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

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).

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

FUNDED RESEARCH: ONGOING PROJECTS

1. 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

PRINCIPAL RESEARCH AND TEACHING AREAS OF INTEREST

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

TEACHING ACTIVITIES

A. Courses Taught

I. <u>Under Graduate Level</u>

- Strength of Materials
- Finite Element Method
- Engineering Graphics
- Basic Mechanical Engineering
- Machine Drawing
- Computer aided design
- Total Quality Management
- Welding Technology
- Machine Design
- Theory of Machines
- Industrial Safety

II. <u>Graduate Level</u>

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

B. Curriculum Developed

M.Tech. Engineering Design – NITT

C. Graduate Student Supervision

I. M. Tech. Thesis Directed

- 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**

Ongoing

- R. Dhananjayan – *Analysis of coal handling system for CFBC boiler* (ongoing).
- Elambaruthi – *Investigations on fracture behavior of boiler components* (ongoing).

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 Investigation and Numerical Simulation of laser welding of Titanium sheets* – **Degree awarded – 2019**
- B. Girinath – *Modeling and Experimental Analysis of Cold Metal Transfer Welding of AA5052 sheet metal* – **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**

Ongoing

- C.K. Krishna Dasan – *Design, Analysis and Development of gas bottle for Aerospace application* (ongoing).
- V. Thirumavalavan – *Ergonomic studies* (ongoing).
- M. Alagesan – *Numerical simulation of Tailor Welded Blanks* (ongoing).
- Rajesh Kannan A – *Investigations on CMT welding of stainless steel sheets* (ongoing).
- Pramod R - Investigations on CMT welding of aluminium sheets (Ongoing) – JRF.
- Pravin Kumar N - Studies on hard facing (Ongoing).

- R. Duraisamy - Additive Manufacturing (Ongoing).
- Sanjeeviprakash K – Wire and Arc Additive Manufacturing of Bimetallic materials (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, TIG welding, Micro Hardness tester, Plasma Cutting Machine, Resistance Spot welding, Micro Plasma welding, Metallurgical Microscope, Polishing & Mounting Machine and Erichsen Cupping tester. In collaboration with Dr. T. Ramesh and Dr. K. Sankaranarayanasamy.

2. 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 Weldabiltiy 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:

- International Journal of Advanced Manufacturing Technology (JAMT)
- 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
- 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 Membe

PUBLICATIONS *(Book Chapter)*

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, 2019 pp. 359-371.

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. 179-192.

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. 1073-1087.

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.

PUBLICATIONS *(Journal Papers)*

1. A Rajesh Kannan, S Mohan Kumar, R Pramod, N Pravin Kumar, N Siva Shanmugam, Yasam Palguna, *Microstructure and mechanical properties of wire arc additive manufactured bi-metallic structure*, Science and Technology of Welding and Joining, 1-11, 2020 **Impact factor – 3.422**
2. A Rajesh Kannan, N Siva Shanmugam, G Sreedhar, *Studies on corrosion behavior of AISI 316L cold metal transfer weldments in physiological solutions,* Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 234(6), 644-656, 2020 **Impact factor – 1.606**
3. A Karpagaraj, N Rajesh Kumar, N Thiyaneshwaran, N Siva Shanmugam, Murali Mohan Cheepu, R Sarala, *Experimental and numerical studies on gas tungsten arc welding of Ti–6Al–4V tailor-welded blank,* Journal of the Brazilian Society of Mechanical Sciences and Engineering, 42(10), 1-11, 2020 **Impact factor – 1.755**
4. Pranav Praveen Nikam, D Arun, K Devendranath Ramkumar, N Sivashanmugam, *Microstructure characterization and tensile properties of CMT-based wire plus arc additive manufactured ER2594,* Materials Characterization, 110671, 2020 **Impact factor – 3.562**
5. N Pravin Kumar, N Siva Shanmugam, *Some studies on nickel based Inconel 625 hard overlays on AISI 316L plate by gas metal arc welding based hardfacing process*, Wear, 456, 203394, 2020 **Impact factor – 4.108**

6. CK Krishnadasan, N Siva Shanmugam, B Sivasubramonian, B Nageswara Rao, R Suresh, *Analytical studies and numerical predictions of stresses in shear joints of layered composite panels for aerospace applications,* Composite Structures, 112927, 2020 **Impact factor – 5.138**
7. A Karpagaraj, N Rajesh Kumar, K Sankaranarayanasamy, N Siva Shanmugam, Muralimohan Cheepu, *Simulation and Experimental Studies on Arc Efficiency and Mechanical Characterization for GTA-Welded Ti–6Al–4V Sheets,* Arabian Journal for Science and Engineering, 2020 **Impact factor- 1.711**
8. R Duraisamy, S Mohan Kumar, A Rajesh Kannan, N Siva Shanmugam, K Sankaranarayanasamy, MR Ramesh, *Tribological performance of wire arc additive manufactured 347 austenitic stainless steel under unlubricated conditions at elevated temperatures,* Journal of Manufacturing Processes 56, 306-321, **Impact factor-4.086.**
9. R Pramod, S Mohan Kumar, B Girinath, A Rajesh Kannan, N Pravin Kumar, N Siva Shanmugam *Fabrication, characterisation, and finite element analysis of cold metal transfer–based wire and arc additive–manufactured aluminium alloy 4043 cylinder*, Welding in the World, 1-15, **Impact factor-1.589.**
10. A Rajesh Kannan, S Mohan Kumar, N Pravin Kumar, N Siva Shanmugam, AS Vishnu, Yasam Palguna *Process-microstructural features for tailoring fatigue strength of Wire Arc Additive Manufactured Functionally Graded Material of SS904L and Hastelloy C-276* Materials Letters, 127968, **Impact factor-3.204.**
11. R Pramod, N Siva Shanmugam, CK Krishnadasan*, Studies on cold metal transfer welding of aluminium alloy 6061-T6 using ER 404,* Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, https://doi.org/10.1177%2F1464420720917175, 2020, **Impact factor-1.568.**
12. A Rajesh Kannan, N Siva Shanmugam, V Rajkumar, M Vishnukumar, *Insight into the microstructural features and corrosion properties of Wire Arc Additive Manufactured Super Duplex Stainless Steel (ER2594)*, Materials Letters, Pages 127680, 2020*,* **Impact factor-3.204.**
13. S Mohan Kumar and N Siva Shanmugam*, Effect of heat input and weld chemistry on mechanical and microstructural aspects of double side welded austenitic stainless steel 321 grade using tungsten inert gas arc welding process,* Material Science & Engineering Technology, Vol. 51, Issue 3, Pages 349-367, 2020, **Impact factor-0.556.**
14. B Girinath, N Siva Shanmugam and C Sathiyanarayanan, *Studies on influence of torch orientation on microstructure, mechanical properties and formability of AA5052 CMT welded blanks,* Archives of Civil and Mechanical Engineering, Vol. 20, Issue 1, Pages 1-22, 2020, **Impact factor-2.846.**
15. R Pramod, S Mohan Kumar, N Siva Shanmugam and S Arungalai Vendan, *Formability studies on plasma arc welded duplex stainless steel 2205 shee*t, Material Science & Engineering Technology, Vol. 51, Issue 2, Pages 163-173, 2020, **Impact factor-0.556.**
16. M Arunkumar, V Dhinakaran and N Siva Shanmugam, *Numerical prediction of temperature distribution and residual stresses on plasma arc welded thin titanium sheets*,

International Journal of Modelling and Simulation, https://doi.org/10.1080/02286203.2019.1700089, 2019.

17. Dhinakaran Veeman, T Sathish, Vijay Petley and Gokulakrishnan Sriram, *Experimental Investigation on Plasma Arc Welded Ti64 Sheets*, Transactions of the Canadian Society for Mechanical Engineering, https://doi.org/10.1139/tcsme-2019-0149, 2019, **Impact factor-0.38**.
18. S Mohan Kumar and N Siva Shanmugam, *Finite element simulation for tensile and impact test of activated TIG welding of AISI 321 austenitic stainless steel*, Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, Vol. 223, Issue 11, Pages 2323-2334, 2019, **Impact factor-1.568**.
19. R Pramod, CK Krishnadasan, N Siva Shanmugam, *Design and finite element analysis of metal-elastomer lined composite over wrapped spherical pressure vessel*, Composite Structures, Vol. 224, Pages 111028, 2019, **Impact factor-4.829.**
20. K Parthiban, N Siva Shanmugam, K Sankaranarayanasamy and S Arungalai Vendan, *Studies on spin arc welding process on the behavior of C1018 plates-an insight into mechanical and metallurgical transformation*, Material research express, Vol. 6 No. 10, 2018, Pages 106540, **Impact factor – 1.449.**
21. A Rajesh Kannan, N Siva Shanmugam and S Arungalai Vendan, *Effect of cold metal transfer process parameters on microstructural evolution and mechanical properties of AISI 316L tailor welded blanks*, The International Journal of Advanced Manufacturing Technology, Vol. 103 Issue 9-12, Pages 4265-4282, 2019, **Impact factor- 2.496.**
22. B. Girinath, N. Siva Shanmugam and K. Sankaranarayanasamy, *Weld bead graphical prediction of cold metal transfer weldment using ANFIS and MRA model on MATLAB platform*, Simulation: Transactions of the Society for Modeling and Simulation International, Vol. 95 Issue 8, Pages 725-736, 2019, **Impact factor-1.455.**
23. R Duraisamy, S Mohan Kumar, A Rajesh Kannan, N Siva Shanmugam and K Sankaranarayanasamy *Reliability and sustainability of wire arc additive manufactured plates using ER 347 wire-mechanical and metallurgical perspectives,* Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, https://doi.org/10.1177%2F0954406219861136, 2019 **Impact factor – 1.359.**
24. A. Karpagaraj, N. Siva Shanmugam and K. Sankaranarayanasamy *Experimental investigations and numerical prediction on the effect of shielding area and post flow time in the GTAW of CP Ti sheets* The International Journal of Advanced Manufacturing Technology, Vol. 101 Issue 9-12, Pages 2933-2945, 2019, **Impact factor- 2.496**
25. J. Anthuvan Stephen Edberk and N. Siva Shanmugam *Studies on the weld integrity, formability and microstructural evolution of grade 2 titanium sheets of laser beam welding process*, Material research express, Vol. 6 No. 4, 2019, Pages 046525, **Impact factor – 1.449.**
26. V Dhinakaran, R Patil, G Sriram and NS Shanmugam, *Studies on crack propogation in plasma arc welded Ti-6Al-4V joint during erichsen cupping test*, International Journal of Recent Technology and Engineering, 2019, Vol.8, Issue 1, Pages 79-83, 2019.

27. Muthusamy Arunkumar, Veeman Dhinakaran, Nallathambhi Sivashanmugam and Vijay Petley, *Effect of Plasma Arc Welding on Residual Stress and Distortion of Thin Titanium Shee*t, Materials Research, Vol. 22, Issue 6, 2019.
28. A Rajesh Kannan, N Siva Shanmugam and S Naveenkumar, *Effect of Arc Length Correction on Weld Bead Geometry and Mechanical Properties of AISI 316L Weldments by Cold Metal Transfer (CMT) Process*, Materials Today: Proceedings, Vol. 18, Pages 3916-3921, 2019.
29. Bheemappa Suresha, SG Channabasavanna and N Siva Shanmugam, *Microstructure and Abrasive Wear Behaviour of Nickel Based Hardfacing Stainless Steel Deposited by Gas Metal Arc Welding*, Applied Mechanics and Materials, Vol. 895, Pages 278-283, 2019.
30. B Girinath, N Siva Shanmugam and K Sankaranarayanasamy, *Investigation on the Effect of Torch Angle on the Formability of AA5052 CMT Weldments*, Transactions of the Indian Institute of Metals, Pages 1551–1555, 2019 **Impact factor – 1.176.**
31. K Parthiban, N Siva Shanmugam and K Sankaranarayanasamy, *Experimental and numerical investigation of charpy impact test of spin arc welded C1018 plates*, IOP Conference Series: Materials Science and Engineering, Vol. 455, No. 1, 2018, Pages 012069.
32. J Anthuvan Stephen Edberk, N Siva Shanmugam and K Sankaranarayanasamy, *Design and fabrication of special fixture for different weld configurations of commercial pure Titanium sheet in laser beam welding process*, IOP Conference Series: Materials Science and Engineering, Vol. 455 No. 1, 2018, Pages 012075.
33. S. Mohan Kumar and N. Siva Shanmugam *Studies on the weldability, mechanical properties and microstructural characterization of activated flux TIG welding of AISI 321 austenitic stainless steel*, Material research express, Vol. 5 No. 10, 2018, Pages 106524 **Impact factor – 1.449.**
34. Chidambaram Mani, Krishnasamy Sankaranarayanasamy and Nallathambi Sivashanmugam, *Evaluating the effects of different types of hand gloves and handle grip materials on hand-arm response while operating hand grinding machines*, Journal of Industrial Safety Engineering, Vol. 4, Issue 3, Pages 10-23, 2018.
35. Chaitanya Gandhi, Nikhil Dixit, Omkar Aranke, M Arivarasu, N Siva Shanmugam, M Manikandan and N Arivazhagan *Characterization of AA7075 Weldment using CMT Process,* Materials Today Proceedings, Volume 5, Issue 11, Part 3, 2018, Pages 24024-24032
36. N. Siva Shanmugam, J. Anthuvan Stephen Edberk and K. Sankaranarayanasamy *Some Studies on mechanical characterization of laser welded thin Ti-6Al-4V sheets*, High Temperature materials and processes – Accepted for publication **Impact factor – 0.433**
37. K Devendranath Ramkumar, Vinayak Varma, Madhukar Prasad, N Deva Rajan, N Siva Shanmugam, *Effect of activated flux on penetration depth, microstructure and mechanical properties of Ti-6Al-4V TIG welds*, Journal of Materials Processing Technology, Vol. 261, 233-241, 2018 **Impact Factor - 3.647**
38. N Pavan Kumar, Praveen K Devarajan, S Arungalai Vendan and N Shanmugam, Prediction of bead geometry in cold metal transfer welding using back propagation neural network, The International Journal of Advanced Manufacturing Technology, Vol. 93 Issue 1-4, Pages 385-392, 2017, **Impact factor- 2.496.**

39. P Subramani, Sanket Shetty, R Anirudhapandit, PR Hari, K Gokul Kumar, M Manikandan, N Arivazhagan, N Siva Shanmugam *Investigations on the Microstructure, Microsegregation and Hardness Properties of Bead on Plasma Arc Welded C-276 Alloy* Materials Today: Proceedings, Vol 5, Issue 5, pp. 13628-13636
40. V Dhinakaran, N Siva Shanmugam, K Sankaranarayanasamy and R Rahul, *Analytical and numerical investigations of weld bead shape in plasma arc welding of thin Ti-6Al-4V sheets*, Simulation: Transactions of the Society for Modeling and Simulation International, DOI: 10.1177/0037549717726580, **Impact factor - 0.940**
41. R. Selva Bharathi, N. Siva Shanmugam, R. Murali Kannan and S. Arungalai Vendan, *Studies on the Parametric Effects of Plasma Arc Welding of 2205 Duplex Stainless Steel*, High Temperature Materials and Processes, https://doi.org/10.1515/htmp-2016-0087 Impact factor - **0.433**
42. V Dhinakaran, N Siva Shanmugam and K Sankaranarayanasamy, *Experimental investigation and numerical simulation of weld bead geometry and temperature distribution during plasma arc welding of thin Ti-6Al-4V sheets,* The Journal of Strain Analysis for Engineering Design, Vol. 52 Issue 1, 2017, pp. 30-44 **Impact Factor – 1.250**
43. A. Karpagaraj, N. Siva Shanmugam and K. Sankaranarayanasamy, *Studies on mechanical behavior and microstructural analysis of tailor welded blanks of Ti-6Al-4V titanium alloy sheet,* Journal of Materials Research, Vol. 34 Issue 11, 2016, pp. 2186-2196 **Impact Factor – 1.673**
44. Nalajam Pavan Kumar, S Arungalai Vendan and N Siva Shanmugam, *Investigations on the parametric effects of cold metal transfer process on the microstructural aspects in AA6061,* Journal of Alloys and Compounds, Vol. 658, 2016, pp. 255-264 **Impact Factor – 3.133**
45. K. Devendranath Ramkumar, Debidutta Mishra, B. Ganesh Raj, M.K. Vignesh, G. Thiruvengatam, S.P. Sudharshan, N. Arivazhagan, N. Sivashanmugam and Arul Maximus Rabel, *Effect of optimal weld parameters in the microstructure and mechanical properties of autogeneous gas tungsten arc weldments of super-duplex stainless steel UNS S32750,* Materials & Design (1980-2015), Vol. 66, Part A, 2015, pp. 356-365 **Impact Factor – 4.364**
46. K Devendranath Ramkumar, Jelli Lakshmi Narasimha Varma, Gangineni Chaitanya, S Logesh, Madhav Krishnan, N Arivazhagan and N Siva Shanmugam, *Experimental investigations on the SiO2 flux-assisted GTA welding of super-austenitic stainless steels,* The International Journal of Advanced Manufacturing Technology, DOI: 10.1007/s00170-015-7876-6 **Impact Factor – 2.209**
47. V Dhinakaran, N Siva Shanmugam and K Sankaranarayanasamy, *Some studies on temperature field during plasma arc welding of thin titanium alloy sheets using parabolic Gaussian heat source model,* Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, doi: 10.1177/0954406215623574 **Impact Factor – 1.015**
48. A. Karpagaraj, N. Siva Shanmugam and K. Sankaranarayanasamy, *Some studies on mechanical properties and microstructural characterization of automated TIG welding of thin commercially pure titanium sheets*, Materials Science and Engineering: A, Vol. 640, 2015, pp. 180-189 **Impact Factor – 3.094**
49. K, Devendranath Ramkumar, Jagat Sai, Sridhar Gundla, Santhosh Reddy, P. Prabaharan, N, Arivazhagan and N. Siva Shanmugam, *Influence of filler metals in the control of*

deleterious phases during the multi-pass welding of Inconel 718 plates, Acta Metallurgica Sinica (English Letters), Volume 28, Issue 2, 2015, pp. 196-207 **Impact Factor – 1.292**

50. Vijaikrishnan V, Ramakrishnan M and N. Siva Shanmugam, *Steady state analysis of regular hollow pyramidal radiating fin with triangular cross-section*, Thermal Science, Volume 19, Issue 1, 2015, Pages: 59-68 **Impact Factor: 0.962**
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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.
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“Friction Stir Welding Attachment in Vertical Milling Machine”, Bharathidasan University, Tiruchirappalli, April 2002

MASTERS THESIS

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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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