

Dr. Shweta Shukla

MME Department

Contact no: +91-9297830805,

Mail ID: sshukla@niamt.ac.in; shwetashukla.nitr@gmail.com



Area of Expertise

- Corrosion Science
- Failure analysis
- Materials Selection
- Physical Metallurgy
- Mechanical Metallurgy

Computational tools

- Thermocalc, Prisma
- Factsage
- MATLAB

Awards/Honours

- Reviewer in **Metallurgical and Materials Transaction A** and **Transaction of the Indian Institute of Metals** (2023)
- **NACE Foundation Scholarship** by National Association of Corrosion Engineers, International Foundation (2021)
- Recipient of **Summer Research Fellowship Programme** 2013 jointly organized by IASc (Bangalore) - INSA(New Delhi) - NASI(Allahabad)

Professional Experience

Assistant Professor

**National Institute of Advanced Manufacturing Technology
(April 2022 onwards)**

- Courses taught - Advanced iron and steel making (M Tech); Iron making (B Tech); Metal joining processes (M Tech), Heat treatment Technology (B Tech)

Researcher (Surface Engineering Group)

R&D, Tata Steel, Jamshedpur (August 2016 – Jan 2018)

- Project: Modelling of Internal-External Oxidation of high strength DP steels during annealing
- Involved in customer support regarding defect analysis of continuous galvanizing line

Academic Background

- PhD, Materials Science, CGPA: 9.7, IIT Bombay (2022)
- M.Tech, Materials Science, CGPA: 9.61, IIT Bombay (2016)
- B Tech, Metallurgy, CGPA: 9.44, NIT Raipur (2014)

Doctoral Thesis (IIT Bombay)

On the Mechanistic aspects of Environmental Assisted Cracking Behavior of high strength aerospace Al-Mg-Zn-Cu alloys

Supervisors: Prof V.S Raja and Prof. Jaya Nagamani Balila

Application: Designing heat treatments for achieving higher elongation and environmentally assisted cracking resistance

Peer-reviewed International Journal

- 2023** *Shweta Shukla*, N. Jaya Balila, V S Raja, “Micro-mechanisms of deformation accommodation in AA 7050 alloy in the presence of hydrogen”, DOI: 10.1016/j.jallcom.2023.169596, **Journal of Alloys and Compounds: IF - 6.371, 947, 169596**
- 2023** *Shweta Shukla*, N. Jaya Balila, V S Raja, “Role of GP II zones and metastable η' precipitates on the environmentally assisted cracking behavior of AA 7050 alloy”, **Metallurgical and Materials Transaction A: IF – 2.8**
- 2023** Markush Bakhla, *Shweta Shukla*, Binod Kumar, “Effect of electrode composition over performance of dissimilar stainless-steel welds”, **Materials today Proceedings : IF – 2.59**
- 2022** *Shweta Shukla*, N. Jaya Balila, V S Raja, “Understanding the role of matrix precipitates on the environmentally assisted cracking behavior of AA 7050 alloy”, DOI: 10.1016/j.corsci.2022.110281, **Corrosion Science: IF-7.72, 201, 110281**
- 2021** Mangesh D Pustode, Purnendu Chakraborty, Bharat Padekar *Shweta Shukla*, V. S. Raja, “Hot salt stress corrosion cracking study of selective laser melted Ti-6Al-4V alloy”, DOI: 10.1007/s11665-021-05774-5, **Journal of Materials Engineering and Performance: IF-1.82**
- 2018** M. Ajay Krishnan, V.S.Raja, *Shweta Shukla*, S.M.Vaidya, “Mitigating Intergranular Stress Corrosion Cracking in Age-Hardenable Al-Zn-Mg-Cu Alloys”, **Metallurgical and Materials Transactions A: IF-2.8**
- 2018** Avik Mondal, Arup Kumar Halder, Soumilya Nayak, Amrendra Kumar, Anindita Chakroborty, *Shweta Shukla*, Rajesh S. Pais, Monojit Dutta, “Root cause analysis of an uncommon surface defect on galvanized steel sheet”, **Engineering Failure analysis: IF-3.63**