



Dr. Krishna Kishore Mugada

Assistant Professor

Department of Mechanical Engineering

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Area of Research: Friction stir welding and processing, Dissimilar metals joining, Resistance spot welding, Cold Metal Transfer, Hybrid welding and joining, Wire arc additive Manufacturing, Parallel kinematic machines for AM, AI and ML in Manufacturing.

Educational Qualifications (From Highest):

| <i>Qualification</i> | <i>Institution/College</i> | <i>From</i> | <i>To</i> |
|--|---|-------------|-----------|
| Ph.D in Mechanical Engineering Research Area : Friction stir welding | National Institute of Technology Warangal, Telangana | 2013 | 2018 |
| M.Tech in Mechanical Engineering Specialization: Computer Integrated Design and Manufacturing | National Institute of Technology Jamshedpur, Jharkhand | 2011 | 2013 |
| B.Tech in Mechanical Engineering | V R Siddhartha Engineering College, Vijayawada, AP | 2006 | 2010 |

Professional Experience (Research):

- **Postdoctoral Fellow (2021)** at Department of Mechanical Engineering, Indian Institute of Technology Delhi, India.
- **Postdoc researcher (2019)** at Department of Advanced Materials Engineering, Dong Eui University, South Korea.

Professional Experience (Teaching/Industry) (From latest position):

| <i>Designation</i> | <i>Organization</i> | <i>Period</i> | |
|---------------------|---|---------------|-----------|
| | | <i>From</i> | <i>To</i> |
| Assistant Professor | National Institute of Technology Surat, Gujarat, India. | April 2021 | Till Date |
| Assistant Professor | Gayatri Vidya Parishad College of Engineering, Madhurawada, Visakhapatnam, India. | June 2018 | June 2019 |

Publications:

1. A, S. Sundar., Mugada, K. K., and Kumar, A. (2024). "Enhancing Microstructural, Textural, and Mechanical Properties of Al-Ti Dissimilar Joints via Static Shoulder Friction Stir Welding." ASME. J. Manuf. Sci. Eng. doi: <https://doi.org/10.1115/1.4063358>
2. Sundar, A.S., Kar, A., Mugada, K.K. and Kumar, A. (2023). Enhancement of microstructure, micro-texture, and mechanical properties of Al6061 friction stir welds using the developed static shoulder welding tool. Materials Characterization, 203, p.113148.
3. A.S. Sundar, K.K. Mugada, A. Kumar, (2023) Microstructural evolution, intermetallic formation and mechanical performance of dissimilar Al6061- Ti6Al4V static shoulder friction stir welds, Adv Eng Mater.. <https://doi.org/10.1002/ADEM.202300973>

4. A.S. Sundar, A. Kumar, K.K. Mugada, **(2023)** Minimizing material flow in the dissimilar joining of Al6061 and Ti6Al4V to mitigate the adverse effects of intermetallic compounds, Mater Lett. 350 134956. <https://doi.org/10.1016/j.MATLET.2023.134956>
5. A.S. Sundar, A. Kumar, K.K. Mugada, **(2023)** Explication of Microstructural Evolution and Mode of Recrystallization in Dissimilar Al6061–Ti6Al4V Friction Stir Welds, Transactions of the Indian Institute of Metals.. <https://doi.org/10.1007/s12666-023-02910-8>
6. Basude, A., Kumar, A., Rajasingh, G. and Kishore, M.K., **(2023)**. Electron beam welding of dissimilar Titanium to aluminium: Interface microstructure and mechanical properties. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, p.09544089231190152.
7. Basude, A., Kumar, A., Rajasingh, G. and Kishore, M.K., **(2023)**. Dissimilar joining of titanium to aluminum using friction stir welding process and weld joint characterization. International Journal of Materials Research, (0).
8. A.S. Sundar, A. Kumar, M. K. Kishore **(2022)**, Investigation of material flow, microstructure evolution, and texture development in dissimilar friction stir welding of Al6061 to Ti6Al4V, Mater Today Commun. 33 104424. <https://doi.org/10.1016/j.mtcomm.2022.104424>
9. A.S. Sundar, A. Kumar, M K. Kishore, Effectiveness of the indigenously developed static shoulder friction stir welding tool on textural characteristics of Al6061 alloy – A comparison to external cooling media friction stir welds, Mater Lett. 327 **(2022)** 133010. <https://doi.org/10.1016/j.matlet.2022.133010>.
10. A.S. Sundar, K. Adepu, K.K. Mugada, Effect of the static shoulder on microstructural, textural , and mechanical characteristics during friction stir welding of Al6061, **(2022)**. <https://doi.org/10.1177/14644207221105387>
11. Basude, A., Kumar, A., Rajasingh, G. and Mugada, K.K., **(2022)**. Dissimilar joining of Titanium alloy to Aluminium using Al-Si based filler alloy by vacuum brazing technique. Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, 236(9), pp.1724-1737.
12. Krishna Kishore Mugada, Kumar Adepu “Effect of re-entrant shoulder channel and pin shapes on material flow and mechanical properties of Al-Mg-Si alloy” Part C: Journal of Mechanical Engineering Science, SAGE Publications, 0(0), **2021**: 1-13. (SCI)
13. Krishna Kishore Mugada, Aravindan Sivanandam, and Ravi Kumar Digavalli. "Wire+ Arc Additive Manufacturing of Metals: State of the Art and Challenges." Additive Manufacturing Applications for Metals and Composites, **2020**, 106-126. (Book Chapter)
14. Krishna Kishore Mugada, Kumar Adepu “Role of scroll shoulder and pin designs on axial force, material flow and mechanical properties of friction stir welded Al-Mg-Si alloy” Metals and Materials International, Springer, **2020**, 1-12. (SCI).
15. Krishna Kishore Mugada, Kumar Adepu “Effect of knurling shoulder design with polygonal pins on material flow and mechanical properties during friction stir welding of Al-Mg-Si alloy” Transactions of Non-ferrous Metals Society of China, Elsevier. 29 (11), **2019**, 2281-2289. (SCI)

Research Projects (Ongoing/completed):

- Development of a 5-axis low cost autonomous robotic kinematic structure for additive manufacturing (AM), ASHINE, Gujarat, Role-PI and Mentor, Sanctioned: 2023. (Ongoing)
- Design and fabrication of wire arc additive manufacture system and investigate the deposition pattern on interlayer microstructure of Inconel and titanium alloys., SVNIT, Role- PI, Sanctioned: 2022. (Ongoing)
- Investigation of interfacial interaction and grain structure development in friction stir welds for dissimilar joining of high strength aluminum to titanium alloys, DST, Role -Co-PI. Sanctioned: 2019. (Completed)
- Processing and characterization of hybrid non-equilibrium composites Fabricated by friction Stir Processing (FSP), DST, Role –Co-PI. Sanctioned: 2019. (Completed)

Honors/Awards:

- Production Division Award for 2020 from Institution of Engineers
- DST-International Travel Support (ITS) grant for attending international conference JAAA2018, Japan in the year of 2018.
- Student travel grant for attending international conference THERMEC 2016, Austria in the year of 2016.



Asstt. Professor
Department of Mech. Engg.
S. V. N. I. T., SURAT-7.