Dr. JAYANTA KUMAR MAHATO

Assistant Professor
Mechanical Engineering Department
Shobhit University, Meerut – 250 110, U.P., India

Email : jayanta.mahato@gmail.com
Mobile No. : 9051020788/8697974088
Date of Birth : 02.10.1985

Educational Qualifications:

EXAMINATION	BOARD / UNIVERSITY	INSTITUTION	YEAR OF PASSING	CGPA	% OF MARKS
Ph.D. (Engineering)	Jadavpur University	Jadavpur University	2018	---	---
M.Tech. (Material Engg)	Jadavpur University	Jadavpur University	2009	7.78	70.61
B.E. (Production Engg)	Jadavpur University	Jadavpur University	2007	7.19	65.69
High Secondary	W.B.C.H.S.E.	Purulia Zilla School	2002	---	50.90
Secondary	W.B.B.S.E.	Hura High School	2000	---	74.00

Experience:

Organization	Position Held	From	To	Pay Scale and Gross Salary
Shobhit University	Assistant Professor	23/09/2019	Till Date	15,600-39,100 50,000 (Gross)
Jadavpur University	Postdoctoral Research Associate	14/01/2019	21/09/2019	46,800 (Gross)
Jadavpur University	Research Fellow (RGNF)	03/04/2017	05/12/2018	34,500 (Gross)
Jadavpur University	Senior Research Fellow (TEQIP-II)	16/09/2014	31/03/2017	32,240 (Gross)
Jadavpur University	Senior Research Fellow (CSIR)	06/05/2011	15/09/2014	27,800 (Gross)
Jadavpur University	Junior Research Fellow (UGC)	01/06/2009	05/05/2011	10,000

Ph.D. Thesis Title : Effect of Grain Size and Stacking Fault Energy on Monotonic and Cyclic Deformation Behavior of Two Different Single Phase FCC Metals.

M. Tech. Thesis Title : Comparative Study of Al-Al2O3 Composite Prepared by Mechanical Mixing and Oxidation.

Subject Taught : Materials Engineering, Manufacturing Processes, Manufacturing Technologies, Industrial Safety, Automotive Chassis, Environmental Science and Instrumentation & Control (UG).

Instruments Handled **:** Universal Testing Machine (Instron) with both room and high temperature facilities, In-situ FESEM for both SEM and EBSD, High Cycle Fatigue Testing Machine (Rumul), Creep Crack Growth (CCG) Testing Machine (Zwick), Hot Stage Microscope (Leica), Stereo Microscope (Leica), Optical Microscope (Leica), Lathe, Shaping, Milling, Drilling Machine, Vickers, Brinell, Micro Hardness Testing Machine, Hydraulic Press Machine, High Temperature Furnace.

Area of Interest **:** Material Engineering, Mechanical Metallurgy, Fracture Mechanics, Mechanical Behavior of Materials, Manufacturing Processes, Manufacturing Technologies.

Awards/Fellowship

a) **Academic Excellence Award 2021** by Institute of Scholars (InSc), Bangalore, India.
b) **Young Researcher Award 2020** by Institute of Scholars (InSc), Bangalore, India.
c) GATE Scholarship for M. Tech. degree.
d) UGC Research Fellowship for Science and Meritorious Students.
e) CSIR Fellowship for pursuing Ph.D.
f) TEQIP (Centre of Excellence) Fellowship for pursuing Ph.D.
g) Rajiv Gandhi National Fellowship for pursuing Ph.D.
h) Post-doctoral Research Associate Fellowship from IGCAR, Kalpakkam.

Ph.D. Student Guided (Main Supervisor)

1. **Name:** Mukesh Kumar, **Title:** Design and Development of Diesel Engine for Efficient Combustion, **Status:** Ongoing (Registered on August, 2020).
2. **Name:** Ashwani Kumar, **Title:** Development and Optimization of Exhaust After-treatment Devices to Reduce Emissions, **Status:** Ongoing (Registered on August, 2020).
3. **Name:** Krishnendu Mondal, **Status:** Enrolled for Ph.D.

Ongoing Research Project as PI

Title of the Project	Name of the Scheme	Name of the Funding Agency	Total Fund	Status
Development and characterization of advanced metal matrix composites for automotive and structural applications	**MODROB**	**AICTE**	**Rs. 16.265 Lakhs**	**Ongoing**
Mechanical Behaviour of Metal Matrix Composites Fabricated Through Powder Metallurgy and Stir Casting Processes	**TARE**	**SERB**	**Rs. 16.8 Lakhs**	Submitted

Synthesis and Characterization of Advanced Metal Matrix Nano-Composites for Large Scale Applications	**CRG**	**SERB**	**Rs. 57.57 Lakhs**	Submitted

Researcher Identity

- **Scopus ID:** 56275556400 (*Documents: 14, Cit: 49, h-index: 4*)
- **Researcher ID:** AAM-1681-2021 **(***Documents: 13, Cit: 37, h-index: 4***)**
- **Google Scholar Id:** 2Ka5z1YAAAAJ&hl (*Documents: 18, Cit: 69, h-index: 4, i10-index: 2*)
- **Vidwan ID:** 199398
- **Orcid ID:** 0000-0002-2290-898X

Research Area

a) Effect of strain rate and grain size on tensile and strain hardening behaviour at both room and high temperature of different materials.
b) Study of low cycle fatigue behaviour and evolution of hardening phenomena at both room and high temperature of different FCC metals.
c) Asymmetric stress control cyclic behavior of FCC and BCC metals in both engineering stress control and true stress control mode.
d) Bauschinger effect behavior analysis during both monotonic and cyclic mode of deformation of FCC metals.
e) Fabrication of metal matrix composites with different matrix and reinforcement materials and their physical, mechanical and corrosion characterizations.
f) Tensile deformation behavior at cryogenic, room and high temperature.
g) Interest in high cycle fatigue behavior, pre-cracking, fatigue crack growth (FCG), creep crack growth (CCG) and creep fatigue interaction (CFI) of different metals.

Technical Skills:

1. Proficient in performing all kind of monotonic and cyclic tests at both room temperature and high temperature on Instron servo-control machine (both servo-hydraulic and servo-electric) using Bluehill, LCF_3 and WaveMatrix software.
2. Efficient in carrying out fracture mechanics tests, Creep-Fatigue Interaction (CFI) tests, ratcheting tests and Creep Crack Growth (CCG) test.
3. Efficiency in carrying out high cycle fatigue, pre-cracking and Fatigue Crack Growth (FCG) tests using high cycle fatigue testing machine (Rumul).
4. Efficient in Optical Microscopy (OM) and Scanning Electron Microscopy (SEM).
5. Have knowledge on working with AutoCAD and expert in Origin.

Publications:

1. J.K.S. Jadon, R. Singh, **J. K. Mahato**[*]; *Creep-Fatigue Interaction Behavior of High Temperature Alloys: A Review;* Materials Today: Proceedings (2022). (**I.F: 1.24**)
2. **J. K. Mahato**[*], Sameer, J.K.S. Jadon, R. Singh, R. Gahlaut and A.K. Pramanick; *Development of Microstructure and Tribological Properties of AMMCs Fabricated by Two Different Powder Metallurgy Routes;* International Journal of Vehicle Structure & System, 14 (2022) 158-164. (**I.F: 0.95**)
3. A. Gandhi, A. Kundu, A. Sarkar, **J. K. Mahato,** P.C. Chakraborti; *Effect of laser pulse duration on tensile and electrochemical behavior of laser welded dual phase steel*; Journal of Materials Engineering and Performance, 30 (2021) 4263–4281. (**I.F: 1.819**)

4. S.K. Chandra, R. Sarkar, M.K. Patel, P.S. De, **J.K. Mahato**, P.C. Chakraborti, S.K. Ray; *Characterization of ductile crack growth resistance behavior of Interstitial-free steel sheet using energy dissipation rate parameter*, Theoretical & Applied Fracture Mechanics, 114 (2021) 102994. (**I.F: 4.017**)
5. S. Mukherjee, A. Kundu, P. S. De, **J. K. Mahato**, P. C. Chakraborti, M. Shome and D. Bhattacharjee, "*Insitu investigation of tensile deformation behavior of cold-rolled interstitial-free high-strength steel in scanning electron microscope"*; Material Science & Engineering A; 776 (2020) 139029-39. (**I.F: 5.234**)
6. **J. K. Mahato**[*], P. S. De, K. A. Anand, A. Kundu and P. C. Chakraborti, "*Justification of post-ratcheting hardening behavior of annealed Copper through hardening coefficient and hardening factor"*; Materials Today: Proceedings 32 (2020) 379-384. (**I.F: 1.24**)
7. **J. K. Mahato**, *"Comparative Study of Aluminium – Alumina Composite Prepared by Mechanical Mixing and Oxidation"*; Springer proceedings in Materials 8 (2020) 329-339.
8. P. S. De, **J. K. Mahato**, A. Kundu, P. C. Chakraborti and M. Shome; *Uniaxial ratcheting behavior of dual-phase steel sheet*; Journal of Materials Engineering & Performance 27(2018) 3688-98. (**I.F: 1.819**)
9. P. S. De, **J. K. Mahato**, A. Kundu, P. C. Chakraborti and M. Shome; *True stress-control ratcheting behavior of cold-rolled interstitial-free steel sheet*; Mechanics of materials 115 (2017) 34-46. (**I.F: 1.09**)
10. **J. K. Mahato**, P. S. De, A. Sarkar, A. Kundu and P. C. Chakraborti; *Effect of deformation mode and grain size on Bauschinger behavior of annealed copper*; International Journal of Fatigue; 83 (2016) 42 - 52. (**I.F: 5.186**)
11. **J. K. Mahato**[*], P. S. De, A. Kundu and P. C. Chakraborti; *Role of stacking fault energy on symmetric and asymmetric cyclic deformation behavior of FCC metals;* Structural Integrity Assessment, Lecture Notes in Mechanical Engineering (2019) 691-702.
12. **J. K. Mahato**[*], P. S. De, A. Kundu and P. C. Chakraborti; *Assymetric cyclic behavior of fine and coarse grained commercially pure copper and aluminium;* 'in Proceedings of Fatigue, Durability and Fracture Mechanics, (2018), 397-411.
13. **J. K. Mahato**, P. S. De, A. Sarkar, A. Kundu and P. C. Chakraborti; *Grain size effect on LCF behavior of two different FCC metals*; Procedia Engineering 160 (2016) 85 – 92.
14. **J. K. Mahato**, P. S. De, A. Sarkar, A. Kundu and P. C. Chakraborti; *Effect of testing mode on ratcheting and post-ratcheting tensile properties of annealed OFHC copper*; Procedia Material Science; 5 (2014) 1358 -1367.
15. **J. K. Mahato**, P. S. De, A. Sarkar, A. Kundu and P. C. Chakraborti; *Effect of prestrain and stress rate on Bauschinger effect of monotonically and cyclically deformed OFHC copper*; Procedia Engineering 74 (2014) 368 -375.
16. P. S. De, A. Sarkar, **J. K. Mahato**, A. Kundu, P. C. Chakraborti and M. Shome; *Effect of prior ratcheting on tensile properties of titanium stabilized interstitial free steel*; Procedia Materials Science 5 (2014) 1349-1357.
17. A. Sarkar, P. S. De, **J. K. Mahato**, A. Kundu, and P. C. Chakraborti; *Effect of mean stress and solution annealing temperature on ratcheting behavior of AISI 304 Stainless Steel*; Procedia Engineering 74 (2014) 376-383.

Vision & Mission Statement For Teaching:

I would always like to teach both UG and PG students from the basic fundamental knowledge by giving real examples. I start every day's teaching with brief summary of previous day topics and end with the list of topics to-be discussed in the next day lecture. Apart from the class board teaching, I also prefer to teach through Power Point Presentation. In this case I always prepare PPTs by incorporating animations so that students can easily visualize, realize & understand the topics. I would also like to record my lecture videos, upload to my YouTube Channel and share the link to the students so that they can revise the topics from recorded lectures. **I also would like to upload my recorded lecture videos to my YouTube channel named 'Dr. Jayanta Mahato' and share the link of**

uploaded videos with the students. Students are highly benefited from the uploaded videos. I would like to teach the following subjects: Materials Engineering, Manufacturing Processes, Manufacturing Technologies, Fracture Mechanics, Strength of Materials and Mechanical Metallurgy.

Personal Details:

Marital Status **:** Married
Category **:** OBC / PH
Sex **:** Male
Nationality **:** Indian
Father's Name **:** Late Rasaraj Mahato

Permanent Address : Vill - Sijumakhna, P.O – Dapang, Dist - Purulia, West Bengal, India, Pin – 723 148.

Present address **:** 96/6 Grater Pallavpuram, Phase-II, Meerut, Uttar Pradesh - 250110.

Extracurricular activity: Photography, Travelling, Playing Carom.

References:

1. **Prof. Pravash Chandra Chakraborti,** Professor, Metallurgical and Material Engineering Department, Jadavpur University, Kolkata – 700032.
   e-mail ID: pravashchandrachakraborti@hotmail.com
   Contact Number: 9830236451
2. **Prof. Saradindukumar Ray,** Former MoS Chair Professor, Metallurgical and Material Engineering Department, Jadavpur University, Kolkata – 700032.
   e-mail ID: saradindu.ray@gmail.com
   Contact Number: 9831807966
3. **Dr. Amrita Kundu,** Associate Professor, Metallurgical and Material Engineering Department, Jadavpur University, Kolkata – 700032.
   e-mail ID: akundu05@gmail.com
   Contact Number: 9007514082

Declaration:

I hereby declare that information furnished above is true to the best of my Knowledge.

Jayanta Kumar Mahato

Date …….

Place:- Meerut – 250 110

(*Jayanta Kumar Mahato*)