

# Sreearravind M

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## PROFESSIONAL SUMMARY

Dedicated PhD graduate in Metallurgy with research experience in fatigue behaviour, material characterization, and aluminium alloy processing. Proficient in mechanical testing methods, including tensile, fatigue, microhardness, and wear analysis, as well as microstructural characterization using optical microscopy, XRD, SEM, and FE-SEM. Experienced in specimen preparation and data interpretation for various alloys. Skilled in utilizing metallurgical testing equipment and committed to advancing research in sustainable materials and processing techniques. Motivated to apply expertise in metallurgy to research-driven projects and industrial applications, with a collaborative and analytical approach to problem-solving.

## EDUCATION

**Ph.D. in Mechanical Engineering**, SASTRA Deemed University, Thanjavur, India. June, 2018 – Feb, 2025

**M. Tech in Advanced Manufacturing**, SASTRA Deemed University, Thanjavur, India. June 2016 – May 2018

**B.E in Automobile Engineering**, Government College of Engineering (formerly IRTT), Erode, India. Aug 2012 – May 2016

## RESEARCH EXPERIENCE

**Research Scholar** – Dr. S. Ramesh Kumar, Assistant Professor, SASTRA Deemed University, Thanjavur, India – 2018 to 2024

- Conducted doctoral research on enhancing low cycle fatigue (LCF) properties of Aluminium 6063 Alloy. Implemented a multifaceted approach including heat treatment (HT), Deep Cryogenic Treatment (DCT), and Equal Channel Angular Processing (ECAP).
- Employed microstructural characterization to study grain refinement and intermetallic particle formation post-processing. Evaluated mechanical properties and performed fractography to understand the fatigue failure mechanisms.

**Post-Graduate Student** – Dr. Sreehari Peddavarapu, Assistant Professor, SASTRA Deemed University, Thanjavur, India – 2016 to 2018

- Master's thesis focused on fabricating graphene oxide-reinforced aluminium matrix via powder metallurgy.
- Evaluated mechanical properties, including tensile strength and tribological characteristics. Optimized compositions of graphene oxides in aluminium matrix to enhance tensile and tribology behaviour.

**Undergraduate Student** – Dr. Subramanian. R, Professor, Government Engineering College, Erode, India. – 2012 to 2016

- Conducted project work on enhancing fuel efficiency in multi-cylinder diesel engines via cylinder deactivation technology.
- Systematically disabled cylinder combinations to reduce engine displacement, improve fuel economy efficiency, and decrease emissions.

## TEACHING EXPERIENCE

Teaching Assistant, School of Mechanical Engineering, SASTRA Deemed University, 2018-2024. As a Lab Instructor, I handled the following courses for Engineering students.

- Basic Mechanical Engineering
- CAD/CAM Laboratory
- Metallurgy Laboratory
- Dynamics Laboratory
- Manufacturing Practices Laboratory

## TECHNICAL SKILLS

- **Materials Testing Equipment:** Tensile Testing Machine, Fatigue Testing Machine, Microhardness Tester, Wear Testing Machine.
- **Microstructure Characterization:** Optical Microscopy, SEM, FE-SEM, XRD
- **Software:** AutoCAD, CREO, SolidWorks, ANSYS, Deform3D.

## PUBLICATION

1. **Sreearavind M**, Ravisankar B, Ramesh Kumar S. (2024). “Low Cycle Fatigue Behaviour of Aluminium 6063 Alloy Processed by Equal Channel Angular Pressing (ECAP) at 90° and 120° Channel Angles. *Materials Today Communications*, 42, 111401. <https://doi.org/10.1016/j.mtcomm.2024.111401>
2. **Sreearavind, M** & Subramanian, R. K. (2023). Experimental investigation on the low cycle fatigue performance and fractographic analysis of deep cryogenic treated 6063 aluminium alloy. *Structures*, 58, 105588. <https://doi.org/10.1016/j.istruc.2023.105588>
3. Kumar, S. R., & **Sreearavind, M**. (2022). Influence of Si Content on Fatigue Life for Heat Treated Cast Al-Si-mg Alloy Using Different Quenching Technique. *Silicon*, 14(3), 977–987. <https://doi.org/10.1007/s12633-020-00874-8>
4. Ramesh Kumar, S., & **Sreearavind, M**. (2022). Assessment of Magnetically Impelled Arc Butt Welded Dissimilar Boiler Graded Steel Tubes: SAE213 T11 and SAE213 T91. *Journal of Materials Engineering and Performance*, 31(3), 1846–1856. <https://doi.org/10.1007/s11665-021-06343-6>
5. Ramesh Kumar, S., **Sreearavind, M**., Sainathan, S., Venkat, A., Rahulram, S., Senthil Kumar, S., & Senthil Kumaran, S. (2020). Low Cycle Fatigue behavior of heat treated EN-47 Spring Steel. *Materials Today: Proceedings*, 22, 2191–2198. <https://doi.org/10.1016/j.matpr.2020.03.299>
6. **Sreearavind, M**., Ramesh Kumar, S., RaviShankar, B., & Senthil Kumar, S. (2020). Low cycle fatigue behavior of aluminium 6063 alloy under the cyclic frequency of 0.2 Hz. *Materials Today: Proceedings*, 27, 2376–2380. <https://doi.org/10.1016/j.matpr.2019.09.133>
7. Kumar, S. R., Kumaran, S. S., Ramesh, G., **Sreearavind, M**., & Venkateswarlu, D. (2019). Effect of Soaking Time on Evolution of Microstructure and Hardness during Annealing of EN-47 Spring Steel. *Materials Science Forum*, 969, 427–432. <https://doi.org/10.4028/www.scientific.net/MSF.969.427>
8. Kumaran, S. S., **Sreearavind, M**., Srinivasan, N., & Venkateswarlu, D. (2019). Experimental Analysis of SA213 Tube to SA387 Tube Plate Welding by Using Close Fit Technique in Absence of Supporting Plate. *Materials Science Forum*, 969, 570–575. <https://doi.org/10.4028/www.scientific.net/MSF.969.570>
9. **Sreearavind, M**., Kumar, S. R., Kumaran, S. S., & Venkateswarlu, D. (2019). Effect of Mechanical Properties and Corrosion Behaviour of Martensitic Stainless Steel 410 1.6mm Butt Welded by Plasma Arc Welding. *Materials Science Forum*, 969, 601–606. <https://doi.org/10.4028/www.scientific.net/MSF.969.601>
10. Kumar, S. R., Kumaran, S. S., **Sreearavind, M**., & Venkateswarlu, D. (2019). Effect of Microstructure and Mechanical Properties of Austenitic Stainless Steel 1.6mm Butt Welded by Plasma Arc Welding. *Materials Science Forum*, 969, 619–624. <https://doi.org/10.4028/www.scientific.net/MSF.969.619>

11. Kumar, S. R., Kumaran, S. S., Ramesh, G., **Sreearravind, M.**, & Venkateswarlu, D. (2019). X-Ray Diffraction and Microstructure Analysis of EN47 Spring Steel at Various Soaking Period of Time. Materials Science Forum, 969, 104–109. <https://doi.org/10.4028/www.scientific.net/MSF.969.104>
12. **Sreearravind, M.**, Peddavarapu, S., & Raghuraman, S. (2018). Microstructural investigation of aluminum-graphene nano platelets composites prepared by powder metallurgy. AIP Conference Proceedings, 1952(1), 020103. <https://doi.org/10.1063/1.5032065>
13. Ramesh Kumar, S., Ramesh, G., **Sreearravind, M.**, Senthil, T. (2024). Reutilization of Waste Polymeric Materials for 3D Printing Applications. In: Arya, R.K., Verros, G.D., Verma, O.P., Hussain, C.M. (eds) From Waste to Wealth. Springer, Singapore. [https://doi.org/10.1007/978-981-99-7552-5\\_54](https://doi.org/10.1007/978-981-99-7552-5_54)
14. **Sreearravind, M.**, Kumar S, R., & Ahilan, C. (2022). Fatigue Characterization and Fractographic Analysis of Aluminium 6063 Alloy. In Handbook of Research on Advancements in the Processing, Characterization, and Application of Lightweight Materials (pp. 176–194). IGI Global.
15. Kumar Subramanian, R., Kumar Srirangan, A., & **Sreearravind, M.** (2020). Severely Plastic Deformed Magnesium Based Alloys. In Magnesium - The Wonder Element for Engineering/Biomedical Applications. IntechOpen. <https://doi.org/10.5772/intechopen.88778>

## PATENT

- *Intellectual Property India*, Application No. 202341047769, "*An Apparatus for Artefact Knitting*," filed on 15/07/2023 by Ramesh Kumar S, Santhosh Kumar S, and *Sreearravind M.* The patent describes a plate welding fixture assembly with magnets for improved alignment and stability in *MIAB welding*.

## CONFERENCE PRESENTATIONS

- Low Cycle fatigue behaviour of Aluminium 6063 alloy under the cyclic frequency of 0.2Hz. International Conference on Materials, Method and Manufacturing (ICMMM 2019) - by Dept. of MME at NIT, Trichy. June, 2019
- Low Cycle Fatigue behaviour of heat-treated EN-47 Spring Steel. International Conference on Materials Manufacturing and Modelling (ICMMM 2019) - by Dept. of ME at VIT Vellore. July, 2019
- Analysis of fatigue life for HT Al 6063 at different quench medium. Recent Trends in Metallurgy, Materials Science and Manufacturing (IMME 2019) – by Dept. of MME at NIT, Trichy. Nov, 2019
- Evaluation of fatigue fracture in reinforcing bar under a constant strain amplitude of 0.8%, International Conference on Empowering Engineering and Technology (ICEET 2020) at PITS, Thanjavur. March 2020

Date: 25.07.2025

Place: Dindugal

Sincerely

**Sreearravind M**