

Saloni Sakala

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EDUCATION

Georgia Institute of Technology

Master of Science in Materials Science and Engineering

Atlanta, GA

May 2027 (Expected)

- **Relevant Coursework:** Computational Materials Science, Impedance and Dielectric Spectroscopy, Scattering Theory

COEP Technological University

Bachelor of Technology in Metallurgy and Materials Engineering (GPA: 3.5/4.00)

Pune, Maharashtra

May 2025

ENGINEERING EXPERIENCE

Research Intern, Indian Institute of Science Education and Research, Pune, India

Dec. 2023 – Dec. 2024

- Investigated silicon-graphite anodes for lithium-ion batteries to enhance efficiency

- Synthesized SiGC composites and evaluated via cyclic voltammetry (CV) and charge-discharge testing.

Keywords: Li-ion batteries, Si-graphite anodes, CV, Charge-discharge

Research and Development Intern, Saarloha Advanced Materials Pvt. Ltd, Pune, India

May. 2024 – Jul. 2024

- Built predictive ML models (Random Forest, Gradient Boosting, Ensemble) to estimate yield strength of steels from chemical composition and heat-treatment data.

- Processed 2,700+ samples using Python (scikit-learn, pandas); derived empirical formula for property prediction.

Keywords: Machine learning, Python, Data analysis, Materials informatics

PROJECTS

Optimization of Cryogenic Treatment and Aging Parameters for 17-4 PH Stainless Steel

Jan. 2025 – May. 2025

- Designed and executed heat treatment cycles (standard aging, double aging, and cryogenic treatments) on 17-4 PH SS.
- Characterized samples using SEM, XRD, mechanical and corrosion testing to correlate structure-property relationships.
- Recommended optimized cycles for application-specific requirements (high strength, toughness, or corrosion resistance).

Keywords: Heat treatment, Mechanical testing, SEM, XRD, Corrosion testing, Materials characterization

Disposal of Coal Fly Ash and Extraction of Silica

Jan. 2024 – May. 2024

- Investigated sustainable disposal methods for coal fly ash, focusing on minimizing environmental impact and maximizing resource recovery.
- Synthesized nano-silica via alkali dissolution and sol-gel processes; characterized products using XRF, SEM, and EDS; achieved ~5% extraction efficiency with potential industrial applications.

Keywords: Waste management, Sol-gel synthesis, Nano-silica, XRF, SEM, EDS, Environmental sustainability

Effects of Heat Treatment on Mild Carbon Steel

Feb. 2023 – Jun. 2023

- Analyzed the influence of heat treatment and forging on AISI 1028 steel under varied temperatures and cooling conditions.

Keywords: Heat treatment, Forging, Mechanical testing, Metallography

TECHNICAL SKILLS

Tools: SolidWorks, Python, AutoCAD, and CATIA, MATLAB, ImageJ, ThermoCal

Materials Characterization: SEM, TEM, XRD, Optical Microscopy

LEADERSHIP & COMMUNICATION EXPERIENCE

Classical Dance Team Head, Cultural Club, COEP Tech, Pune, Maharashtra

Dec. 2023 – May. 2025

- Led team choreography and performances at events like Variety'24 and Impressions'23; contributed to Firodiya'23 production.

Events Head, Mindspark'23, COEP Tech, Pune, Maharashtra

Jul. 2023 – Oct. 2023

- Managed flagship Metallurgy event “On the Etch,” coordinating teams, resources, and promotional campaigns.

CONFERENCE PUBLICATIONS

1. Enhancing SiGC Composites for High-Performance Li-ion Batteries – Poster, ICONEST'24
2. Effects of Heat Treatment on Mild Carbon Steel (AISI 1028) – Abstract, ICCAC'23