

ADARSH DAS

2021mmb031.adarsh@students.iiests.ac.in

Phone: +919748890527

<https://adarshdas07.github.io/>

EDUCATION

Indian Institute of Engineering Science and Technology (IEST), 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 (IEST) 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 [\[PPT\]](#)
- A Game using Python [\[GitHub\]](#)
- 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. [\[PPT\]](#)
- Current Trends of Giga-Casting Technology in Car Manufacturing. [\[Poster\]](#)
- Hydrogen liquefaction: A fundamental approach for a clean and renewable energy carrier for various applications [\[PPT\]](#)

ACADEMIC ACHIEVEMENTS

- Awarded **2nd prize** for Carbon Nanomaterials presentation at Metallum 5.0 at IEST Shibpur [Cash prize - Rs. 2000] [\[doc\]](#).
- Certificate of Appreciation and a Letter of Recommendation awarded at E-Drive workshop [\[doc\]](#).

WORKSHOPS

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

SPORTS ACHIEVEMENTS

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