.**, Chalivendra, V. (2021) "Multi-Functional Glass/Carbon Fibers Hybrid Inter/Intra Laminated Composites," *Composites Part C: Open Access*. 4, 100121. <https://doi.org/10.1016/j.jcomc.2021.100121>
78. Rabbi M.F.*, Meninno C.**, Chalivendra V. (2021) "Damage monitoring of conductive glass fiber/epoxy laminated composites under dynamic mixed-mode fracture loading," *Materials Letters*, 283:128766.
77. Meninno, C.**, Chalivendra, V. Kim, Y. (2020) "Electro-flexure Response of Multi-functional Natural Fiber Hybrid Composites," *Journal of Reinforced Plastics and Composites*, 40, 5-6, 2021. DOI: 10.1177/0731684420957396.
76. Rabbi, M.F.*, Chalivendra, V. (2020) "Strain and damage sensing in additively manufactured CB/ABS polymer composites," *Polymer Testing*, 90, 106688.
75. O'Donnell, J.**, Chalivendra, V., Hall, A., Kim, Y. (2020) "Damage Monitoring in Multi-Functional Glass Fiber Composites under Mode-I Fracture Loading," *Journal of Composite Materials*, 54, 4821-4829. DOI: 10.1177/0021998320939637.
74. Yang, S.*, Chalivendra, V. (2020) "Theoretical modeling and experimental validation of electro-shear behavior of carbon nanotubes embedded epoxy nanocomposite," *International Journal of Mechanical Sciences*, 177, 105594.

73. Yang, S.*, Meninno, C.**, Chalivendra, V., Kim, Y., (2020) "Electro-bending Behavior of Curved Natural Fiber Laminated Composites," *Composite Structures*, 238, 112004. <https://doi.org/10.1016/j.compstruct.2020.112004>
72. O'Donnell, J.**, Chalivendra, V., Hall, A., Haile, M., Nataraj, L., Coatney, M., Kim, Y. (2020) "Electrical and shear constitutive response of conductive glass fibre/epoxy composites," *Plastics, Rubber and Composites: Macromolecular Engineering*, 49, 108-115. <https://doi.org/10.1080/14658011.2019.1711345>
71. Hamedani, Y., Macha, P., Sammeta, V., Chalivendra, V., Rasapalli, S., Vasudev, M.C. (2020) "Electrospinning of Tyrosine-based Oligopeptides: Self-Assembly or Forced Assembly?" *Journal of Biomedical Materials Research Part A*, 108(4):829-838.
70. Merlo, K.**, Aaronson, J., Vaidya R., Rezaee, T., Chalivendra, V., Karim, L. (2019) "In vitro induced high sugar environments deteriorate human cortical bone elastic modulus and fracture toughness," *Journal of Orthopaedic Research*, 38(5), 972-983.
69. Correia, J.*, Chalivendra, V., Kim, Y. (2020) "Parametric study of a fibrous energy absorbing material under impact shear loading," *Composite Structures*, 232, 111583.
68. Yang, S*. Chalivendra, V., Kim, K. (2019) "Electro-fracture Studies of Natural Fiber Composites," *Journal of Natural Fibers*, <https://doi.org/10.1080/15440478.2019.1685425>
67. Chakravarty, J., Rabbi, M.F.*, Chalivendra, V., Ferreira, T., Brigham C.J. (2020) "Mechanical and biological properties of chitin/polylactide (PLA)/hydroxyapatite (HAP) composites cast using ionic liquid solutions," *International Journal of Biological Macromolecules*, 151, 1213-1223.
66. Sherman, R.**, Chalivendra, V., Hall, A., Haile, M., Nataraj, L., Coatney, M., Kim, Y. (2109) "Electro-mechanical characterization of three-dimensionally conductive graphite/epoxy composites under tensile and shear loading," *Composites Communications*, 15, 30-33.
65. Sherman, R.**, Chalivendra, V., Hall, A., Haile, M., Nataraj, L., Coatney, M., Kim, Y. (2019) "Characterization of electro-mechanical response in novel carbon fiber composite materials," *Journal of Composite Materials*, 53(19), 2675-2686.
64. Rabbi, M.F.*, Chalivendra, V.B., Li, D. (2019) "A Novel Approach to Increase Dynamic Fracture Toughness of Additively Manufactured Polymer," *Experimental Mechanics*, [Doi.org/10.1007/s11340-019-00486-3](https://doi.org/10.1007/s11340-019-00486-3).
63. Rabbi, M.F.*, Chalivendra, V. (2019) "Mathematical modeling of viscoelastic material under impact load," *The Journal of Strain Analysis for Engineering Design*, 54(2), 130-138.
62. O'Donnell, J.**, Chalivendra, V., Hall, A., Haile, M., Nataraj, L., Coatney, M., Kim, Y. (2019) "Electro-mechanical studies of multi-functional glass fiber/epoxy reinforced composites," *Journal of Reinforced Plastics and Composites*, 38(11), 506-520.
61. Li, J., Yang, S.*, Li, D., Chalivendra, V. "Numerical and experimental studies of additively manufactured polymers for enhanced fracture properties," *Engineering Fracture Mechanics*, 204: 557-569, 2018.
60. Fodor, K.*, Chalivendra, V., Kim, Y., Lewis, A.F. (2019) "Dynamic mechanical behavior of flocked layer composite materials," *Composite Structures*, 207, 677-683.

59. Chakravarty, J., Rabbi, M.F., Bach, N.**, Chalivendra, V., Yang, C-L., Brigham, C. (2018) "Fabrication of porous chitin membrane using ionic liquid and subsequent characterization and modelling studies," *Carbohydrate Polymers*, 198, 443-451.
58. Yang, S.*, Chalivendra, V., Kim, Y. (2018) "Damage sensing in multi-functional hybrid natural fiber composites under shear loading," *Smart materials and Structures*, 27, 115034.
57. Yang, S.*, Chalivendra, V.B. Benjamin, E.**, Kim, Y. (2019) "Electrical Response of Novel Carbon Nanotubes Embedded and Carbon Fiber Z-axis Reinforced Jute/Epoxy Laminated Composites," *Polymer Composites*, 50, E1189-E1198.
56. Fazlay Rabbi*, Chalivendra, V.B., Kim, Y. (2018) "Dynamic constitutive response of novel auxetic Kevlar®/epoxy composites," *Composite Structures*, 195, 1-3.
55. Nataraj, L., Coatney, M., Hall, A., Haile, M., Sherman, R.**, O'Donnell, J.**, Chalivendra, V. (2018) "Early-Stage Damage Detection in Advanced Multifunctional Aerospace Composites Using Embedded Carbon Nanotubes and Flocked Carbon Fibers," *Proceedings*, 2(8), 490.
54. Shkolnik, K.* and Chalivendra, V.B. (2017) "Numerical studies of electrical contacts of carbon nanotubes-embedded epoxy under tensile loading," *Acta Mechanica*, DOI 10.1007/s00707-017-1955-8.
53. Liu, J.*, Chalivendra, V.B. and Huang, W. (2017) "Finite element based contact analysis of radio frequency MEMs switch membrane surfaces," *Journal of Micromechanics and Microengineering*, 27, 105012.
52. Yong Kim, John Rice, Vijay Chalivendra, Armand Lewis (2017), Flock fibre-reinforced laminar composites for improved Mode I fracture toughness, January-February, *JEC Composites Magazine* 110, 49-54.
51. Sen Yang*, Vijaya B. Chalivendra, Yong K. Kim (2017) "Fracture and impact characterization of novel auxetic Kevlar /Epoxy laminated composites," *Composite Structures*, 168, 120-129.
50. Sirisha Mukkavalli*, Vijay Chalivendra, Bal Ram Singh (2017) "Physico-chemical analysis of herbally prepared silver nanoparticles and its potential as a drug bioenhancer," *Open Nano*, 2, 19-27.
49. Stuckey, J.P.**, Chalivendra, V.B., Haile, M.A and Hall, A.J. (2017) "Damage Detection in Epoxy Embedded Carbon Nanotubes Using Electrical Resistance and Acoustic Emission," *Journal of Nanomechanics and Micromechanics*, 7 (3), 06017001.
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D. Conference Publications

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2. Meninno, C., **Chalivendra, V.B.**, Kim, Y. "Electro-Flexure Response of Multi-Functional Natural Fiber Hybrid Composites," Proceedings of Nanotech France 2022, June 15-17, 2022.
3. Yang, S., Kim, Y., **Chalivendra, V.** "A theoretical modeling of electro-shear behavior of carbon nanotubes embedded epoxy nanocomposite" Proceedings of 2023 Industrial Simulation Conference, Malta University, Malta, 5/31-06/02.
4. O'Donnell, J., **Chalivendra, V.**, Cavallaro, P.V., Smith, M.P., Valm, N.A., Legris, J.D., Warner, E.A. "Electro-Mechanical Studies of Multi-Functional Glass Fiber and Carbon Fiber Composites Exposed to Seawater/freshwater and Cold Temperatures," Proceedings of ASME 2023 International Mechanical Engineering Congress and Exposition, New Orleans, 10/19-11/02.
5. Lincon, M., **Chalivendra, V.B.** "Mode-I dynamic fracture toughness and damage sensing in glass/carbon hybrid composites," *Proceedings of 2023 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, June 6-8, 2023.*
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 61. Kidane, A., **Chalivendra, V.B.**, Shukla, A., Chona, R. (2008) "Effect of Temperature on the Dynamic Crack-tip Stress Fields in Graded Materials", *Proceedings of SEM XI International Congress & Exposition on Experimental & Applied Mechanics*, June 2-5, Orlando, FL.
 62. **Chalivendra, V. B.**, (2008) "Asymptotic Mode-I Crack-tip Stress Fields for Orthotropic Graded Materials", *Proceedings of International Conference on Computational and Experimental Sciences*, March 17-22, Honolulu, Hawaii.
 63. Crowley, J., **Chalivendra, V. B.**, (2007) "Experimental Characterization of Polyethylene-Hydroxyapatite Composites," *Proceedings of SEM Annual Conference & Exposition*, June 4-7, Springfield, MA.
 64. Maclure, A., **Chalivendra, V. B.**, Ramotowski T. and Ricci, V., (2007) "Effect of Pressure Cycling on Metal-Polymer Adhesive Bond Strength," *Proceedings of SEM Annual Conference & Exposition*, June 4-7, Springfield, MA.
 65. **V.B. Chalivendra**, (2006) "Transient Elasto-Dynamic Crack Growth in Functionally Graded Materials", *Proceedings of Multi-scale and Functionally Graded Materials Conference*, October 16-18, Honolulu, Hawaii,
 66. **Chalivendra, V. B.**, Rosakis, A. J., Hong, S., (2006) "Deflection and penetration behavior of propagating mode-I cracks towards weak inclined planes," *Proceedings of 2006 SEM Annual Conference & Exposition*, June 4-7, St. Louis, MO.
 67. Arias, I., Knap, J., **Chalivendra, V. B.**, Hong, S., Ortiz, M., Rosakis, A. J., (2006) "Validation of large scale simulations of dynamic fracture," *Proceedings of III European Conference on Computational Mechanics*, June 5-9, Lisbon, Portugal.
 68. Arias, I., Knap, J., **Chalivendra, V. B.**, Hong, S., Ortiz M., and Rosakis, A. J., (2005) "Validation of massively parallel simulations of dynamic fracture and fragmentation of brittle solids," *Proceedings 8th U.S. National Congress on Computational Mechanics*. U. S. Association for Computational Mechanics.
 69. **Chalivendra, V. B.**, Hong, S., Rosakis, A.J., Knap, J., and Ortiz, M. (2005), "Experimental Validation of Dynamic Fragmentation Simulations", *Proceedings of 2005 SEM Conference & Exposition on Experimental & Applied Mechanics*, June 7-9, Portland.

70. **Chalivendra, V. B.**, Hong, S., Rosakis, A.J., Arias, I., Knap, J., Ortiz, M. (2005), "Interaction of dynamic cracks with inclined interfaces", *Proceedings of International Conference on Fracture (ICF11)*, Turin, Italy, March 20-25.
71. Xia, K., **Chalivendra, V.B.**, Rosakis, A.J. (2005), "Experimental studies of mixed mode spontaneous fractures expanding along inclined planes" *Proceedings of International Conference on Fracture (ICF11)*, Turin, Italy, March 20-25.
72. Arias, I., Knap, J., **Chalivendra, V.B.**, Hong, S., Ortiz, M., Rosakis, A.J. (2005), "Validation of massively parallel simulations of dynamic fracture and fragmentation of brittle solids", *Proceedings of International Conference on Fracture (ICF11)*, Turin, Italy, March 20-25.
73. **Chalivendra, V. B.**, Jain, N. and Shukla, A. (2003), "Static and Dynamic Fracture of an Inclined Isotropic-Orthotropic Bimaterial Interface", *Proceedings of 2003 SEM Annual Conference and Exposition*, Charlotte, June 1-3.
74. **Chalivendra, V. B.**, Parameswaran, V. and Shukla, A., (2002), "Dynamic Characterization of Ceramic Micro Balloon Reinforced Polyurethane", *Proceedings of the SEM Annual Conference and Exposition on Experimental and Applied Mechanics*, June 10-12, Milwaukee, WI
75. Lee, K. H., Parameswaran, V., **Chalivendra, V. B.** and Shukla, A. (2001), "Evaluation of Static and Dynamic Fracture Parameters along the Interface of Isotropic-Orthotropic Bimaterial", *Proceedings of the SEM Annual Conference on Experimental Mechanics*, Portland, June 4-6.
76. Ricci, V., Shukla, A., **Chalivendra, V. B.** and Lee, K. H. (2001), "Analysis of subsonic Interfacial fracture using strain gages in an isotropic orthotropic bimaterial", *Proceedings of 10th International Congress of Fracture*, Hawaii, December 3-7.
77. **Chalivendra, V. B.**, Reddy, C. E. and Padmanabhan, G. (1998), "Development of software package for Technology Management in RDBMS framework", *Proceedings of National conference on Industrial Engineering towards 21st century*, Sri Venkateswara University, Tirupati, India, February.
78. **Chalivendra, V. B.**, Godla, J. and Reddy, C. E. (1993) "A Petrinet based analysis of Flexible Automated Forming and Assembly Systems", *Proceedings of International Conference on CAD, CAM, Robotics and Automation Factories (INCARF)*, Indian Institute of Technology, New Delhi, India, December.
79. Godla, J., **Chalivendra, V. B.** and Reddy, C. E. (1992), "A stochastic Petrinet Based analysis of Tool Management Issues in FMS", *Proceedings of International Conference on Automation, Robotics, and Computer Vision (ICARCV)*, Nanyang Technological University, Singapore, June.

E. Conference Presentations

1. Kim Y., Chalivendra, V. (2023) "Characterization of Flocked Energy Absorbing Materials in Sport Helmet Padding", *Global Polymers and Textiles Summit*, University of Massachusetts Lowell Conference Center and Inn on April 19-21.

2. Yang, S., **Chalivendra, V.B.**, Kim, Y. (2018) "Electrical Response of Multi-functional Natural Fiber Composites Under Shear Loading," *New.Mech* 2018, September 29, Brown University, RI.
3. Rabbi, M.F., Li, D., **Chalivendra, V.B.**, (2018) "Effect of surface pattern on the dynamic fracture toughness of the 3D Printed Materials," *New.Mech* 2018, September 29, Brown University, RI.
4. Kehail, A.A., **Chalivendra, V.** and Brigham, C.J. (2016) "In Vivo and In Vitro Degradation Studies for Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) Biopolymer," *American Society for Microbiology general meeting*, Boston, MA, June 16-20.
5. Noah S. Franklin, Lisa Perreault, Karoly Fodor, Maricris Mayes, **Vijaya B. Chalivendra**, Milana C. Vasudev, (2016) "Peptide Nanotubes for the Non-invasive Detection of Biomolecule Secretion from Cells," *XXV International Materials Research Congress*, August.
6. Franklin, N.S., Tippe, C., Perreault, L., Andrews, D., Lawton, R.B., Stuckey, J., Mayes, M., Chalivendra, V.B., Vasudev, M.C. "Peptide Nanotubes for the Non-invasive Detection of Biomolecule Secretion from Cells," *Drug Discovery and Therapy World Congress*, July 2015.
7. Kehail, A.A., **Chalivendra, V.** and Brigham, C.J., (2016) "Thermal and Mechanical Characterization of Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) Biopolymer and In Vivo and In Vitro Degradation Studies," *International Conference for Biopolymers*, 21-23 November, Dubai, UAE.
8. Liu, J-Y., **Chalivendra, V.B.**, Goldsmith, C.L. and Huang, W. (2013) "Multi-scale Regular-fractal Topography Characterization and Modeling," *2013 IEEE International Conference on Automation Science and Engineering*, August 17-21, Madison, Wisconsin, USA.
9. **Chalivendra, V. B.**, Hong, S., Rosakis, A.J., Knap, J., and Ortiz, M. (2005), "Experimental Validation of Dynamic Fragmentation Simulations", presented in *2005 SEM Conference & Exposition on Experimental & Applied Mechanics*, June 7-9, Portland.
10. Hong, S., **Chalivendra, V. B.**, Rosakis, A.J., Knap, J., and Ortiz, M. (2005), "Experimental Measurement of Mixed-mode Cohesive Zone Laws of Adhesive Bonds", presented in *2005 SEM Conference & Exposition on Experimental & Applied Mechanics*, June 7-9, Portland.
11. Xia, K., **Chalivendra, V. B.**, and Rosakis, A.J., "Spontaneous Fracture in Similar and Dissimilar Materials", presented in *2005 SEM Conference & Exposition on Experimental & Applied Mechanics*, June 7-9, Portland.
12. **Chalivendra, V. B.**, Rosakis, A.J., Arias, I., and Ortiz, M. (2004), "Dynamic Photoelastic Validation of Large Scale Fracture and Fragmentation Simulations", presented in *2004 SEM International Conference & Exposition on Experimental & Applied Mechanics*, Costa Mesa, June 7-10.
13. **Chalivendra, V. B.**, Arias, I., Knap, J., Rosakis, A.J., and Ortiz, M. (2004), "Validation of large-scale dynamic fracture and fragmentation simulations", poster presentation in *Caltech ASCI Center Visit to Sandia National Laboratories*, February 2-4.

14. **Chalivendra, V. B.**, Arias, I., Knap, J., Rosakis, A.J., and Ortiz, M. (2004), "Validation of large-scale dynamic fracture and fragmentation simulations", poster presentation in *Caltech ASCI Center Visit to Los Alamos National Laboratories*, February 2-4.
15. **Chalivendra, V. B.** (2002), "Fabrication and Evaluation of a Lightweight Polyurethane-Cenosphere Composite", presented at *the SEM student competition*, June 10-12, 2002, Milwaukee.
16. **Chalivendra, V. B.** (2002), "Constitutive Behavior and Fracture of Microsphere filled Polyurethane Composite", Presented in *SEM Graduate Student Symposium*, Stony Brook, New York, 6-7 May 2002.
17. **Chalivendra, V. B.** (2003), "Determination of fracture parameters for a crack inclined to the property gradation in functionally gradient materials", presented at the *Student Symposium on Mechanics and Packaging (SSMP)*, May 2-3, WPI, Worcester.

F. Invited talks

1. "Interactions of Dynamic cracks with Inclined Interfaces", *ASCI Research Review*, May 12-13, 2005, California Institute of Technology, USA.
2. "Transient Crack Growth in Functionally Gradient Materials", *Solid Mechanics Group meeting*, May 17, 2004, California Institute of Technology, USA.
3. "Dynamic Fracture in Brittle Materials", *ASCI Alliance/Laboratory V and V Workshop*, July 13-14, 2004, La Jolla, California, USA.
4. "Static and Dynamic Fracture in Homogeneous and Nonhomogeneous Materials", July 22, 2004, *The Goodyear Tire & Rubber Company*, Akron, Ohio, USA.
5. "Dynamic Fracture of Homogeneous and Nonhomogeneous Materials", February 24, 2005, *American University of Sharjah*, presented to the committee in Chicago, IL, USA.
6. "Dynamic Failure of Homogeneous and Nonhomogeneous Materials", March 28, 2005, *University of Massachusetts*, Dartmouth, USA.
7. "Dynamic Failure of Layered Materials", November 18, *University of Rhode Island*, 2005.
8. "Dynamic Failure of Engineering Materials", June 23, *Naval Underwater Warfare Center*, Newport, 2006.
9. "Dynamic Failure of Homogeneous and Non-homogeneous Materials," June 5, 2007, *Indian Institute of Technology*, Chennai, India.
10. "Dynamic Failure of Homogeneous and Non-homogeneous Solids," June 13, 2007, *Indian Institute of Science*, Bangalore, India.
11. "Crack-tip stress fields for orthotropic functionally graded materials," October 12, 2007, *Department of Materials & Textiles*, UMass Dartmouth.
12. "Solid Mechanics-Bioengineering Perspective", December 5, 2008, Invited lecture for Introduction to Bioengineering course taught by Dr. Sankha Bhowmick.
13. "Nano-mechanical Characterization of Polypropylene and Nylon Fibers Exposed to Ultraviolet and Thermal Degradation", March 29, 2010, *Materials & Solid Mechanics seminar series*, Brown University.

14. "Nano-Characterization of Polymer Fibers and Butterfly Wings; In-situ Sensing of Non-linear Deformation & Damage of Carbon Nanotubes Reinforced Composites," January 24, 2012, Civil Engineering Department, KL University, Vijayawada, India.
15. "Damage Detection using Carbon Nanotubes in Polymer Particulate Composites," April 24, 2013, Bristol Community College, MA.
16. "Detection of damage using Carbon Nanotubes at Various Loading Conditions," ARL, March 18, 2015, Maryland, USA.
17. "Damage Sensing & Damage Tolerant Composite Materials," 01/06/17, Civil & Mechanical Engineering Departments, KL University, Vijayawada, India.
18. "Damage Sensing using Carbon Nanotubes in Composites," 11/29/18, Naval Undersea Warfare Center, Newport, RI.
19. "Multi-functional carbon based materials," 10/04/19, Worcester Polytechnique Institute, Worcester, MA.

OTHER PROFESSIONAL ACTIVITIES:

A. Editorial Services

1. Guest editor of a special issue on "Dynamic Behavior of Materials" for journal of *Experimental Mechanics* (Issue: February 2012).
2. Editor of Proceedings of 2012 Annual Conference on Experimental and Applied Mechanics, "Dynamic Behavior of Materials".
3. Editorial board of American Journal of Engineering and Technology Research (2012-current).
4. Technical editor of "Experimental Mechanics" journal (2013-current)

B. Service in Professional Societies

1. Chaired a session "Time-dependent Constitutive Behavior-I" in 2006 SEM Annual Conference & Exposition, June 4-7, St. Louis, MO.
2. Co-organized a general session on Dynamic behavior of Materials in SEM Annual Conference & Exposition on Experimental & Applied Mechanics, Spring Filed, Massachusetts, June 3-6, 2007.
3. Co-organized a track "Dynamic Behavior of Materials" in 2008 SEM Annual conference & Exposition, June 2-5, Orlando, FL.
4. Organized a session on "Dynamic Failure of Materials under Impact Loading" in Society for Experimental Mechanics (SEM) XI International Congress & Exposition on Experimental & Applied Mechanics, Orlando, Florida, June 2-5, 2008.
5. Co-organized a session on "Dynamic behavior of composites" in Society for Experimental Mechanics (SEM) XI International Congress & Exposition on Experimental & Applied Mechanics, Orlando, Florida, June 2-5, 2008.
6. Chaired a session "Dynamic Behavior of Composites-I" in Society for Experimental

- Mechanics (SEM) XI International Congress & Exposition on Experimental & Applied Mechanics, Orlando, Florida, June 2-5, 2008.
7. Chaired a session "Dynamic Behavior of Composites-II" in Society for Experimental Mechanics (SEM) XI International Congress & Exposition on Experimental & Applied Mechanics, Orlando, Florida, June 2-5, 2008.
 8. Co-chaired a session "Dynamic Failure of Materials-I" in Society for Experimental Mechanics (SEM) XI International Congress & Exposition on Experimental & Applied Mechanics, Orlando, Florida, June 2-5, 2008.
 9. Co-chaired a session "Dynamic Failure of Materials-II" in Society for Experimental Mechanics (SEM) XI International Congress & Exposition on Experimental & Applied Mechanics, Orlando, Florida, June 2-5, 2008.
 10. Co-organized a track "Dynamic Behavior of Materials" in *2009 SEM Annual conference & Exposition*, June 1-4, Albuquerque, NM.
 11. Organized a session on "Dynamic Failure of Materials" in Society for Experimental Mechanics (SEM) Annual Congress & Exposition on Experimental & Applied Mechanics, Albuquerque, NM, June 1-4, 2009.
 12. Co-chaired a session on "Dynamic Failure of Materials" in Society for Experimental Mechanics (SEM) Annual Congress & Exposition on Experimental & Applied Mechanics, Albuquerque, NM, June 1-4, 2009.
 13. Co-chaired a session on "Dynamic Failure of Materials" in Society for Experimental Mechanics (SEM) Annual Congress & Exposition on Experimental & Applied Mechanics, Indianapolis, NM, June 7-10, 2010.
 14. Co-organized a track "Dynamic Behavior of Materials" in *2010 SEM Annual conference & Exposition*, Indianapolis, IN, June 7-10, 2010.
 15. Co-organized a track "Dynamic Behavior of Materials" in *2011 SEM Annual conference & Exposition*, Uncasville, CT, June 13-17, 2011.
 16. Co-organized a track "Dynamic Behavior of Materials" in *2012 SEM Annual conference & Exposition*, Costa Mesa, CA, June 12-14, 2012.
 17. Co-organized a symposium on "Performance of Materials and Structures under Extreme Loading Conditions", held on 12-13 October at University of Rhode Island.
 18. Co-organized sessions on "Dynamic Fracture & Failure" in 2013 SEM XI Annual conference & Exposition, Chicago, 2013.
 19. Co-organized two sessions of "Dynamic Fracture/Failure" in 2014 Society of Experimental Mechanics annual conference.
 20. Co-chaired two sessions on "Fracture of Composite Materials," International Conference and Exposition on Experimental and Applied Mechanics, Society for Experimental Mechanics, June 6-9, 2016.
 21. Co-chaired a session on "Fracture of Composite Materials," International Conference and Exposition on Experimental and Applied Mechanics, Society for Experimental Mechanics, June 4-7, 2018.
 22. Co-chaired a session on "Fracture of Composite Materials," International Conference and Exposition on Experimental and Applied Mechanics, Society for Experimental Mechanics, Reno, NV, June 3-6, 2019.

23. Co-organized Multi-functional Composites Technical Division (TD) track in Society for Experimental Mechanics, AY2018-19.
24. Co-organized Multi-functional Composites Technical Division (TD) track in Society for Experimental Mechanics, AY2019-20.
25. Organized a day long Virtual Northeastern Society for Experimental Mechanics (SEM) Student Conference on 26th June 2020, which is attended by 21 students from 6 different universities.
26. Co-organized Multi-functional Composites Technical Division (TD) track in Society for Experimental Mechanics, AY2020-21.
27. Co-organized Multi-functional Composites Technical Division (TD) track in Society for Experimental Mechanics, AY2021-22.
28. Organized a day long on-campus Northeastern Society for Experimental Mechanics (SEM) Student Symposium on 16th April 2022. 32 students from 7 different universities. Had 7 sessions of different topics of solid mechanics.