**ZXXC. CURRICULUM VITAE**

**Dr. M. MANIKANDAN**

Professor

School of Mechanical Engineering

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**RESUME HIGHLIGHTS**

* Teaching /Research experience : 12
* Number of Projects : 8 **(DRDO -4 ; IGSTC -2; DST-1 ; ISRO-1)**
* Funded Project : 1.75 Crores
* Patent Registered & Published : 03 (Published)
* Ph.D. / M.Tech (Res.) Guided : 12 Awarded /01 (ongoing)
* International Journal Publications : 127 Papers

In Progress : 10 Papers

* International Conference : 31
* National Conference : 3
* National Workshop Attended &FDP : 25
* Industrial Experience : 8 Months
* Editorial Experience : Reviewer for 50 International Journals.
* International Book Chapter : 3

**Journal Editor**

Associate Editor : Heliyon Material Science (Elsevier)

Academic Editor : Journal of Corrosion Science (Wiley)

**Research Contribution**

Orcid : <http://orcid.org/0000-0002-4467-1493>

Scopus ID: 16302247900

Researcher ID: P-2069-2017

Publons: P-2069-2017

**Career Objective**

To be a part of World Class Institution where I can get ample opportunities to conduct research and exemplify myself in the teaching-learning pedagogy.

**Academic Chronicle**

**Doctor of Philosophy (Ph.D.) - VIT University**

Thesis Title : Development of Technology-Based on Pulsed Current Gas Tungsten Arc Welding for Improving the Weldability of Ni-Based Alloy C-276.

Area : Welding of Superalloy C-276

**Supervisor(s) : Dr.N.Arivazhagan and Dr. M. Nageswara Rao**

**Advisor : Dr. G. Madhusudhan Reddy (DMRL)**

Description : DRDO sponsors this research work. This research work aims to investigate the weldability of Superalloy C-276 using CCGTA and PCGTA welding techniques using different fillers. Also, the structure-property relationships of these weldments shall be ascertained from the study.

**Master of Technology (M.Tech) in CAD/CAM**

University : VIT University

Batch : 2009-2011

Class : First Class

**Bachelor of Engineering (B.E) in Mechanical Engineering**

University : Anna University

College : Erode Sengunthar Engineering College

Batch : 2005-2009

Class : First Class

**Teaching and Research Experience**

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| **Sl.No** | **Organization** | **Designation** | **From** | **To** |
| 1 | Vellore Institute of Technology (VIT Vellore) | Professor | 1st July 2024 | Till date |
| 2 | Vellore Institute of Technology (VIT Vellore) | Associate Professor (Sr.) | 1st January 2023 | 30 June 2024 |
| 4 | Vellore Institute of Technology (VIT Vellore) | Associate Professor (Grade 2) | 1st July 2022 | 31st December 2022 |
| 5 | Vellore Institute of Technology (VIT Vellore) | Associate Professor | 1st July 2018 | 30th June 2022 |
| 6 | Vellore Institute of Technology (VIT Vellore) | Assistant Professor (Senior) | 6th May 2016 | 30th June 2018 |
| 7 | KPR Institute of Technology, Coimbatore | Assistant Professor (Selection Grade) & Head R&D | 15th June 2015 | 5th May 2016 |
| 8 | Vellore Institute of Technology (VIT Vellore) | JRF & SRF – DRDO Project | 9th May 2012 | 30th April 2015 |
| 9 | Karpagam College of Engineering Coimbatore | Assistant Professor | 5th June 2011 | 30 April 2012 |
| 10 | Honeywell Technology Solution | Project Trainee | September 2010 | April 2011 |

**Ongoing and Completed Funded Research Project**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **Title of the Project** | **Funding Agency** | **Duration** | **Amount in Lakhs** | **Status** |
| 1 | Studies on Laser-GMA- Hybrid welding of maraging steel MDN 250 | DRDO | 2018-22 | 19.21 | Completed |
| 2 | Comparative evaluation of Joints produced by GTAW and PAW in 12 mm thick plates of maraging steel MDN 250 for microstructure, microsegregation, strength and fracture toughness | DRDO-AR&DB | 2019-22 | 15.810 | Completed |
| 3 | Special steels and superalloys for advanced thermal, concentrating solar power and heat storage plants (MATAPP 2021) | Indo- German  IGSTC -DST | 2021 | 0.225 | Completed |
| 4 | Similar/Dissimilar materials welding of automotive and Aerospace Sectors | Indo- German  IGSTC -DST | 2022 | 22.36500 | Completed |
| 5 | Investigation of Characteristic Performance of Armour Weldments under Sub-Zero Temperature | DRDO- CVRD | 2022-2024 | 9.77040 | Completed |
| 6 | Design and Development of Surface Engineered Solutions to Enhance the Corrosion Resistance of the Solar Energy Storage Container | DST | 2023-2025 | 48.85835 | Ongoing |
| 7 | Development of a low heat-input welding technique for armor steel joints to enhance high cycle fatigue behavior by suppressing softening of the Heat-affected zone. | DRDO | 2024-2026 | 33.68508 | Ongoing |
| 8 | Studies on Weldability of Additively Manufactured (AM) Inconel Alloys (IN718 and IN625) i.e. AM-AM & AM-Wrought Welding | ISRO | 2023-2025 | 16.5 | Approved |
| 9 | Seed Money | VIT University | 2020-21 | 1.5 | Completed |
| 10 | Seed Money | VIT University | 2018-19 | 1.5 | Completed |
| 11 | Seed Money | VIT University | 2017-18 | 0.75 | Completed |
| 12 | Design and Development of Surface Engineered Solutions to thermal battery for the Energy Storage . | VIT University | 2022-24 | 4.0 | Completed |
| 13 | VIT International Research Award | VIT University | 2023-24 | 5.0 | Completed |

**Government of India Recognition.**

The project carried out by me, professor Arivazhagan, Prof M Nageswara Rao and JRF Mr Arunprakash to DRDO received high appreciation from the panel for the systematic novel approach and outcome catering to the DRDO requirement. The details of the project are printed in the DRDO compendium. Honourable Defence Minister Shri Rajnath Sing released the DRDO compendium during the DRDO -Academia conclave 25. 05.2023 at DRDO Bawan, New Delhi. Also, the one-page project slide carried out by our team was presented during the DRDO conclave at DRDO Bawan New Delhi by Chairman AR&DB Panel Dr Suhas Joshi, Director IIT Indore.

<https://www.youtube.com/watch?v=gIJFumegeBk>

**Areas of Interest**

* Metal Joining
* Metallurgical and Mechanical characterization of weldments
* Metal Additive Manufacturing
* High Temperature Corrosion
* Thermal Spray Coatings
* Energy Storage Materials
* Machine Learning – Beginner

**Book Publication**

* Chapter Title : **Machine Learning Applications for Additive Manufacturing State of Art and Future Perspectives,** Book Title : Industrial Transformation, Implementation and Essentia Components and Processe of Digital Systems. ISBN 9781032133980, Taylor & Francis USA. DOI: 10.1201/9781003229018
* Chapter Title: **Hot Corrosion Characteristics of HVOF-Sprayed Cr3C2-25NiCr Protective Coating on Ni-Based Superalloys,** Book Title : Thermal Spray Coatings, ISBN : 9781003213185, Taylor & Francis USA https://doi.org/10.1201/9781003213185
* Chapter Title: **Welding Metallurgy of Corrosion Resistance Superalloy C-276**, Book Title: Superalloy, ISBN 978-953-51-4241-6, Intec Publication
* Chapter Title: **Welding of Alloy C-276**, Book Title: Microscopy Applied to Material Sciences and Life Sciences" Apple Academic Press – Taylor & Francis USA. ISBN 9781771886727
* Chapter Title: **Welding Metallurgy of Corrosion Resistance 21st Century Ni-based superalloy 686**. Book Title: Advanced Manufacturing and Materials Science. ISBN 978-3-319-76276-0, Springer Nature Publication. https://doi.org/10.1007/978-3-319-76276-0\_47. Pp 457-46

**Ph.D / M.Tech (Research) Thesis guidance**

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| --- | --- | --- | --- |
| **S.No** | **Name of the Students** | **Title of the Thesis** | **Status &**  **Awarded Date** |
| 1 | Mr. A. Srikanth  (M.Tech Research) | Development of Welding Technique to avoid the Sensitization in the Alloy 600 by Conventional Gas Tungsten Arc Welding Method. | Awarded  17.09.2018 |
| 2 | Mr. B. Arul Murugan | Studies on Pulsed Current and Continuous Current Gas Tungsten Arc Welding of Superalloy 686 | Awarded  27.08.2019 |
| 3 | Mr. P. Subramani | Studies on Welding Processes on Metallurgical, Mechanical and Hot Corrosion Behavior of Aerospace 80A Grade Alloy | Awarded  11.09.2019 |
| 4 | Mr. V. Sreenivasulu | Studies on High Temperature  Corrosion of Thermal Spray Coated  Nickel Based Superalloy 80A in  Air Oxidation and Molten Salt Environments | Awarded  21.12.2019 |
| 5 | Mr. M.Sathishkumar | Studies on Gas Tungsten Arc Welding on Metallurgical, Mechanical and Hot Corrosion Behaviour of Aerospace Grade Hastelloy X | Awarded  18.12.2020 |
| 6 | Mr. M. Natesan | Studies on Mechanical, Metallurgical and Corrosion Behaviour of Incoloy 20 welded with Continuous and Pulsed Gas Tungsten Arc Welding | Awarded  16.04.2021 |
| 7 | Mr. Bibin Jose | Studies on Gas Metal Arc Welding and Laser Gas Metal Arc-Hybrid Welding of Maraging Steel MDN-250 | Awarded  05.05.2023 |
| 8 | Mr. M. Prem Kumar | Corrosion Behaviour of Nickel Based Alloys in Eutectic Phase Change Material for High Temperature Thermal Energy Storage System | Awarded  19.01.2024 |
| 9 | Mr. M D. Barathkumar | Investigation of Metallurgical and Mechanical Characterization of Pulsed and Continuous Current Wire + Arc Additive Manufacturing of Nickel Based Superalloy | Awarded  29.01.2024 |
| 10 | Mr. B. Anandan | Development of Similar and Dissimilar Friction Stir Welded Joints for Aerospace Grade Aluminium Alloys | Awarded  13.03.2024 |
| 11 | Mr. N. Bala Murali | Studies on dissimilar welding of metal to polymer using solid state welding technique. | Awarded  12.04.2024 |
| 12 | Mr. R. Arunprakash | Development of welding technique to enhance the Metallurgical and Mechanical Properties of Maraging Steel MDN 250 through different arc welding processes. | Awarded  23.08.2024 |
| 13 | Mr. P. Sakthivel | Hot Corrosion Studies on Coatings | Ongoing |

**Patent**

* Autogenous Double Pulse Gas Tungsten Arc Welding System for Joining Super Alloys. Application No.202341070940 A. The Patent Office Journal No. 47/2023 Dated 24/11/2023, Page 79255
* Development of technique to preclude the segregation in aerospace alloy UNS N06002 by conventional double pulse arc welding. Application No 201941046300 A. The patent Office Journal No. 48/2019, Dated 29/11/2019 , Page 56183

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* Wire + Arc Additive Technology development for producing UNS N06625 alloy for conventional pulsed current gas tungsten arc welding. Application No 201941048015 A. The patent Office Journal No. 49/2019, Dated 06/12/2019 , Page 57327

**Awards & Recognitions**

* VIT International Research Award for visiting Universidade Nova de Lisboa, Portugal.
* Outstanding Researcher award 2022 at VIT University, Vellore.
* Research award at Vellore Institute of Technology, 2022, for contribution to research through publication in peer-reviewed journals and Funded Project
* Appointed as a reviewer for the AAPG Generic call – 2023. French National Research Agency’s (ANR) main. The French National Research Agency (ANR) is a public administrative institution under the authority of the French Ministry of Higher Education, Research and Innovation.
* Project Proposal Reviewer - Department of Science and Technology (DST) Government of India.
* Received 100 USD reward from Elsevier USA, to recognize the peer review work for the book chapters.
* Best poster award for the paper entitled “Influence of Overalloyed filler wire to preclude the microsegregation in the weld joint of alloy C-276” on the 3rd International Conference on Advanced Materials and Manufacturing Processes for Strategic Sectors 2018 conducted by Indian Institute of Metals with ISRO between 25-27th October 2018 at Thiruvananthapuram
* Research award at Vellore Institute of Technology, 2021, for contribution to research through publication in peer-reviewed journals and Funded Project
* Research award at Vellore Institute of Technology, 2019 and 2020 for contribution to research through publication in peer-reviewed journals and Funded Project
* Research award at Vellore Institute of Technology, 2018, for contribution to research through publication in peer-reviewed journals and Funded Project
* Recognised his microstructure as a cover page image of the **journal Ciencia & Tecnologia dos Materiais** (Elsevier Publisher) in volume 29, 2017.
* Research award at VIT University, 2017, for contribution to research through publication in peer-reviewed journals
* Research award at VIT University, 2016, for contributing to research through peer-reviewed journal publication.
* Act as a Session Jury for the 18th ISTE TN & P Section Annual Convention for Faculty Members of Engineering Colleges
* Most downloaded articles in Elsevier Publication between Sep-14 to Feb-15 “Microstructure and Mechanical Properties of Alloy C-276 Weldments Fabricated by Continuous and Pulsed Current Gas Tungsten Arc Welding Techniques”, Vol. 16, 2014, pp 563-572, Journal of Manufacturing Processes.
* Appointed as an international expert reviewer for the 3rd Global Conference on Materials Science and Engineering held in Shangai (China) from 20 -23rd October 2014.
* Appointed as an international expert reviewer for International Scientific Conference Corrosion 2014 held in Gliwice (Poland) from 18 -21st November 2014.
* Research award at VIT University, 2013, for contributing to research through peer-reviewed journal publication.

**International Journal Publications**

https://scholar.google.co.in/citations?user=37DFCvcAAAAJ&hl=en

https://publons.com/researcher/1345576/manikandan-m/

https://www.scopus.com/authid/detail.uri?authorId=16302247900

https://www.researchgate.net/profile/Manikandan\_Mano

http://orcid.org/0000-0002-4467-1493

**2024**

1. Madesh R, M D Barath Kumar, Bala Murali N, Nandhakumar S, Arivazhagan N, K Gokul Kumar, **M Manikandan**. Pulsed directed energy deposition-arc technology for depositing stainless steel 309L: microstructural, elements distribution, and mechanical characteristics. Accepted Heliyon Material Science.
2. M D Barath Kumar, A Abdul Bhasith, G S Vishaal Kumar, Y Ridhushan, N Arivazhagan, N Babu, K Sathish Kumar, **M Manikandan**. Investigation of Microstructure and Mechanical Characteristics of Thin-walled Hastelloy C-276 Manufactured through Pulsed-Arc Additive Manufacturing Technique. Accepted Metals and Materials International.
3. **M. Manikandan**, N. Arivazhagan. Technology Development of Novel Autogenous Double Pulse Tungsten Insert Gas Welding Technique to Evaluate the Depth of penetration, Micro segregation via Machine teaming and Desirability Function Approach. Accepted Materials Today Communications.
4. Sukalpan Nandi, **M. Manikandan**, N. Arivazhagan, V. Rajinikanth,,and Sandip Ghosh Chowdhury. A Quantitative Approach to Precipitate Characterization in Wire Arc Additive Manufactured Inconel 600 Series Alloys. https://doi.org/10.1007/s11837-024-06656-6
5. Barath Kumar M D, Arivazhagan N, Szymon Tofil, Joel Andersson, Jindrich Kozak, **Manikandan M**. Influence of pulsed current GTAW-WAAM process parameters on the single layer bead geometry and multi bead multi-layer deposition of a nickel-based superalloy. Materials Today Communications. 39 (2024) 108824.
6. Muthu kumar, B Arulmurugan, **M Manikandan**. Analysing Microstructural, Residual Stress, and Mechanical Characteristics in Dissimilar Welds of Inconel 59 and AISI 904L through Double Pulse Gas Metal Arc Welding. Accepted Journal of Materials: Design and Application
7. Arunprakash R, **Manikandan. M.** A Novel Approach to Suppression of Reverted Austenite in Aerospace Grade Thick Maraging Steel Weldments Using the Turbo-TIG Welding Process' Accepted Journal of Adhesion Science and Technology.

**2023**.

1. Arunprakash R, **Manikandan. M** "Evaluation of Metallurgical and Mechanical Properties of 12mm Thick Aerospace Grade MDN 250 Steel By Plasma Arc Welding Technique. Journal of Mechanical Engineering Science.
2. N Balamurali, **M Manikandan**. Enhancement of joint strength of dissimilar aluminum/polymer hybrid joints by friction stir spot welding by surface textures. Journal of Adhesion Science and Technology.
3. Szymon Tofil, Piotr Kurp, **Manikandan M.** Surface laser micropatterning of polyethylene (PE) to increase the shearing strength of adhesive joint. Lubricant.
4. Prem Kumar M, Arivazagan N, Chiranjeevi C, Raja Sekhar Y, Babu N, **Manikandan M.** Effect of Molten Binary Salt on Inconel 600 and Hastelloy C-276 Super Alloys for Thermal Energy Storage Systems: A Corrosion Study. Accepted Journal of Materials Engineering and Performances. ASM International.
5. Rengan Sandeep, Bala Murali Natarajan, Prem Kumar, Bibin Jose, **M Manikandan**, N Arivazhagan. Influence of welding environment on joint characteristics of friction stir lap welded AA 7475-Polymer hybrid Joints.” Materials Letters. 2023, 134781.
6. B Anandan, **M Manikandan**. Effect of welding speeds on the metallurgical and mechanical property characterization of friction stir welding between dissimilar aerospace grade 7050 T7651-2014A T6 aluminium alloys. Materials Today Communications. Materials Today Communications 35 (2023) 106246.
7. N Balamurali, **M Manikandan**. Assessment of dissimilar joining between Metal and Polymer Hybrid Structure with different joining processes" Journal of Thermoplastic Composite Materials. 2023, Vol 36 (5) 2169-2211.
8. M D Barath Kumar, **M Manikandan**. Effect of Continuous and Pulsed Current Techniques on Wire-Arc Additive Manufacturing of a Nickel-Based Superalloy. Materials Letter. 338 (2023) 134080.
9. Prem Kumar M, **M Manikandan**. Investigation of Corrosion behaviour on Ni-Cr-Co and Ni-Cr-Mo alloys exposed to molten salt for thermal energy storage applications. Corrosion Engineering Science and Technology.58(1), 2023, 49-60.
10. M Natesh, Senthil Kumaran Selvaraj, N Arivazhagan, **M Manikandan**, Szymon Tofil, Norbert Radek, Yash Mistry, Muthu S M. Effect of Silicon Segregation in the Argon Arc Welded Incoloy 20 Superalloy. Silicon. 15, pages365–379 (2023)
11. Bibin Jose, **M. Manikandan**, N. Arivazhagan, Nageswara Rao Muktinutalapati, G. Madhusudhan Reddy. Development of a novel welding technique with reduced heat input by employing Double-pulsed gas metal arc welding for Aerospace grade 18% Ni Maraging steel. Journal of Manufacturing Science and Engineering. FEBRUARY 2023, Vol.145 / 021002-1
12. Bibin Jose, **M. Manikandan**, N. Arivazhagan, Nageswara Rao Muktinutalapati, G. Madhusudhan Reddy, Suresh D. Meshram. Current Research and Developments in Welding of 18% Nickel Maraging Steel. Part L: Journal of Materials: Design and Applications.
13. Prem Kumar M, **M Manikandan**. Effect of Sodium sulfate-diatomite eutectic mixture functionalised on Inconel 617 and 625 alloys surface a comparative study. Part C: Journal of Mechanical Engineering Science. 2023, Vol. 237(15) 3527–3541
14. Renangi Sandeep, Bala Murali N, Kamlesh Kumar S, Adarsh SJ, **Manikandan Manoharan**, Arivazhagan Natarajan. Strategies to improve joint strength of friction lap welded AA7475/PPS hybrid joint with surface pre-treatment on AA7475. Materials Letters. 333 (2023)133561.
15. Prem Kumar M, **M Manikandan**. Insights into the surface behaviour of Inconel 617 and Inconel 625 material in molten salt. Materials Letters. 33 (2023) 133679.
16. B Anandan, **M Manikandan**. Machine learning approach with various regression models for predicting the ultimate tensile strength of the Friction stir welded AA 2050-T8 joints by the K-Fold Cross-Validation method. Materials Today Communications. 34 (2023) 105286.

**2022**

1. S. Prakash, S. Jerome, M. Sathishkumar, **M. Manikandan**. Comparative Studies on Normal and Pulsed Cold Metal Transfer Welding of Aerospace Grade Aluminium Alloy 2024. Materials Performance and Characterization. ASTM International, 2022, 11 (2). 249-263
2. Utkarsh Chadha, Senthil Kumaran Selvaraj, S. Vishak Thanu, Vishnu Cholapadath, Ashesh Mathew Abraham, Mohammed Zaiyan, **M Manikandan** and Velmurugan Paramasivam. A review of the function of using carbon nanomaterials in membrane filtration for contaminant removal from wastewater. Materials Research Express.9(2022) 012003
3. P Subramani, M Sathishkumar, **M Manikandan**, S Senthil Kumaran, V Sreenivasulu, N Arivazhagan, S Rajkumar. Performance of Air Plasma Sprayed Cr3C2-25NiCr and NiCrMoNb coated X8CrNiMoVNb16-13 Alloy Subjected to High Temperature Corrosion Environment. Materials Research Express. 9 (2022) 016520
4. M D Barath Kumar, **M Manikandan.** Evaluation of microstructure, residual stress, and mechanical properties in different planes of wire + arc additive manufactured nickel-based superalloy. Metals and Materials International. 2022, 28(12), pp. 3033–3056.
5. Senthil Kumaran Selvaraj, Shubham Kumar Prasad, Sayyed Yassir Yasin, Ulavala Sowri Subhash, Pakalapati Saketh Verma, **M Manikandan**, S Jithin Dev. Additive Manufacturing of Dental Material Parts via Laser Melting Deposition: A Review, Technical Issues, and Future Research Directions. Journal of Manufacturing Processes 76 (2022) 67–78.
6. M Sathishkumar, **M Manikandan**, N Arivazhagan, B Arulmurugan, Senthil Kumaran Selvaraj, M Vignesh, S Rajakumar, S Rajkumar. Hot Corrosion Behaviour of Constant and Pulsed Current Welded Hastelloy X in Na2SO4, V2O5, and NaCl Salt Mixture at 900 °C. Materials Research Express. 9(2022) 020008.
7. Utkarsh Chadha, Preetam Bhardwaj, Senthil Kumaran Selvaraj, Kanak Kumari, Tassella Susanna Isaac, Mahek Panjwani, Kunal Kulkarni, Rhea Mary Mathew, Ashly Mariam Satheesh, Anushka Pal, Neha Gunreddy, Omika Dubey, Shalu Singh, Srinivasan Latha, Arghya Chakravorty, Badrish Badoni, Murali Banavoth, Prashant Sonar, **Manikandan Manoharan**, Velmurugan Paramasivam. Advances in chitosan biopolymer composite materials: from bioengineering, wastewater treatment to agricultural applications. Materials Research Express. Mater. Res. Express 9 (2022) 052002
8. Amogh Gyaneshwar, Senthil Kumaran Selvaraj, Turusha Ghimire, Saumya Jayanti Mishra, Shaily Gupta, Utkarsh Chadha, **Manikandan Manoharan**, Velmurugan Paramasivam. A Survey of Applications of MFC and Recent Progress of Artificial Intelligence and Machine Learning Techniques and Applications, with competing fuel cells. Eng. Res. Express 4 (2022) 022001.
9. P Subramani, N Arivazhagan, Senthil Kumaran Selvaraj, Simone Mancin, **M Manikandan**. Influence of hot corrosion on pulsed current gas tungsten arc weldment of aerospace-grade 80A alloy exposed to high temperature aggressive environment. International Journal of Thermofluids. 14, 2022, 100148.
10. N. Muthukumaran, G Kathiresan , M.N. Shree Raam , G. Chandru , S. Dineshkumar , K. Chiranjeevi, S. Rajkumar , **M. Manikandan** , B. Arulmurugan. Comparative studies on weldability and mechanical characteristics of semi-killed steel using different arc welding techniques. Materials Today Proceedings. 62, 2022, 5471-5476.
11. G. Ranjith Kumar, M. Sathishkumar , M. Vignesh, **M. Manikandan** , G. Rajyalakshmi ,R. Ramanujam, N. Arivazhagan. Metal Additive Manufacturing of Commercial Aerospace Components – A Comprehensive Review. Journal of Process Mechanical Engineering. 2023, 237(2), pp. 441–454.
12. Arunprakash R, **Manikandan. M**, Suresh D. Meshram. Development of Multipass Gas Tungsten Arc Welding Technique for Aerospace Grade 18% Ni-Co-Mo based Maraging steel to Improve the Metallurgical and Mechanical Properties by reducing Austenite pools. Journal of Manufacturing Science and Engineering. NOVEMBER 2022, Vol. 144 / 111004-1
13. V Sreenivasulu, P Subramani, V Jayakumar, K Mageshkumar, N Arivazhagan, **M Manikandan**, Szymon Tofil and M Sathishkumar. Development of Protective Coating for X8CrNiMoVNb16-13 Alloy in High-Temperature Molten Salt Environment through HVOF Sprayed NiCrMoNb and Cr3C2-25NiCr Powder Coating. Accepted. Journal of Process Mechanical Engineering.
14. Tofil Szymon, N Arivazhagan, **M Manikandan**. Surface Laser Micropatterning of Polyethylene Terephthalate (PET) to Increase the Shearing Strength of Adhesive Joints. Materials Research Proceedings 24 (2022) 27-33.
15. B Anandan, **M Manikandan**. Machine Learning approach for predicting the peak temperature of dissimilar AA7050-AA2014A Friction stir welding butt joint using various regression models. Materials Letters. 325 (15), 2022, 132879
16. Bibin Jose; **Manikandan Manoharan**; Arivazhagan Natarajan; Nageswara Rao Muktinutalapati; G. Madhusudhan Reddy. Development of a common heat-input welding technique for joining thick plates of 250-grade maraging steel to fabricate rocket motor casings. Materials Letters 326 (2022) 132984.
17. N Balamurali, **M Manikandan**. Influence of cooling conditions on tensile lap shear strength and microstructure of friction stir welded Aluminium alloy 5052-H32 and Polycarbonate lightweight hybrid joint. Journal of Manufacturing Processes 82 (2022) 390–402.

**2021**

1. M D Barath Kumar, **M Manikandan**. An Assessment of Process, Parameters, Residual Stress Mitigation, Post Treatments and Finite Element Analysis Simulations of Wire Arc Additive Manufacturing Technique. Metals and Materials International, 2022, 28(1), pp. 54–111.
2. Renangi Sandeep , Jeevanantham A K , **Manikandan M** , Arivazhagan N, Szymon Tofil. Multi-Performance Optimization in Friction Stirs Welding of AA6082/B4C using Genetic algorithm and Desirability function approach for aircraft wing structures. Journal of Materials Engineering and Performance. 30, pages 5845–5857 (2021)
3. B Arulmurugan, D Balaji, S Rajkumar, M Kamaraj, V Mageshwaran, M Sathishkumar, **M Manikandan**, N Arivazhagan. Influence of filler wire and welding process to mitigate the microsegregation of alloy C-2000 using continuous and pulsed current gas tungsten arc welding techniques. Journal of Materials Engineering and Performance. 30, pages 6050–6067 (2021)
4. Anivesh Chintala, M. Tejaswi Kumar, M. Sathishkumar , N. Arivazhagan , **M. Manikandan**. Technology Development for Producing Inconel 625 in Aerospace Application using Wire Arc Additive Manufacturing Process. Journal of Materials Engineering and Performance. (2021) 30:5333–5341
5. M. Vignesh, G. Ranjith Kumar, M. Sathishkumar, **M. Manikandan** , G. Rajyalakshmi , R. Ramanujam , N. Arivazhagan. Development of Biomedical Implants through Additive Manufacturing – A Review" Journal of Materials Engineering and Performance. 30, pages 4735–4744 (2021)
6. B. Arulmurugan, M. Sathishkumar, D. Balaji , K. Muralikrishnan, S. Pranesh , V. Praveen , K. Praveen Kumar , N. Arivazhagan , **M. Manikandan**. Development of Arc Welding Technique to Preclude Microsegregation in the Dissimilar Joint of Alloy C-2000 and C-276. Journal of Process Mechanical Engineering. Volume: 235 issue: 5, page(s): 1408-1419
7. M. Sathishkumar, Yash Jitendra Bhakat, K. Gokulkumar, R. Oyyaravelu, N Arivazhagan, S. Giribaskar, **M. Manikandan**. Investigation of Double Pulsed Gas Metal Arc Welding (DP-GMAW) Technique to Preclude Carbide Precipitates in Aerospace Grade Hastelloy X. Journal of Materials Engineering and Performance, 30, pages 661–684 (2021). ASM International.
8. M. Sathishkumar, **M. Manikandan**, N Arivazhagan. Prospects of pulsed current arc welding on Aerospace grade Hastelloy X. Journal of Process Mechanical Engineering. 253(4), 2021, 1059-1072.
9. Mohan Cigurupadi Ganesan, Arulmurugan Balasubramanian, Subramani Pasupathi, Sathishkumar Mathiyazhagan, Rajamurugan Govindasamy, Arivazhagan Natarajan, **Manikandan Manoharan**. Influence of overalloyed filler wire to preclude the microsegregation in weld joint of Alloy C-276. Journal of Chemical Technology and Metallurgy.56,4, 2021, 853-856.
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**2012**

1. Arivazhagan, Devendranath Ramkumar K, Karthikeyan S, **Manikandan M**, Narayanan S, and Surendra S. N, “A Comparative Study of Oxidation and Hot Corrosion of Electron Beam Welded Low Alloy Steel and Stainless Steel in Different Corrosive Environments”, Communications in computer and Information Science (Springer) CCIS 330, pp. 436-441,2012
2. Arivazhagan, Devendranath Ramkumar K, Karthikeyan S, **Manikandan M**, Narayanan S, and Surendra S. N, “Hot Corrosion Studies on Gas Tungsten Arc Welded AISI 304 and AISI 4140 Dissimilar Joints”, Communications in Computer and Information Science (Springer) CCIS 330, pp.442-449,2012.

**Editorial Board Member**

1. Associate Editor – Heliyon Material Science - Elsevier
2. Academic Editor – International Journal of Corrosion – Hindawi
3. Guest Editor - Metallic Materials and Manufacturing Process for Strategic Application, Metals, MDPI Publisher.

**International Visit**

1. Kielce University of Technology, Kielce, Poland. Visited between 6-10th June 2022, under Erasmus +
2. International conference at National University Singapore at Singapore – June 2014.
3. International conference at Monash University in Malaysia – December 2012.

**International Conference**

# Participated and presented a paper entitled “Hot Corrosion Studies on Gas Tungsten Arc Welded AISI 304 and AISI 4140 Dissimilar Joints” – IRAM 2012 Conference, Monash University, Malaysia on 28th -30th November 2012 Kuala Lumpur.

1. Participated and presented a paper entitled“A Comparative Study of Oxidation and Hot Corrosion of Electron Beam Welded Low Alloy Steel and Stainless Steel in Different Corrosive Environments” – IRAM 2012 Conference, Monash University, Malaysia on 28th -30th November 2012 Kuala Lumpur.
2. Participated and presented a paper entitled“Friction stir welded Butt joints of AA 2024 T3 and AA7075 T6 Aluminium alloy” – ICMAT 2013 Conference, Materials Research Society, Singapore on 30th June –5th July 2013.
3. Participated and presented a paper entitled“Investigation on Mechanical and Metallurgical Properties of Dissimilar Continuous GTA welds of Monel 400 and C-276” – ICMAT 2013 Conference, Materials Research Society, Singapore on 30th June –5th July 2013.
4. Participated and presented a paper entitled“Investigation of Microstructure and Mechanical Properties of Super Alloy C-276 by Continuous Nd: YAG laser Welding” – ICAMME 2014 Conference, National Institute of Technology Suratkal on 27th –29th March 2014.
5. Participated and presented a paper entitled“Characterization of Metallurgical and Mechanical Properties of Commercially Pure Copper and AISI 304 Dissimilar Weldments” – ICAMME 2014 Conference, National Institute of Technology Suratkal on 27th –29th March 2014.
6. Participated and presented a paper entitled“Optimization of the Pulsed Current Gas Tungsten Arc Welding Process Parameters for alloy C-276 using the Taguchi Method” – GCMM 2014 Conference, Vellore Institute of Technology on 8th –10th December 2014.
7. Participated and presented a paper entitled“Micro-segregation studies on the Continuous Nd: YAG Laser Beam Welded AISI 316L” – GCMM 2014 Conference, Vellore Institute of Technology on 8th –10th December 2014.
8. Participated and presented a paper entitled“Micro-segregation studies on the ATIG Welding of Alloy C-276” – CWS 2015 Conference, Coimbatore Institute of Technology on 5th –7th August 2015
9. Participated and presented a paper entitled“A study of thermomechanical properties of PCGTA wedding of Ni-based super alloy 686” - TAMMIE 2016 Conference, KPR Institute of Technology and Technology on 3rd & 4th March 2016.
10. Participated and presented a paper entitled“Investigation on Metallurgical and Mechanical Properties of Alloy 686 Fabricate by Gas Tungsten Arc Welding” - TAMMIE 2016, KPR Institute of Technology and Technology on 3rd & 4th March 2016.
11. Participated and presented a paper entitled“Investigation on Microsegregation and Mechanical Properties of Alloy 686 Fabricate by Current Pulsing” - TAMMIE 2016 Conference, KPR Institute of Technology and Technology on 3rd & 4th March 2016.
12. Participated and presented a paper entitled“Investigation on Metallurgical and Mechanical Properties of Alloy 686 Fabricated by Gas Pulsed Current Gas Tungsten Arc Welding using ERNiCrMo-10” - TAMMIE 2016 Conference, KPR Institute of Technology and Technology on 3rd & 4th March 2016
13. Participated and presented a paper entitled“Improvement of Microstructure, Weldability and Mechanical Behavior of Gas Tungsten Arc Weldments of Alloy C-276 by Switching to Current Pulsing Mode” - TAMMIE 2016 Conference, KPR Institute of Technology and Technology on 3rd & 4th March 2016
14. Participated and presented a paper entitled“High Temperature Corrosion Studies on Pulsed Current Gas Tungsten Arc Welded Alloy C-276 in Molten Salt Environment” - IconAmma 2016 Conference Amritha University, Bangalore on 14-16th July 2016.
15. Participated and presented a paper entitled “Effect of Post Weld Heat Treated Alloy C-276 Fabricated by Current Pulsing Technique ‘’ – GCASTM 2017 Conference at VIT University, Vellore, on 08-11th Jan 2017
16. Participated and presented a paper entitled “Investigations on the Microstructure, Microsegregation and Hardness Properties of Bead on Plasma Arc Welded C-276 Alloy ‘’ – GCASTM 2017 Conference at VIT University, Vellore on 08-11th Jan 2017
17. Participated and presented a paper entitled “Investigation on Microstructure and Mechanical Properties of Continuous and Pulsed Current Gas Tungsten Arc Welded Alloy 600 ‘’ – GCASTM 2017 Conference at VIT University, Vellore on 08-11th Jan 2017.
18. Participated and presented a paper entitled “Analysis of Metallurgical and Mechanical Properties of Continuous and Pulsed Current Gas Tungsten Arc Welded Alloy C-276 with Duplex Stainless Steel ‘’ – IMME 2017 Conference at NIT Trichy on 10-12 March 2017.
19. Participated and presented a paper entitled “Comparative studies on Metallurgical and Mechanical properties of bimetallic combination on Incoloy 800 and AISI 316L fabricated by Gas Metal and Shield Metal Arc Welding” – IMME 2017 Conference at NIT Trichy on 10-12 March 2017.
20. Participated and presented a paper entitled “Investigation on Microstructure, Microsegregation and Mechanical Properties of ATIG welded Alloy C-276 ” – IMME 2017 Conference at NIT Trichy on 10-12 March 2017.
21. Participated and presented a paper entitled “Influence of Overalloyed fillerwire to preclude the microsegregation in the weld joint of alloy C-276” – ICAMPS 2018 Conference at Indian Institute of Metals Trivananthapuram between 25-27 October 2018.
22. Participated and presented a paper entitled “Investigation on microstructure and mechanical properties of corrosion resistance alloy C-2000 fabricated by conventional arc welding technique” – ICAMPS 2018 Conference at Indian Institute of Metals Trivananthapuram between 25-27 October 2018
23. Participated and presented a paper entitled “Hot Corrosion studies on Detonation-gun sprayed NiCrAlY and 80Ni-20Cr coatings on alloy X22CrMoV12-1 at 600 oC” – ICAMPS 2018 Conference at Indian Institute of Metals Trivananthapuram between 25-27 October 2018
24. Participated and presented a paper entitled “Effect of Laser Shock Peening on Commercial Pure Titanium-1 weldment fabricated by Gas Tungsten Arc welding technique” – ICAMPS 2018 Conference at Indian Institute of Metals Trivananthapuram between 25-27 October 2018
25. Participated and presented a paper entitled “Investigation of Metallurgical, Mechanical properties of hastelloy X by plasma keyhole arc welding” – ICAMPS 2018 Conference at Indian Institute of Metals Trivananthapuram between 25-27 October 2018
26. Participated and presented a paper entitled “Hot Corrosion Demeanor of Alloy 80A Weldments Fabricated through Tungsten Inert Gas Welding Technique ” – ICAMPS 2018 Conference at Indian Institute of Metals Trivananthapuram between 25-27 October 2018
27. Participated and presented a paper entitled “Behaviour of Alloy 80A Weldments in Hot Corrosion Environment at 900 oC” – ADMAT 2019, Hyderabad, between 23-25 September 2019.

**Most Important Works in which I was Personally Responsible and Substantive Achievements in Areas Related to Research & Development and Teaching at VIT.**

* Member Internal Academic and Administrative Audit (AAA
* Delivering the lecture to the students.
* Establish research collaboration between national laboratories like DMRL, GTRE, CVRDE, NML, ISRO, NLC, ARCI etc.
* Establishing the industry connection.
* Establish research collaboration with various international universities in Asia, Europe etc.
* Recruitment of a Junior Research Fellow for the funded project.
* Handling and successful completion of projects funded by various agencies.
* Establish the lab infrastructure for research and teaching purpose.
* Procurement of materials for research purposes.
* Preparation of technical reports and project documents, and proposals for various funding agencies
* Training the manpower in UG, PG and PhD levels in the futuristic technology.
* Conducting International workshops and conferences in the emerging area.
* Prepared Mechanical Engineering curriculum and syllabus for the B.Tech Construction Technology (for L&T engineers)

**National Conference**

1. Attended two day National conference on Advanced Ultrasuper Critical Power plant Conducted by BHEL (R&D)- Hyderabad between 30 & 31st October 2019
2. Presented a Paper at the National conference ACME 2010 on Dynamic Analysis of Composite Laminates held at Erode Sengunthar Engineering College-Erode.
3. Presented a Paper at the National Conference on NCME 2011 on Mistuning Simulation on ND0 Turbine wheel Blades held at Sona College of Technology-Salem.

**Online Teaching Tools**

1. Schoology

2. Easy Class

3. Team viewer

4. Google form

5. Microsoft Team

6. Cisco Webx

7. Zoom

**National Workshop & FDP**

1. The two-day Workshop on Welding Technology and Non-Destructive Testing was conducted by Coimbatore Institute of Technology, Coimbatore, jointly with the Indian Welding Society, Coimbatore Centre, on the 17th & 18th of August 2012.
2. Attended a two-day National workshop on “Welding Research Today: Challenges & Opportunities “ at the Indian Institute of Technology Madras in association with The Indian Institute of Welding Chennai chapter on 23rd &24th November 2012.
3. Attended the certificate course on “Materials Characterization conducted at the Indian Institute of Technology Madras in association with The Indian Institute of Welding Chennai chapter on 16th -19th December 2013.
4. Attended a one-day National Workshop on “Emerging Application of Laser Technology in Manufacturing” conducted at VIT University, Vellore, in association with Optilase Techniques India Pvt. Ltd Chennai on 13th February 2014.
5. Attended a one-day National workshop on “Recent Advances in Welding Technology” conducted at Kingston Engineering College, Vellore, on 20th February 2015
6. Attended two days National Symposium on “Combating Corrosion” held at VIT University Chennai in association with the Indian Institute of Metal Chennai chapter on 3rd and 4th March 2015.
7. Attended a one-day National Workshop on “Welding Technology” at KPRIET, Coimbatore, on 19th September 2015.
8. Attended one day workshop on “Challenges in Joining Advanced Materials” conducted by the Indian Institute of Welding Hyderabad chapter on 26th May 2017 at

NFC Hyderabad

9. Attended one day workshop on “Robotic Welding at its applications” Conducted by PSG College of Technology, Coimbatore, on 7th October 2017.

**Events Organized**

* Organised three days Indo – German Bilateral Workshop on Similar/Dissimilar

materials welding on Automotive and Aerospace sectors, Sponsored by IGSTC

worth 22.35 Lakhs between 22-24 September 2022 at VIT Vellore, in

collaboration with FZ Julich Germany.

* They are organiz two days Indo – German Bilateral Workshop on “Special steels and superalloys for advanced thermal, concentrating solar power and heat storage plants” Sponsored by IGSTC worth 0.25 Lakhs between 23-24 May 2020 at VIT Vellore, in collaboration with FZ Julich Germany.
* Organized a One-day Seminar on “ Fundamentals of Manuscript Preparation”on 19th October 2019 at Vellore Institute of Technology, Vellore Campus
* Member of Organized team on 4 days International Conference on

Advancements in Science, Technology and Management associated with

Harvard Medical School, MGH, USA, 8-11th January 2017.

* Organised one day National Level Workshop on Emerging Trends in

Welding Technology” at VIT University on 20th August 2016.

* Organised one day National Workshop on Welding Technology at KPR

Institute of Engineering and Technology on 19th September 2015.

* Organised a one-day series of Guest Lectures to Mechanical Engineering

students of KPRIET Students.

* Organised two days International Conference on Technological Advancements in Materials and Manufacturing for Industrial Environment in association with Mokpo National University, South Korea, on 5th & 6th March 2016.

**Invited Talk**

* Delivered Invited Talk at World Congress on Microscopy (International Conference) Microsegregation studies on PCGTA welding alloy C-276, Mahatma Gandhi University, Kottayam, Kerala, during 9-11 October 2015.
* Delivered an Invited talk on “ Advances in Welding Technology” at Mahendra

Institute of Technology, Namakkal on 03.10.2018

* Delivered an Invited talk on “ Advances in Welding Technology” T.P.E.V.R

Govt. Polytechnic College, Vellore, on 08.03.2019

* Deliver a talk on Webinar “Tips and Tricks for Welding” on 15th April 2020 at Sri Krishna College of Engineering and Technology, Coimbatore.
* Deliver a talk on Webinar “Advances in Welding Techniques” on 29th April 2020 at Excel Engineering College, Komarapalayam – Erode.
* Deliver a talk on the Webinar “Welding of Aerospace Materials” on 13th May 2020 at Karpagam College of Engineering, Coimbatore.
* Deliver a talk on the “Advanced Welding Technology” webinar on 30th May 2020 at SNS College of Technology, Coimbatore.
* Deliver a talk on the Webinar “Welding of Nickel Based Superalloys” on 13th

June 2020 at ESEA College of Engineering and Technology, Coimbatore.

* Deliver a talk on the Webinar “Welding of Nickel Based Superalloy in Power

Plant. Sectors” on 27th June 2020 at Ganadipathy Tulsi’s Jain Engineering

College,Vellore.

* Deliver a talk on the Webinar “Welding of Nickel Based Superalloys: Scope

and Challenges” on 20th June 2020 at KPR Institute of Engineering and Technology, Coimbatore.

* Deliver a talk on Webinar “Advanced Welding Techniques” on 12th October

2020 at PA College of Engineering and Technology, Pollachi, Coimbatore.

* Deliver a talk at AICTE Sponsored online STTP “Wire + Arc Additive

Manufacturing” on 18th December 2020 at Erode Sengunthar Engineering

College, Perundurai, Erode.

* Deliver a talk on Webinar “Welding Technique Used for Nickel based

superalloys” on 14th May 2021 at Muthoot Institute of Technology & Science,

Varikoli, Kerala.

* Deliver a talk on Webinar “Superalloys” on 12th August 2021 at ESEA College

of Engineering and Technology, Coimbatore.

* Deliver a talk on the Webinar “Welding of Superalloys in Aerospace

Application.” On 2nd August 2021 at Karpagam College of Engineering,

Coimbatore.

* Deliver a seminar talk, “An overview about the project funding”, on 27th December 2021 at KPR Institute of Engineering and Technology, Coimbatore.

**Editorial Experience**

* Reviewer, Materials Today Communications, Elsevier
* Reviewer, Journal of Materials Engineering and Performance
* Reviewer, Heliyon, Material Science, Elsevier.
* Reviewer, Journal of Manufacturing Science and Engineering, ASME
* Reviewer, Journal of Manufacturing Processes - Elsevier
* Reviewer, Journal of the Mechanical Behavior of Materials, DE GRUYTER
* Reviewer, Journal of Optics & Laser
* Reviewer, Materials Research Express, IOP Publishers
* Reviewer, John Wiley
* Reviewer, Materials Characterization - Elsevier
* Reviewer, Transactions of Indian Institute of Metals – Springer
* Reviewer, Journal of Material Science – Springer
* Reviewer, Journal of Engineering Manufacture - Sage
* Reviewer, Transactions of Nonferrous Society of China, Elsevier
* Reviewer, Materials Performance & Characterization, ASTM International – Springer,
* Reviewer, Journal of Thermal Spray Technology, ASM International, Springer.
* Reviewer, Ciência & Tecnologia dos Materiais (Science and Technology of Materials)- Elsevier
* Reviewer, Journal of Process Mechanical Engineering - Sage
* Reviewer, Material Science and Engineering B – Elsevier
* Reviewer, Corrosion Science – Corrosion Science – Elsevier Publication.
* Reviewer, Laser in Engineering – UK
* Reviewer, Journal of Materials and Environmental Science –Morocco
* Reviewer, Indian Journal of Engineering & Materials Sciences ***–*** *India*
* Reviewer, Materials Research Innovations – Maney Publisher – the USA.
* Reviewer, Materials Science and Engineering – Trans Tech Publications–

Switzerland.

* Reviewer, MDPI Journals, Switzerland.

**Membership in Professional Bodies**

* Indian Welding Society (Life Member L01644)
* Indian Society for Technical Education (Life Member 106719)
* Indian Institute of Metals

**Administrative Experience**

* Capstone Project Coordinator at VIT
* Digital Pad – Internal Exam Coordinator at VIT
* Head R&D, Department of Mechanical Engineering at KPRIET
* Chief Mentor for Final year (2015-16)
* Institute / Department NAAC Coordinator
* IQAC Member

**References**

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**The above-given information is true to the best of my knowledge.**

**Place: 10.08.2024**

**Date:** Vellore [MANIKANDAN.M]