

## RESUME

***Dr. N. Siva Shanmugam***  
Department of Mechanical Engineering  
National Institute of Technology Tiruchirappalli  
Tiruchirappalli – 620 015.  
Tamil Nadu, INDIA.



**ACADEMIC RANK:** Associate Professor

### EDUCATION

Ph.D., Mechanical Engineering (FE simulation of laser beam welding), National Institute of Technology, Tiruchirappalli (2012)

M.E., CAD/CAM (First class with Distinction), MEPCO Schlenk Engineering College, Anna University, Chennai (2004)

B.E., Mechanical Engineering (First class with Distinction), J.J. College of Engineering & Technology, Bharathidasan University, Tiruchirappalli (2002)

### PROFESSIONAL EXPERIENCE

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- 03/18 – Pres. Associate Professor of Mechanical Engineering, National Institute of Technology, Tiruchirappalli. Teaching in undergraduate and graduate programs. Supervising Ph.D., M.S. and M.Tech. students.
- 11/08 – 02/18. Assistant Professor of Mechanical Engineering, National Institute of Technology, Tiruchirappalli. Teaching in undergraduate and graduate programs (Thermal Power Engineering and Industrial Safety Engineering). Supervising M.S. and M.Tech. students. Pursuit of Research Interest.
- 05/07 – 10/08 Research Associate under DST funded project “Process Modeling and Online Monitoring of Laser Beam welding” Department of Mechanical Engineering, National Institute of Technology, Tiruchirappalli. Performed Research in Laser Materials Processing.
- 08/06 – 04/07 Full Time Ph.D Research Scholar in Department of Mechanical Engineering, National Institute of Technology, Tiruchirappalli. Performed Research in Laser welding of stainless-steel sheets
- 07/04 – 07/06 Lecturer in Department of M.E. CAD/CAM, J.J. College of Engineering & Technology, Tiruchirappalli. Teaching in undergraduate and graduate program (CAD/CAM).
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## FUNDED RESEARCH: MAJOR COMPLETED PROJECTS

1. Sponsoring Authority: ATS CHEM Equipments Pvt. Ltd., Namakkal (Subcontractor of The Kerala Minerals and Metals Limited, Kerala)  
Title of Project: “Design of Bipod, Quadrapod and Retort Repairing Stand”  
Duration: 2009 (1 Month)  
**Total Project Outlay: Rs. 20,000**
2. Sponsoring Authority: BHEL, Trichy  
Title of Project: “Support System for CFBC FBHE Coils and Back Pass Surfaces on CFBC boilers”  
Duration: September 2009 – May 2011 (2 years)  
**Total Project Outlay: Rs. 9,00,000**
3. Sponsoring Authority: BHEL, Trichy  
Title of Project: “Distribution of Load Transfer Pattern and Stress Distribution with Large openings in the furnace walls of CFBC boilers”  
Duration: 2010 - 2011 (1 year)  
**Total Project Outlay: Rs. 7,50,000**
4. Sponsoring Authority: BHEL, Trichy  
Title of Project: “Study of Operational issues of drag link feeder in existing CFBC boilers and issuing guidelines for improvement”  
Duration: 2010 – 2011 (1 year)  
**Total Project Outlay: Rs. 16,00,000**
5. Sponsoring Authority: NLC, Neyveli  
Title of Project: “Failure analysis of High-pressure feed water heaters of TPS I Expansion”  
Duration: 2012 (2 Months)  
**Total Project Outlay: Rs. 5,34,000**
6. Sponsoring Authority: BHEL, Trichy  
Title of Project: “Stress analysis of the existing pipe loop including test section, design and suggest improved long lasting pipe joint options for Supercritical Boiler Test Facility”  
Duration: 2012 (6 Months)  
**Total Project Outlay: Rs. 9,04,000**
7. Sponsoring Authority: BHEL, Trichy  
Title of Project: “Comparative study and analysis of FBHE coil support arrangement for NLC and Becl 250MW CFBC boiler”  
Duration: 2012 - 2013 (1 Year)  
**Total Project Outlay: Rs. 20,34,000**
8. Sponsoring Authority: SERB, DST, New Delhi  
Title of Project: “Experimental Investigations and Finite Element Simulation of Laser welding of Titanium sheets for Airframe structures”  
Duration: 2013 – 2015 (2 Years)  
**Total Project Outlay: Rs. 26,00,000**

9. Sponsoring Authority: RESPOND, ISRO-VSSC, Trivandrum  
Title of Project: Design, Analysis and Development of Metallic liners for Spherical Gas Bottle for Aerospace Applications  
Duration: 2017 – 2019 (2 Years)  
**Total Project Outlay: Rs. 25,80,000**

## **ONGOING PROJECTS**

1. Sponsoring Authority: TARE, SERB, DST  
Title of Project: Wire - arc additive manufacturing of Hastelloy C 276 for chemical and pressure vessel applications (ongoing)  
Duration: 2022 – 2024 (3 Years)  
**Total Project Outlay: Rs. 18,30,000**

## **PATENT**

1. **Invention Title:** A CUTTING TOOL WITH HARDFACED STELLITE  
**Filed on:** 08.08.2023  
**Application No.:** 202341053143

## **PRINCIPAL RESEARCH AND TEACHING AREAS OF INTEREST**

Finite Element Analysis	Machine Design and CAD
Strength of Materials	Welding – Laser, Friction, Resistance, TIG
Tribology (Friction studies)	Biomechanics
Industrial Safety Engineering	Wire Arc Additive Manufacturing (WAAM)
Ergonomics Study	Failure and stress analysis

## **TEACHING ACTIVITIES**

### **A. Courses Taught**

#### **I. Under Graduate Level**

- Strength of Materials
- Finite Element Method
- Engineering Graphics
- Basics of Mechanical Engineering
- Machine Drawing
- Computer aided design
- Non-Destructive Technology
- Welding Technology
- Machine Design

## II. Graduate Level

- Mechanical Vibrations
- Product Design and Development Strategies
- Computer Integrated Design
- Finite Element Analysis in Heat Transfer Analysis
- Safety in Engineering Industry
- Safety in Material Handling

### B. Curriculum Developed

M.Tech. Engineering Design – NITT

### C. Graduate Student Supervision

#### I. M. Tech. Thesis Directed

- Prashik Bandu Nimgade - *Study of Thermo-Mechanical Analysis on austenitic stainless steel of grade 321 in Tungsten inert gas welding process*
- Gunaganti Akhil - *Prediction of weld pool geometry of AA 6061-T6 using cold metal transfer welding*
- K Natarajan - *Postural analysis of musculoskeletal disorder risk in steel column erection*
- Bonda Sivateja - *Study on factors affecting productivity and finding the empirical method to estimate productivity in a given site conditions*
- Vegi Durga Prasad - *Bleve projectile trajectory analysis of a propane cylindrical tank the herring brothers farm accident*
- K Natarajan - *Ergonomic Assessment of Work-Related Musculoskeletal Disorder Risks in Steel Column Erection*
- Vegi Durga Prasad - *Fragment Analysis of Breve of a Propane Cylindrical Tank the Herring Brothers Farm Accident*
- M Arun Kumar - *Numerical Prediction of Temperature Distribution and Residual Stresses on Arc Welded AISI 304l and Ti6Al4V Alloys*
- M Ramanatha Reddy - *Experimental Analysis of GAIT Disorder with Reference to Impact Load Frequency of Work and Carrying Technique*
- Mimanshu Sharma - *Risk Identification and Mitigation Methods in Procurement of Specialized Packages Phase II*
- Sameer Dongre - *Numerical Simulation of Double-Sided Gas Tungsten Arc Welding of Austenitic Stainless-Steel Grade 321 Material*
- Thakare Parasram Rameshwar - *Thermomechanical Analysis of Friction Stir Welding of Aluminium Alloy 6061 Phase II*
- Bonda Sivateja - *Study on factors affecting productivity and finding the empirical method to estimate productivity in a given site conditions*
- Baban Kumar - *Quantitative Risk Analysis Framework for HCI Projects*

- *Aravind P – Experimental Validation of Thermal Stresses Developed During Deposition of Inconel 625 Using GMAW Based WAAM Process Over Mild Steel*
- *Rajkumar K S - Investigation of Temperature Distribution During Deposition of ER321 Wires Using GMAW Based WAAM Process Over Mild Steel Substrate*
- *Monish Kaushik- Experimental Analysis of Gait Disorder and Reduced Fall Risk in Water Purification Industry*
- *Sameer Dongre - Numerical Simulation of Gas Tungsten Arc Welding of Austenitic Stainless-Steel Grade 321 Material*
- *M Ramanatha Reddy - Experimental Analysis of GAIT With Reference to BMI Impact of Load Frequency of Work*
- *Mimanshu Sharma - Risk Identification and Mitigation Methods in Procurement of Specialized Packages Phase I*
- *Thakare Parasram Rameshwar - Thermomechanical Analysis of Friction Stir Welding of Aluminium Alloy 6061 Phase I*
- *K. S. Rajkumar - Numerical Simulation of Heat Transfer and Inter Pass Temperature During Wire Arc Additive Manufacturing WAAM of Stainless Steel 347 Plate*
- *Aravind P - FEM Simulation of Wire Arc Additive Manufacturing of Inconel 625 Based Components and Determination of the Associated Thermal Stresses*
- *Heins Lawrence - Friction measurement between sole material with grooves and floor material under contamination conditions*
- *Anil Alappat - Prediction of seat pressure distribution on human buttock-thigh using finite element simulation*
- *Hari Pattath - Discomfort study on displacement of the finger while operating computer keyboard*
- *A.V. Dileep - Risk assessment in seamless steel tube process using fuzzy and grey techniques*
- *D. Prakash - Stress analysis of the human foot and ankle for insole design: finite element approach*
- *M.Venugopal - Experimental study of convective heat transfer from air-fin coolers with water spray*
- *A.Ranadeer - Numerical investigation of heat transfer in dimple interrupted fin configuration*
- *Anil Alappat - Hazard identification risk assessment and risk control in cement industry with application of M.C.D.M. method*
- *Heins Lawrence - Effect of groove and temperature on measured coefficient of friction of foot wear pads*
- *Hari Pattath - Risk assessment with FMEA in LPG bullet and LPG fired continuous discharge furnace using fuzzy logic integrated grey method*
- *Ranadeer - Experimental study and simulation of enhanced heat transfer in novel structure under forced convection*
- *D. Prakash - Study of discomfort in knee during motorcycle riding and numerical simulation*
- *Sachin Y Yadhav - A study and analysis of safety barrier under Indian road condition*

- N. Raja - *Friction measurement on five commonly used floors in industries under wet and sand covered conditions*
- S. Mohanraj - *Assessment of surface slipperiness on commercial floor materials at dry condition*
- J. Jaise - *Evaluation of working posture and workplace design in computer and mouse operators*
- Nelson Davies Pallipuram - *Probabilistic studies on projectile effects of an explosion of the pressure vessels to minimize the domino effects*
- Georgekutty S. Mangalathu - *Decision making in risk assessment of producer gas plant & furnaces: an integrated approach with AHP/PROMETHEE & AHP/WEIGHT sum model*
- Ajay Kumar NB - *Coupled Foot Shoe Analysis for Landing Impact in Occupational Shoes*
- Anoop Vellacheri - *Seat cushion and soft tissue material modeling and a finite element investigation of pressure distribution between human buttock thigh and seat cushion*
- Amit Kumar Shukla - *Analysis of muscle force of thumb and finger with commonly used hand tools*
- Raju Nimmala - *Studies on industrial floor safety under variable sole and floor materials under spillage conditions*

## **II. M.S (by Research) Thesis – Completed**

- Nikhil – *Evaluation of temperature field, thermal deformation and stress characteristics in wing walls of CFBC boilers – Degree awarded – 2016*
- M. Arun Kumar – *Numerical prediction of temperature distribution and residual stresses on arc welded AISI 304L and Ti-6Al-4V alloys - Degree awarded – 2020*

## **III. Ph.D Thesis - Completed**

- A. Karpagaraj – *Experimental investigations on effects of process parameters on weld quality of automated GTAW in thin titanium sheets – Degree awarded - 2017*
- V. Dhinakaran – *Heat source modeling and Some Investigations on Plasma Arc Welding of thin Ti-6Al-4V sheets – Degree awarded – 2017*
- J. Anthuvan Stephen Edberk – *Experimental Analysis of laser welds for Commercially Pure titanium and Ti-6Al-4V Alloy Sheets - Degree awarded – 2020*
- B. Girinath – *Modelling and Experimental Analysis of Cold Metal transfer welding of AA5052 sheet metal (QIP) - Degree awarded – 2020*
- S. Mohan Kumar – *Activated Flux TIG Welding of AISI 321 Austenitic stainless Steel and Feasibility Analysis of Double-sided TIG weldments for Nuclear Applications - Degree awarded – 2020*
- K. Parthiban – *Microstructural impact on mechanical properties and finite element simulation for Charpy impact test of Spin Arc welded C1018 low carbon steel plate - Degree awarded – 2021 (Co – Supervisor)*

- R. Duraisamy - *Microstructure administered tensile, fatigue and wear behaviour on wire arc additive manufactured SS 347 plate* - **Degree awarded – 2021 (Co – Supervisor)**
- C.K. Krishnadasan – *Studies on Interfaces of Carbon Fibre Reinforced laminates in Hybridized Pressure Vessel* - **Degree awarded – 2022**
- A. Rajesh Kannan – *Studies on effect of process parameters on microstructure, mechanical properties and formability of AISI 316L tailor welded blank fabricated by cold metal transfer process* - **Degree awarded – 2022**
- R. Pramod – *Design, Development and Testing of metal-elastomer lined composite overwrapped spherical pressure vessel* - **Degree awarded – 2023**
- N. Pravin Kumar - *Studies on The Microstructure, Mechanical Properties, Wear and Corrosion Characteristics of Inconel 625 Hard Overlays Deposited on AISI 316l Plate* - **Degree awarded – 2023**

#### Ongoing

- M. Alagesan – *Studies on TIG welding of SS321 tubes* (ongoing)
- K. Sanjeevprakash – *Studies on Wire arc additive manufacturing* (ongoing)
- S. Maheshwaran – *Fatigue and Fracture Studies on Wire Arc Additive Manufactured component* (ongoing)

#### **D. Laboratory Development at NITT**

1. State-of-the-art Materials Characterization Laboratory to teach and conduct research in Characterization of various materials. Facility includes Universal Testing Machine, Fatigue Testing Machine, Micro Hardness tester, Plasma Cutting Machine, Metallurgical Microscope, Polishing & Mounting Machine and Erichsen Cupping tester, Struers Weld expert, Torsion testing machine, Izod and Charpy impact testing machine, Rockwell hardness tester, Die sinking EDM machine and Wire EDM machine. In collaboration with Dr. T. Ramesh and Dr. K. Sankaranarayananamy.
2. State-of-the-art Advanced Welding Laboratory to conduct research in welding and additive manufacturing of metals. Facility includes Welbee P500L power source, OTC Daihen 6-axis welding robot, Nikit rotary welding positioner, Fronius CMT, and TIG welding power source, Fronius Plasma and Micro Plasma Welding Machine. In collaboration with Dr. T. Ramesh and Dr. K. Sankaranarayananamy
3. CAD & Simulation Laboratory to teach and conduct research in Stress and Flow analysis. Facility includes ANSYS Research Version, ABAQUS Research Version, COMSOL Research Version, Solid Works and SYSWELD software. In collaboration with Dr. T. Ramesh.

## **E. Guest Lecture Delivered**

- *Advances in Finite element methods* in One day workshop on Finite Element Method, PGP College of Engineering and Technology, Namakkal.
- *Finite Element Analysis of Human Buttock-Thigh Interaction model* in One day workshop on Advances in Finite Element Analysis, J.P. College of Engineering, Tenkasi.
- *Numerical Simulation of Laser welding process* in SDP on Joining Techniques for Micro and Nano Material Fabrication, PSNA College of Engineering & Technology, Dindigul.
- *Non-Linear Finite Element Modeling of Anatomically Detailed 3D Foot Model* in DST Sponsored National Level Seminar on ADVANCES IN FINITE ELEMENT ANALYSIS, Sethu Institute of Technology, Madurai.
- *Finite Element Simulation of Laser Keyhole Welding in thin Austenitic Stainless Steel Sheet* in One day workshop on Laser beam welding & processing, SSN College of Engineering, Chennai.
- *Hands on training using ANSYS* in the AICTE-MHRD sponsored Staff Development Programme on “Quantitative Research Techniques for Engineers and Researchers”, NIT, Trichy.
- *FEM applications in various welding Process* in the AICTE-MHRD sponsored Staff Development Programme on “Quantitative Research Techniques for Engineers and Researchers” NIT, Trichy.
- *FEM – Applications* in the AICTE-QIP sponsored short term course on Weldability of Advanced Materials & Newer Joining Techniques, NIT, Trichy.
- *Introduction to Two-Dimensional Field equations* in the AICTE-MHRD sponsored Faculty Development Programme on “Finite Element Analysis and Applications”, Sethu Institute of Technology, Madurai.
- *Simulation of Laser welding Process* in the AICTE-MHRD sponsored Faculty Development Programme on “Recent Advances in Modeling and Simulation of Joining of Materials”, NIT, Trichy.
- *Temperature distribution modeling for laser welding process* in the AICTE-MHRD sponsored summer school on “Advances in Materials Processing”, NIT, Trichy.
- *Finite Element Analysis of Laser welding process* in a two-day workshop on Finite Element Analysis of Welding Processes, NIT, Trichy.
- *Simulation of Welding Process using ANSYS* in the Workshop on “Finite Element Method and Applications in Engineering using ANSYS”, NIT, Trichy.

## **PROFESSIONAL ACTIVITIES**

### **- Guest Editor for:**

- Journal Crystals – MDPI
- International Journal of Advanced Manufacturing Technology (JAMT) – Springer



- International Journal of Vehicle Structures and System (IJVSS)
- International Journal of Materials Engineering Innovation (IJMATEI)

**- Reviewer for:**

- International Journal of Advanced Manufacturing Technology
- Journal of Experimental Techniques
- Journal of Mechanical Engineering Science (IMEchE)
- Materials & Design
- Optics & Laser Technology
- Journal of Materials Engineering and Performance
- Transactions of the Indian Institute of Metals
- Journal of Thermal Science
- Mathematical Problems in Engineering
- Tata McGraw-Hill Book Publishing Co

**- Short Courses Attended**

Over 25 courses attended (partial listing of areas covered is linear and nonlinear finite elements, lasers, welding, heat transfer, thermodynamics, computational fluid dynamics, mechanical measurements, materials processing, X-ray diffraction analysis, composite materials).

**PROFESSIONAL AFFILIATION**

- Indian Welding Society (IWS) – Life Member
- Indian Society for Technical Education (ISTE) – Life Member

**PUBLICATION AND CITATIONS METRICS** (*since 2007*)

<b>Publications</b>	<b>Citations</b>	<b>h-Index</b>	<b>i10-Index</b>
136	2008	24	52

*Publications Updated:* <https://scholar.google.com/citations?user=fc32PJAAAAAJ&hl=en>

**PUBLICATIONS** (*Book Chapter*)

- 1 Book Name** : Simulations for Design and Manufacturing  
**Chapter 5** : **Studies on Spring-back Effect of TIG Welded Ti-6Al-4V Sheets**  
**Publisher** : Springer, 2018, pp. 147-171
- 2 Book Name** : Advances in Computational Methods in Manufacturing  
**Chapter 16** : **Activated TIG Welding of AISI 321 Austenitic Stainless Steel for**

- Predicting Parametric Influences on Weld Strength of Tensile Test—Experimental and Finite Element Method Approach**
- Publisher** : Springer, 2019, pp. 179
- 3 Book Name** : Advances in Additive Manufacturing and Joining  
**Chapter 32** : **Some Studies on Mechanical Properties of AISI 316L Austenitic Stainless Steel Weldments by Cold Metal Transfer Process**  
**Publisher** : Springer, 2018, pp. 359
- 4 Book Name** : Advances in Computational Methods in Manufacturing  
**Chapter 90** : **Finite Element Analysis of Potential Liner Failures During Operation in Spherical Pressure Vessel**  
**Publisher** : Springer, 2019, pp. 1073

#### **PUBLICATIONS** (*Journal Papers*)

1. Y Palguna, K Sairam, A Rajesh Kannan, **N Siva Shanmugam**, Ramesh Korla and JP Oliveira. *Effect of post weld heat treatment on the microstructure and mechanical properties of gas tungsten arc welded Al0.3CoCrFeNi high entropy alloy*, Scripta Materialia, Vol. 241, 2024, pp. 115887. **Impact factor – 6**
2. P Narayanasamy, BK Parthipan, T Ramkumar and **N Sivashanmugam**. *Experimental studies on automated DC pulsed MIG welding of Monel 400 sheets*, Materials and Manufacturing Processes, Vol. 39, Issue 2, 2024, pp. 280-290. **Impact factor – 4.8**
3. S Sankarapandian, R Pramod, S Mohan Kumar and **N Siva Shanmugam**. *Experimental and finite element analysis of Charpy impact, uniaxial tension and bending test of spin-arc welded carbon steel 1018 plate*, Materialwissenschaft und Werkstofftechnik, Vol. 54, Issue 12, 2023, pp. 1673-1683. **Impact factor – 1.037**
4. R Alagesan, A Rajesh Kannan, **N Siva Shanmugam** and K Sankaranarayanan. *Microstructural features and hot tensile behaviour of tungsten inert gas welded TP321 nuclear tubes at elevated temperatures*, Engineering Failure Analysis, Vol. 154, 2023, pp. 107720. **Impact factor – 4**
5. S Sankarapandian, N Pravin Kumar, A Rajesh Kannan and **N Siva Shanmugam**. *Microstructure, Mechanical Properties, and Corrosion Behavior of Co-Based Stellite 6 Multilayer Overlays Deposited on ASTM A36 Steel by Gas Metal Arc Welding Process*, Steel research international, Vol. 94, Issue 8, 2023, pp. 2200889. **Impact factor – 2.2**
6. N Prasanna, Anand Ramanathan and **N Siva Shanmugam**. *Investigation of welding of dissimilar high thickness SA106 Gr.C carbon steel and SA335P12 alloy steel to eradicate the failure in boiler components fabricated through SAW and SMAW processes*, Engineering Failure Analysis, Vol. 149, 2023, pp. 107252. **Impact factor – 4**
7. A Rajesh Kannan, C Durga Prasad, V Rajkumar, **N Siva Shanmugam**, Wonjoo Lee and Jonghun Yoon. *Hot oxidation and corrosion behaviour of boiler steel fabricated by wire arc additive manufacturing*, Materials Characterization, 2023, pp. 113113. **Impact factor – 4.7**
8. R Yoganathan, **N Siva Shanmugam** and Anand Ramanathan. *Non-destructive Evaluation of Tube-to-Tube Sheet Roller Expanded Joint Quality Using Magnetic Coercive Force*

- Measurements*, Journal of Materials Engineering and Performance, 2023 <https://doi.org/10.1007/s11665-023-08350-1>. **Impact factor – 2.3**
9. K Sanjeevprakash, A Rajesh Kannan and **N Siva Shanmugam**. *Additive manufacturing of metal-based functionally graded materials: overview, recent advancements and challenges*, Journal of the Brazilian Society of Mechanical Sciences and Engineering, Vol. 45, Issue 5, 2023, pp: 241. **Impact Factor – 2.2**
  10. A. Rajesh Kannan, V. Rajkumar, C. Durga Prasad, **N. Siva Shanmugam**, and Jonghun Yoon. *Microstructure and hot corrosion performance of stainless steel 347 produced by wire arc additive manufacturing*. Vacuum, Volume 210, 2023, pp: 111901. **Impact factor – 4.11**
  11. V. Dhinakaran, Mohan Kumar Subramaniyan, Vijayaragavan Elumalai, Gokulakrishnan Sriram, Raman Kumar, Micheal Agnelo Browne, Lei Guo, and **N. Siva Shanmugam**. *Characterisation of additively manufactured titanium wall: Mechanical and microstructural aspects*. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 2023, pp: 09544089231158164. **Impact factor – 1.606**
  12. V. Dhinakaran, Mohan Kumar Subramaniyan, Raman Kumar, Gokulakrishnan Sriram, Micheal Agnelo Browne, Lei Guo, and **N. Siva Shanmugam**. *Additive manufacturing and characterization of titanium wall used in nuclear application*. Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications 2023, pp: 14644207231157578. **Impact factor – 0.746**
  13. R. Alagesan, S. Mohan Kumar, A. Rajesh Kannan, and **N. Siva Shanmugam**. *Microstructure and Mechanical Properties of Tungsten Inert Gas Welded TP321 Thin-Walled Tubes*. Journal of Materials Engineering and Performance, 2023, pp: 1-13. **Impact factor – 2.3**
  14. A. Rajesh Kannan, **N. Siva Shanmugam**, Yasam Palguna, B. Girinath, Wonjoo Lee, and Jonghun Yoon. *Effect of double-side welding on the microstructural characteristics and mechanical performance of dissimilar AA6061-AA5052 aluminium alloys*. Materials Letters, Volume 331, 2023, pp: 133444. **Impact factor – 3.574**
  15. A. Rajesh Kannan, Yasam Palguna, Rajesh Korla, S. Mohan Kumar, R. Pramod, and **N. Siva Shanmugam**. *Hot tensile deformation and fracture behavior of wire arc additive manufactured Hastelloy C-276*. Welding in the World, 2023, pp: 1-11. **Impact factor – 2.137**
  16. A. Rajesh Kannan, S. Mohan Kumar, R. Pramod, N. Pravin Kumar, K. Sanjeevi Prakash, **N. Siva Shanmugam**, and M. Vishnukumar. *Metallurgical aspects and electrical resistivity of hardfaced pure copper layers over AISI 347 with cold metal transfer process*. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science Volume 237, 2023, pp: 95-102. **Impact factor – 1.015**
  17. N. Pravin Kumar, G. Sreedhar, S. Mohan Kumar, B. Girinath, A. Rajesh Kannan, R. Pramod, **N. Siva Shanmugam**, and M. Vishnukumar. *Microstructure and electrochemical evaluation of ER-308L weld overlays on AISI 321 stainless steel for repair applications*. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 2022, pp: 09544089221145497. **Impact factor – 1.606**
  18. S. Mohan Kumar, A. Rajesh Kannan, R. Pramod, **N. Siva Shanmugam**, V. Dhinakaran, and A. Krishnaveni. *A study on evaluation of stress intensity factor (KI) and J-integral for 40Ni2Cr1Mo28 alloy (structural steel): analytical and finite element analysis approach*.

Materialwissenschaft und Werkstofftechnik Volume 53(12) ,2022, pp: 1504-1517. **Impact factor – 1.04**

19. M. Prabhakaran, J. Duraisamy, **N. Siva Shanmugam**, A. Rajesh Kannan, and M. Varatharajalu. *Weld Strength and Microstructure Analysis on Resistance Spot Welding of Austenitic AISI 347 Stainless Steel and Duplex AISI 2205 Stainless Steel*. Transactions of the Indian Institute of Metals, 2022, pp: 1-12. **Impact factor – 1.430.**
20. K. Sanjeevi Prakash, A. Rajesh Kannan, R. Pramod, N. Pravin Kumar, and **N. Siva Shanmugam**. *Microstructure, Mechanical Properties and Fracture Toughness of SS 321 Stainless Steel Manufactured Using Wire Arc Additive Manufacturing*. Transactions of the Indian Institute of Metals, 2022, pp: 1-8. **Impact factor – 1.430.**
21. R. Sasikumar, A. Rajesh Kannan, S. Mohan Kumar, R. Pramod, N. Pravin Kumar, **N. Siva Shanmugam**, Yasam Palguna, and Sakthivel Sivankalai. *Wire arc additive manufacturing of functionally graded material with SS 316L and IN625: Microstructural and mechanical perspectives*. CIRP Journal of Manufacturing Science and Technology, Volume 38, 2022, pp: 230-242. **Impact factor – 3.56**
22. Y. Palguna, A. Rajesh Kannan, K. Sairam, **N. Siva Shanmugam**, and R. Korla. *Microstructure and mechanical properties of wrought Al0. 2CoCrFeNiMo0. 5 high entropy alloy using gas tungsten arc welding process*. Materials Letters, Volume 317, 2022, pp: 132109. **Impact factor –3.574**
23. A. Rajesh Kannan, S. Mohan Kumar, R. Pramod, N. Pravin Kumar, K. Sanjeevi Prakash, **N. Siva Shanmugam**, and M. Vishnukumar. *Metallurgical aspects and electrical resistivity of hard-faced pure copper layers over AISI 347 with cold metal transfer process*. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2022, **Impact factor – 1.758**
24. G. Suresh, M. R. Ramesh, **N. Siva Shanmugam**, and M. S. Srinath, *Microstructure and Tribological Performance of Self-Lubricate Cladding Produced by Tungsten Inert gas and Microwave Hybrid Heating Techniques*, Surface Review and Letters (2022), pp:2250125. **Impact factor – 1.152**
25. S. Mohan Kumar, A. Rajesh Kannan, R. Pramod, **N. Siva Shanmugam**, and V. Dhinakaran, *Testing, characterization, and numerical prediction (uni-axial tension and bend test) of Double-side TIG welded SS321 plate for pressure vessel application*. International Journal of Pressure Vessels and Piping, Volume :197, 2022, pp: 104648. **Impact factor – 2.028**
26. S. Mohan Kumar, A. Rajesh Kannan, R. Pramod, **N. Siva Shanmugam**, S. M. Muthu, and V. Dhinakaran, *Microstructure, and high temperature performance of 321 SS wall manufactured through wire+ arc additive manufacturing*. Materials Letters, Volume 314, 2022, pp: 131913. **Impact factor – 3.574**
27. R. Pramod, Vikram Kumar S. Jain, S. Mohan Kumar, B. Girinath, A. Rajesh Kannan, and **N. Siva Shanmugam**, *Experimental studies on friction stir welding of aluminium alloy 5083 and prediction of temperature distribution using arbitrary Lagrangian–Eulerian-based finite element method*. Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, Volume 236, no. 5, 2022, pp: 1067-1076. **Impact factor – 2.014**
28. R. Pramod, **N. Siva Shanmugam**, C. K. Krishnadasan, G. Radhakrishnan, and Manu Thomas, *Design and development of aluminum alloy 6061-T6 pressure vessel liner for aerospace applications: A technical brief*. Proceedings of the Institution of Mechanical

- Engineers, Part L: Journal of Materials: Design and Applications, Volume 236, no. 5, 2022, pp: 1130-1148. **Impact factor – 2.014**
29. Yoganathan, R., **N. Siva Shanmugam**, and Anand Ramanathan, *Effects of Thickness Offset on the Tube-to-Tube Sheet Expansion Joint Strength: An Experimental Evaluation*. Journal of Materials Engineering and Performance, Volume: 31, no. 4, 2022, pp: 2770-2782. **Impact factor – 1.819**
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#### **PUBLICATIONS** (Referred Conference Proceedings)

1. S Mohan Kumar, **N Siva Shanmugam** and K Sankaranarayanan, presented the poster presentation titled ‘*Effect of Optimal Welding Parameters on Mechanical Properties and Microstructure Examination of Gas Tungsten Arc Welding (GTAW) on AISI 321 Austenitic Stainless Steel*’ International conference on Advanced Materials and Manufacturing Processes for Strategic Sectors (ICAMPS 2018) held at Thiruvananthapuram, Kerala from October 25 – 27, 2018.
2. B. Girinath, **N Siva Shanmugam** and K Sankaranarayanan, ‘*Investigation on the effect of torch angle on the formability of AA5052 CMT weldments*’ International conference on Advanced Materials and Manufacturing Processes for Strategic Sectors (ICAMPS 2018) held at Thiruvananthapuram, Kerala from October 25 – 27, 2018.
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## PARTICIPATION IN CONFERENCES

1. European Conference of Mechanical Engineering (ECME '12), held at Paris, France, between 02.12.12 and 04.12.12.
2. Symposium on Joining of Materials (SOJOM2012), held at BHEL, Trichy, between 19.01.2012 and 22.01.2012.
3. International Conference on Innovative Technologies (IN-TECH 2011) at Bratislava, Slovakia, between 01.09.2011 and 02.09.2011.
4. International Welding Symposium (IWS 2k8), held at Pragati Maidan, New Delhi, between 13.02.2008 and 15.02.2008.
5. Symposium on Joining of Materials (SOJOM2008), held at BHEL, Trichy, between 11.12.2008 and 13.02.2008.
6. International Symposium of Manufacturing Technology – Realms Ahead (ManTRA 2k9) held at BHEL, Trichy between 07.09.2009 and 08.09.2009.
7. National Conference on Mechanical Engineering held at M.S. Ramaiah Institute of Technology, Bangalore between 12.03.2004 and 13.03.2004.

8. First National Conference on Development and Challenges in Manufacturing Engineering held at Manipal Institute of Technology, Manipal between 18.03.2004 and 20.03.2004.

### **BACHELORS THESIS**

*“Friction Stir Welding Attachment in Vertical Milling Machine”, Bharathidasan University, Tiruchirappalli, April 2002*

### **MASTERS THESIS**

*“Temperature Distribution Modeling for Laser Beam Welding”, Anna University, Chennai, June 2004.*

### **DOCTORAL DISSERTATION**

*“Investigations on temperature distribution in laser beam welding using finite element simulation and experimental analysis of laser weld for AISI 304 stainless steel sheets”, National Institute of Technology, Tiruchirappalli, August 2012.*

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