ADARSH DAS

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EDUCATION

Indian Institute of Engineering Science and Technology (IIEST), Shibpur August 22, 2021 - Present
Bachelor of Technology (B.Tech), Metallurgy and Materials Engineering
Medical Leave of Absence: August 2022 - July 2023

Birla Bharati School, West Bengal, India Class of 2021
Class XII [CBSE Board]

Vivekananda Mission School (VMS), West Bengal, India Class of 2019
Class X [ICSE Board]

RESEARCH EXPERIENCE

Indian Institute of Engineering Science and Technology (IIEST) Shibpur
Undergraduate Researcher

Simulation Study on the Effect of Carbon Nanoparticle Additives on Base Fluid Properties *August 2025 - Ongoing*

- Worked on improving the thermal and tribological properties of a sample brake fluid.
- Conducted simulation in LAMMPS to determine different properties based on different compositional changes.
- Analyzed the behavior of the new fluid in OVITO.

Green Synthesis of Characterization of Porous Mg-Zn Scaffolds for Biological Implants. *September - December 2024*

- Experience in powder metallurgy including compaction and sintering.
- Prepared a Magnesium-Zinc scaffold specimen incorporating powder metallurgy.
- Performed material characterization on the specimen to evaluate corrosion, hardness, x-ray diffraction testing and microstructure analysis.

Friction Stir Welding (FSW) of Aluminum 6082 *August - December 2023*

- Performed FSW at five different rpm with a constant traverse speed.
- Analyzed the grain size with varying rotation speed.
- Conducted comparative testing which demonstrated that grain size increases proportionally with operating rotational speed affecting the properties of a material.

Jadavpur University *May - July 2025 (Summer)*
Undergraduate Research Intern

Study of Wear Performance and Tensile Behavior of Al-Mg-Zn Alloys

- Studied 18 different aluminum samples with varying composition and sintering temperatures that included micro and nano samples.
- Performed wear and tensile testing using pin-on-disc wear testing and universal tensile testing machine simultaneously.
- The wear test of the micro samples were based on 3 different compositions (5, 7.5, 10)wt.% sintered at 3 different temperatures, where the 7.5wt.% samples provided the best tribological performance.
- The wear test of the nano samples were also based on 3 different compositions (0.5, 0.75 & 1)wt.% sintered at 3 different temperatures, where 1wt.% samples had the most lowest and stable Coefficient of Friction.

POTENTIAL RESEARCH INTERESTS

Molecular Dynamics Simulation, Carbon Nanomaterials, Quantum Materials.

WORKING PAPERS

1. **A. Das**, M.B. Sk. Study of Wear Performance and Tensile Behavior of Al-Mg-Zn Alloys.
2. **A. Das**, K. Das. Simulation Study on the Effect of Carbon Nanoparticle Additives on Base Fluid Properties.

TECHNICAL SKILLS

Lab Expertise: Microstructure Preparation, Scanning Electron Microscope (SEM), Universal Tensile Testing Machine, Pin-on-disc wear machine, Universal Hardness Testing Machine, Friction Stir Welding Machine

Software Tools: AutoCAD, SolidWorks, Ansys, LAMMPS, OVITO, NOVA, COMSOL Multiphysics, MATLAB, MS PowerPoint

Programming languages: Python, C, MATLAB

ACADEMIC PROJECTS

- Friction Stir Welding
- A Game using Python
- F1 Chassis using SolidWorks, its aerodynamics properties using Ansys and MATLAB
- 3D Spark Plug Modelling using AutoCAD

PRESENTATIONS

- Advancing Carbon Nanomaterials for Reduction of Automotive Engine Friction by using h-BN nanosheets and spherical W nanoparticles additives: A Hypothesis using Molecular Dynamics Simulation.
- Current Trends of Giga-Casting Technology in Car Manufacturing.
- Hydrogen liquefaction: A fundamental approach for a clean and renewable energy carrier for various applications.

ACADEMIC ACHIEVEMENTS

- Awarded 2nd prize for Carbon Nanomaterials presentation at Metallum 5.0 at IIEST Shibpur [Cash prize - Rs. 2000].
- Certificate of Appreciation and a Letter of Recommendation awarded at E-Drive workshop.

WORKSHOPS

- E-drive workshop (a workshop on Electric Vehicle) by Tech Analogy (2023).
- Autodrift workshop on SolidWorks, Ansys and Matlab by Tech Analogy (2021).

SPORTS ACHIEVEMENTS

- Winner + Best Player Award at Diamond City West Football Tournament (2022).
- Certificate of Participation for Inter-School Table Tennis at Birla Bharati (2019).
- 2nd prize for Intra-School Table Tennis at VMS (2018).
- Won several cricket, football and BGMI tournaments [cash awards].