Tapas Bajpai

Assistant Professor
Malaviya National Institute of Technology
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Executive Summary

Past Employment

- Assistant Professor, Govt. Engineering College, Ujjain (M.P.) (January 2018- March 2019)
- Assistant Professor, Prestige Institute of Engineering and Science, Indore (M.P.) (July 2011-2012)

- **Ph. D, IIITDMJ, India** (July 2012-2018)
  - Developed finite element thermal-structural model in ANSYS software to compute temperature fields, residual stresses and distortions in GMA welding process and pulsed laser welding process
  - Developed programme in LabView software for recording transient temperature fields and strains produced in the welding processes.
  - Performed experimental measurements for residual stresses and distortions by X-ray diffraction machine and coordinate measuring machine.

Education

- **Doctor of Philosophy in Mechanical Engineering** Jabalpur, India
  Indian Institute of Information Technology Design and Manufacturing 2012 - 2018
  - Thesis - Finite Element and Experimental Analysis of Residual Stresses and Distortions in Aluminium Alloy Weldments
  - CPI - 7.9
- **Master of Engineering in Mechanical Engineering** Delhi, India
  Delhi College of Engineering 2008 - 2010
  - Specialisation - Production Engineering
  - 73.2%
  - Thesis - Effect of Pulse Parameters on Mechanical Behaviour of TIG Welded Aluminium Alloy
  - Optimized pulsed parameters during pulsed TIG welding of aluminium alloy 1100
- **Bachelor of Engineering**
  Rishiraj Institute of Technology (RGPV) Bhopal, India
  - Specialisation - Mechanical Engineering 2004 - 2008
  - 71.9%

Working Experience

- **Assistant Professor** Prestige Institute of Engineering and Science, Indore
- **Mechanical Engineering** July 2011- July 2012
- Course Responsibilities
  - Manufacturing Science
  - Workshop Technology

- **Assistant Professor** — Government Engineering College, Ujjain
- **Mechanical Engineering** — January 2018- March 2019
- Course Responsibilities

  UG Courses
  - Strength of Materials
  - Advanced Strength of Materials

  PG Courses
  - Product Design, Life Cycle and Management
  - Principles and Practices of Management

- **Assistant Professor** — Malaviya National Institute of Technology Jaipur
- **Mechanical Engineering** — March 2019 - Till date
- Course Responsibilities

  UG Courses
  - Finite Element Methods
  - Basic Mechanical Engineering
  - Special Course in Manufacturing
  - Welding Engineering and Technology
  - Engineering Mechanics
  - Casting, Welding and Forming

  PG Courses
  - Machining Processes and Analysis
  - Simulation and Modelling
  - Tool Engineering and Design

Software Exposure

- Ansys, Autodesk Inventor, LabView, SIMUFACT Welding

Computer Skills

- Matlab, MS office

Professional Accomplishments

Projects

- Principal Investigator, **Bureau of Indian Standards**, **Study of latest technological developments and practices in the life cycle of Unfired Pressure Vessels**, 2024, Duration: 9 Months. (Amount: INR. 5.04 lakhs)
- Co-Principal Investigator, **Bureau of Indian Standards, Study of operations, best practices and services parameters to establish framework for requirement of services for packer and movers service providers**, (PI: Dr. Pankaj Kumar Gupta), 2025, Duration: 1 Year. (Amount: INR. 7.80 lakhs)
- Co-Principal Investigator, **National Project Implementation Unit (MHRD, Govt. of India) Project - Development of General Heat Transfer Correlation for Microchannels**, (PI: Dr. Nishit Bedi, Co-PI: Dr. Hemant Parmar, Dr. Prashant Baredkar), 2019, Duration: 1 Year. (Amount: INR. 8.00 lakhs)

- Principal Investigator, TEQIP-III, **Thermo-mechanical analyses and microstructural characterization of aluminium alloys plates in multi-pass GMA welding**, 2019, Duration: 1 Year (Amount: INR. 3 lakhs)

International Journals Accepted

- Tapas Bajpei, H. Chelladurai and M. Zahid Ansari, 2016. Mitigation of Residual Stresses and Distortions in Thin Aluminium Alloy GMAW Plates using Different Heat Sink Models, **Journal of Manufacturing Processes** 22, 199-210.
- Tapas Bajpei, H. Chelladurai and M. Zahid Ansari, 2017. Experimental investigation and numerical analyses of residual stresses and distortions in GMA welding of thin dissimilar AA5052-AA6061 plates, **Journal of Manufacturing Processes** 25, 340-350.
- Arpana Parihar, Vasundhara Pandita, Dipesh Singh Parihar, Nidhi Puranik, Avinash Kumar, Tapas Bajpai, Raju Khan, **2021**. 3d Printing: Advancement in Bio-Generative Engineering to Combat Shortage of Organs and Bio-applicable Materials", **Regenerative Engineering and Translational Medicine**.
- Tapas Bajpai, Alok Kumar Nyati, Pankaj Sharma, and Pankaj Kumar Gupta, 2023. Numerical and Experimental Investigation on Effects of Welding Sequence on Distortions in Fillet-Welded AA6061-T6 Joints, **Journal of Materials Engineering and Performance**/ 2023 / 2.3 DOI: dx.doi.org/10.1007/s11665-023-08755-y.
- Brij Mohan Sharma, Tapas Bajpai, Pankaj Kumar Gupta and Vikash Gautam, 2023. Effect of Operating Parameters of Hybrid TIG-MIG Welding on Mechanical Properties and Bead Quality: A Review. **Materials Today: Proceedings.**
- Durwesh Jhodkar, Somadatta Karanjekar, Bharat Chede, Tapas Bajpai and Sourabh Shukla, **2024**. Experimental Investigation of tool wear, surface roughness during milling of EN 25 steel using coconut-based vegetable oil, **Journal of Physics: IOP Science 2763 (2024) 012014**.
- Ashutosh Kumar, Chelladurai Hussain Mohamed and Tapas Bajpai, **2024**. Achieving Optimal Weld Bead Geometry and Dilution Ratio in TIG-MIG Hybrid Welding through ANN-TLBO Algorithmic Optimization. **Journal of Materials Engineering and Performance/ DOI://doi.org/10.1007/s11665-024-10390-0.**
- Rajendra Prasad Meena, N Yuvraj and Tapas Bajpai, 2025. Experimental Investigation of Process Parameters of Cold Metal Transfer Welding in Vertical Direction Deposition of Stainless-Steel Using Response Surface Methodology. **Engineering Research Express: IOP Science 7,** doi.org/10.1088/2631-8695/ada223.
- Tapas Bajpai, Pankaj Kumar Gupta and Rajendra Prasad Meena, 2025. Influence of Energy Input and Clamping Effect on Angular Distortions in Thin Butt Welded SS409L Joints. **Strength of Materials Accepted (Springer).**
- Satyaveer Singh, Rajendra Prasad Meena, N. Yuvraj, Qasim Murtaza, Tapas Bajpai, 2025. Impact of Liquid Nitrogen Cooling on the Microstructural and Mechanical Properties of CMT-Welded Joints of AA2099-T86 Alloy, **Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering** - / / 2025 / 2 DOI: DOI: 10.1177/09544089251367274/.

Conference Publications

- Tapas Bajpei, H. Chelladurai and M. Zahid Ansari, 2016. Numerical Investigation of transient temperature and residual stresses in thin dissimilar aluminium alloy plates, Procedia Manufacturing, SME NAMRC 44, 44th North American Research Conference.
- Tapas Bajpei, H. Chelladurai and M. Zahid Ansari, 2017. Numerical prediction of residual stresses and distortions in GMA welding of thin aluminium alloy plates, International conference on Theoretical, Applied, Computational and Experimental Mechanics 2017, IIT Kharagpur.
- Tapas Bajpai, Pankaj Kumar Gupta and Anup Malik, 2020. Thermo-mechanical Analysis of Pulsed Laser Welded Thin Aluminium Alloy Sheets, International Conference on Industrial and Manufacturing Systems (CIMS-2020), NIT Jalandhar.
- Aditya Purohit, Tapas Bajpai, Pankaj Kumar Gupta and Arpana Parihar, 2021. A review on joining of dissimilar material with a special context to laser welding, International Conference on Advanced Manufacturing and Materials Processing (CAMMP-2021), MNIT Jaipur.
- Ashutosh Kumar, H. Chelladurai and Tapas Bajpai, 2022. Comparative Study of Output Variables between MIG and TIG-MIG Hybrid Welding Using Numerical Simulation. International Conference on Recent Advances in Mechanical Engineering (ICRAM-2022) IIT Jodhpur. 25-27 August 2022.
- Buddhi Prakash Panwar and Tapas Bajpai, 2023. Recent Evolution on Issues, Causes & their Remedies Associated with Underwater Welding: A Review. National Seminar on Capacity Expansion through extensive Exploration & Innovations for Sustainable Growth in Non-Ferrous Mineral Industries, Hindustan Copper Ltd., Copper Club, Khetri Nagar. 24-25 February 2023
- Shubham Vishwas Gurav and Tapas Bajpai, 2023. Challenges in Welding of Dissimilar Metals in Aerospace Industries. International Conference on New Vistas of Development in Aerospace Engineering and Societal Development (ICAE-2023) IEI, Rajasthan State Centre, Jaipur.
- Buddhi Prakash Panwar and Tapas Bajpai, 2023. Challenges Associated with Friction Stir Welding for Aerospace Applications: A Review. International Conference on New Vistas of Development in Aerospace Engineering and Societal Development (ICAE-2023) IEI, Rajasthan State Centre, Jaipur. April 7-9, 2023.
- Tapas Bajpai, Gajendra Kumar Nhaichaniya, Pankaj Kumar Gupta and Jinesh Kumar Jain, 2023. Influence of Welding Sequence on Residual Stresses and Distortions in AA6061-T6 Pipe-to-Plate Joints, The All-India Manufacturing Technology, Design, and Research Conference 2023 - at IIT BHU 08-December to 10-December 2023.
- Tapas Bajpai and Sunil Pandey, 2024. Effect of welding sequence on residual stresses and distortion in AA6061-T6 fillet welds. 6th International Congress (IC-2024) of the International Institute of Welding, Bengaluru, 21-24 January 2024.
- Tapas Bajpai, Sunil Pandey and Buddhi Prakash Panwar, 2024. “Underwater wet welding: A review”, 6th International Congress (IC-2024) of the International Institute of Welding, Bengaluru, 21-24 January 2024.

- Shubham Vishwas Gurav, Tapas Bajpai and Durwesh Jhodkar, 2024. “Effect of Electrode shape on Resistance spot welded AISI 316L sheets”, International Conference on Emerging Aspects of Manufacturing, Thermal and Design Engineering, NIT Hamirpur, 16-18 August 2024.
- Kashif Saifi, Pankaj Kumar Gupta, Tapas Bajpai, “Influence of Reinforcement on Tribo-Mechanical Characteristics in Metal Matrix Composites, 2nd International Conference on Recent Innovations and Developments in Mechanical Engineering (ICRIDME 2024), NIT Meghalaya, 14-16 November 2024.
- Ashutosh Kumar, H. Chelladurai, Tapas Bajpai and Vivek Pandey, 2025. “Finite Element Modelling of Heat Flow and Stress Distribution in TIG-MIG Hybrid Welding of Square-Grooved Joints”, Young Professionals International Conference (YPIC India-2025) Netaji Subhas University of Technology (NSUT), New Delhi, on 5–6 September 2025.

Book Chapters

- Tapas Bajpai, H. Chelladurai and M. Zahid Ansari, 2019. A Coupled thermal-structural model for welding of aluminium alloys, Advances in Simulation, Product Design and Development, Springer, November 2019, 469-477. **ISSN** 2522-5030.
- Pankaj Kumar Gupta, Tapas Bajpai, Nikhil Jain, Dharmendra Singh, 2020. Performance Enhancement of Electro-Chemical Discharge Machining by Process Variants: A Review, Lecture Notes on Multidisciplinary Industrial Engineering, Springer, July 2021, DOI: https://doi.org/10.1007/978-3-030-73495-4_18, 259-269, ISBN No. (Online) - 978-3-030-73495-4.
- Tapas Bajpai, Arpana Parihar and Dipesh Singh Parihar, 2022. Influence of Clamping Force on Distortions of S235 Tube-Plate Joints, Industry 4.0 and Advanced Manufacturing, Springer, DOI: 10.1007/978-981-19-0561-2_23, 249-260, ISBN No. (Online) - 978-981-19-0561-2.
- Tapas Bajpai, Pankaj Kumar Gupta and Anup Malik, 2022. Thermomechanical Analysis of Pulsed Laser Welded Thin Aluminium Alloy Sheets. Optimization of Industrial Systems, Wiley - Scrivener Publishing, ISBN-13- 9781119750314.
- Aditya Purohit, Tapas Bajpai, Pankaj Kumar Gupta, 2023. A review on joining of dissimilar material with a special context to laser welding. Manufacturing and Processing of Advanced Materials, Bentham Science Publishers, ISBN No. (Online) - 978-981-5136-71-5.

Patents

- Pankaj Kumar Gupta and Tapas Bajpai, **2024**. Glass sliding fixture for an electrochemical discharge machining unit, Patent number – **412719001**, **The Patent Office, Government of India**.
- Pankaj Kumar Gupta and Tapas Bajpai, 2025. Electric Power Driven Mortar And Pestle, Design number – **437172-001**, **The Patent Office, Government of India.**
- Pankaj Kumar Gupta and Tapas Bajpai, 2025. Eco-Friendly Composite Material and Method For Its Fabrication Using Waste Paper And Guar Gum, Patent number – **202511025180 A, The Patent Office, Government of India.**
- Tapas Bajpai and Pankaj Kumar Gupta, 2025. Electric Power Driven Beating Device, Patent number – **448441-001, The Patent Office, Government of India.**

Research Supervision

- Completed research 8 M.Tech. students.
- Under progress: Three

General Information

- **Languages**
  - Hindi, English
- **Extracurricular Activities**
  - Sports and Games: Playing Badminton and Cricket
  - Interests: Listening to Music

Any other Information

- Google Scholar citations: 261 (*h*-index: 5, *i*10-index: 4)

Professional Membership

- Reviewer for Journal of Central South University, Springer
- Reviewer for Materials Today Proceedings, Elsevier
- Reviewer for Structures Journal, Elsevier
- Reviewer for Journal of Testing and Evaluation, ASTM International
- Reviewer for International Journal of System Assurance Engineering and Management, Springer
- Reviewer for North American Manufacturing Research Conference (NAMRC)
- Reviewer for All India Manufacturing Technology, Design and Research Conference (AIMTDR)
- Faculty Member of Indian Welding Society (IWS)
- Faculty Member of Indian Institute of Welding (IIW)