ANKITA BHATTACHARYA

Email ankita.bhattacharya.met@gmail.com

Mailing address 27/1, Sadhan Kanan, P.O. - Morepukur,
City - Rishra, Dist. Hooghly, West Bengal.
Pin -712250

Telephone +91-9433180583, +91-8017681001

Objective

I am seeking a challenging position in a sincere working environment, which will permit me to continue practicing and expanding my skill set and knowledge base.

Research Interests

Structure-property correlation in steel, Deformation behavior of steels, Phase transformation in steel, Thermo-mechanical processing in steel, Texture, High entropy alloy, Additive manufacturing.

Educational Background

Degree	Specialization	Year	Institution	Marks obtained
Doctor of Philosophy (Ph.D.)	Structure-property correlation in steel	2024	Indian Institute of Technology, Kharagpur	9.83/10 (CGPA)
Master of Technology (M.Tech)	Metallurgy and Materials Engineering	2016	Indian Institute of Engineering Science and Technology, Shibpur	90.8 %
Bachelor of Engineering (B.E.)	Metallurgy and Materials Engineering	2014	Indian Institute of Engineering Science and Technology, Shibpur	84.5 %
10 +2 (Higher Secondary)	Science	2009	Serampore Girls' High	90.2 %

			School	
10 (Madhyamik)		2007	Serampore Girls' High School	88 %

Skill Sets

- **Software –** ThermoCalc ®, JMatPro ®, DICTRA^{TM}, MATLAB, Origin Pro, TSL-OIM
- **Technical Skill –** Nanoindentation, Universal Testing Machine, Tribometer, 3-D optical profiler

Work Experience

NIAMT Ranchi	Assistant Professor on contract (Dept of MME)	January 2025-Ongoing	Theory: 1) Characterization of Materials (B. Tech) 2) Heat Treatment Technology (M. Tech) Laboratory: 1) Characterization of Materials lab
IIT Madras	Research Associate I	August 2024 – December 2024	• Development of Strongly cube-textured Ni substrate for fabricating single-crystal Ni-based superalloy through LPBF • Investigating the role of heat treatment parameters on microstructure and electrical conductivity of CuCrZr alloy
IIT Kharagpur	Teaching Assistant	July 2017-April 2021	Theory: 1) Dislocation Theory 2) Fracture Mechanics and Analysis of Engineering Failures Laboratory: 1) Mechanical Testing and Working lab 2) X-Ray Diffraction and Transmission Electron Microscopy Lab

List of Publications

Journals

1. **Ankita Bhattacharya**, Rakesh Kumar Barik, Abhijit Ghosh, Sudipta Patra, Mainak Sen, Anindya Das, Rahul Mitra, Debalay Chakrabarti; Relative influence of microsegregation and structural unit size on the strength-impact toughness properties of an armor grade steel. Materials Science and Engineering: A, 2024. Volume 901. pp: 146501.

2. **Ankita Bhattacharya**, Sankalp Biswal, Rakesh Kumar Barik, Bhupeshwar Mahato, Mainak Ghosh, Rahul Mitra, Debalay Chakrabarti; Comparative interplay of C and Mn on austenite stabilization and low temperature impact toughness of low C medium Mn steels. Materials Characterization, 2024. Volume 208. pp: 113658.
3. **Ankita Bhattacharya**, Rakesh Kumar Barik, Supriya Nandy, Mainak Sen, T.S. Prithiv, Sudipta Patra, Rahul Mitra, Debalay Chakrabarti, Abhijit Ghosh; Effect of martensite twins on local scale cleavage crack propagation in a medium carbon armor grade steel. Materialia, 2023. Volume 30. pp: 101800.
4. **Ankita Bhattacharya**, Anish Karmakar, Arnab Karani, Mainak Ghosh, Debalay Chakrabarti; Processing of Ultrafine-Grained Steels by Warm Rolling and Annealing. Journal of Materials Engineering and Performance, 2019. Volume 28. pp: 753-768.
5. **Ankita Bhattacharya**, Praveen Kumar Bokinala, Rahul Mitra, Debalay Chakrabarti; Relative effect of C and Mn on strength-toughness of medium Mn steels. Materials Science and Technology, 2019. Volume 35. pp: 55-67.
6. **Ankita Bhattacharya**, Anupam Bagdi, Debdulal Das; Influence of microstructure on high-stress abrasive wear behaviour of a microalloyed steel. Perspectives in Science, 2016. Volume 8. pp: 614—617.
7. Abhisek Mandal, Rakesh Kumar Barik, **Ankita Bhattacharya**, Debalay Chakrabarti, Claire Davis; The Correlation Between Bending, Tensile and Charpy Impact Properties of Ultra-high-Strength Strip Steels. Metallurgical and Materials Transactions A, 2023. Volume 54. pp: 3820-3843.
8. Saroj Kumar Basantia, Md Abu Bakkar, **Ankita Bhattacharya**, Debdulal Das, Niloy Khutia; Predicting Macro- and Microscopic Responses of Dual-Phase Steels under Low Cycle Fatigue Based on Multi-scale Finite Element Methods. Journal of Materials Engineering and Performance, 2023. Volume 32. pp: 3298-3321.
9. Saroj Kumar Basantia, **Ankita Bhattacharya**, Niloy Khutia, Debdulal Das; Influence of microstructural parameters on nanohardness of various dual-phase steels: Experiment, Finite Element simulation and Statistical analysis. Materials Today Communications, 2022. Volume 30. pp: 103125.
10. R Rejeesh, **Ankita Bhattacharya**, Chandan Haldar, Rahul Mitra, Debalay Chakrabarti, CR Das, Shaju K Albert, Arun Kumar Bhaduri; Relative effect of B and N concentrations on the microstructural stability and mechanical properties of modified 9Cr-1Mo steel. Journal of Alloys and Compounds, 2021. Volume 867.pp:158971.
11. Saroj Kumar Basantia, **Ankita Bhattacharya**, Niloy Khutia, Debdulal Das; Plastic Behavior of Ferrite–Pearlite, Ferrite–Bainite and Ferrite–Martensite Steels: Experiments and Micromechanical Modelling. Metals and Materials International, 2021. Volume 27. pp: 1025-1043.
12. Saroj Kumar Basantia, V Singh, **Ankita Bhattacharya**, Niloy Khutia, Debdulal Das; Prediction of tensile behaviour of ferrite-martensite dual phase steel using real microstructure-based RVE simulations. Materials Today: Proceedings, 2018. Volume 5. pp:18275-18280.

Conferences

1. V Singh, Saroj Kumar Basantia, **Ankita Bhattacharya**, Debdulal Das, Niloy Khutia; Low cycle fatigue analysis of ferrite-martensite dual-phase steel using advanced cyclic plasticity models. IOP Conference Series: Materials Science and Engineering, International Conference on Mechanical, Materials and Renewable Energy 8–10 December 2017, Sikkim, India. Volume 377. pp: 012161.

Projects

B. E.

Title Development of iron aluminide reinforced aluminum matrix nanocomposite using melt cast route

Overview This project aimed to develop an iron aluminide (5 wt. %) reinforced aluminum matrix composite through the melt cast route and compare its mechanical properties after hot rolling to different extents. The tensile and Charpy impact toughness properties were found to increase with increasing the extent of hot rolling as compared to the as-cast structure.

M. Tech

Title Role of second phase on low cycle fatigue performance of steel

Overview This project aimed to observe the variation of low cycle fatigue performance of ferrite-pearlite, ferrite-bainite, and ferrite-martensite microstructure having nearly equal amounts of second phases. The ferrite-martensite structure was found to exhibit superior fatigue performance while the ferrite-bainite structure manifested inferior fatigue behavior.

Ph.D.

Title Influence of alloy composition and microstructure on strength-impact toughness combination of steels for strategic applications

Overview This project aims to obtain excellent strength-toughness combinations in naval grade, medium Mn, and armor grade steels through the meticulous selection of alloy chemistry and design of a suitable heat treatment schedule.

Industrial and Academic Training

1. **Course Title –** Vacation Training Programme at R &D and Scientific Services at Tata Steel Ltd., Jamshedpur

Duration – May 2013 - June 2013
Details of Training - Study of Bore Cracking in automotive steel sheets

2. **Course Title-** Vacational Training in the Department of Mechanical Engineering, Jadavpur University, Kolkata
Duration – May 2012 - June 2012
Details of Training – Quasistatic Tensile Testing and Quasistatic and Strain Rate Dependent Finite Element Simulation of C-Mn Steel

Conferences Attended

1. Oral Presentation at NMD-ATM 2019, held at Hotel Samudra and Hotel Uday Samudra, Kovalam, Thiruvananthapuram, Kerala, November 13-16, 2019.
2. Oral Presentation at EUROMAT 2019, held at Stockholm City Conference Centre, Stockholm, Sweden, September 1-5, 2019.
3. Oral presentation on Research Scholar Day 2019, held at Department of Metallurgical and Materials Engineering, Indian Institute of Technology Kharagpur, Kharagpur, April 13, 2019.
4. Attending Two day workshop on APT, organized by NFAPT, held at IIT Madras, Madras, March 8-9, 2019.
5. Poster Presentation at NMD-ATM 2018, held at Hotel JW Marriot, Kolkata, November 14-16, 2018
6. Poster presentation at the Young scientists' Colloquium-2018, held at Indian Association for the Cultivation of Science, Jadavpur at Kolkata, September 20, 2018.
7. GIAN course on Crystallographic Texture and Crystal Plasticity Modelling, held at IIT Kharagpur, Kharagpur, December 4-14, 2017.
8. Oral presentation at the International Conference on Advances in Materials and Materials Processing –IV, held at Indian Institute of Technology Kharagpur, Kharagpur, November 5-7, 2016
9. Poster presentation at the International Conference on Recent Trends in Engineering and Material Sciences, held at Jaipur National University, Jaipur, March 17-19, 2016.
10. Attending Two days workshop on Product development: Concepts, Methods & Applications, held at Department of Mechanical Engineering, IIEST Shibpur, Shibpur, October 16-27, 2014.

Academic Achievements

- Reviewer Appreciation Certificate received from "Transactions of The Indian Institute of Metals" for reviewing manuscript in December 2021.
- First prize for the Metallographic Contest on Research Scholar Day 2019, held at the Department of Metallurgical and Materials Engineering, Indian Institute of Technology Kharagpur, Kharagpur.
- Institute medal for securing first position in order of merit at the Master of Technology course in Metallurgy and Materials Engineering, 2016.
- Institute medal for securing first position in order of merit at the Bachelor of Engineering

course in Metallurgy and Materials Engineering, 2014.

- 79.33 percentile and AIR 61 in the All India Graduate Aptitude Test for Engineers (GATE), 2015

Personal Information

Date of Birth	21st February, 1991
Father's name	Tapan Kumar Bhattacharya
Nationality	Indian
Sex	Female
Linguistic abilities	English, Bengali, and Hindi

I hereby declare that all the above statements and information given are true to the best of my knowledge.

Ankita Bhattacharya

Ankita Bhattacharya