Dr. GAURAB KUMAR GHOSH

CONTACT

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gaurab0112@gmail.com

CORE COMPETENCIES

- Tribology
- Nanolubricants
- Surface Engineering
- Mechanics
- Heat Transfer and Rheology
- Applied Statistics
- Optimization Techniques
- Particle Characterizations
- Nanotechnology Applications
- Design of Machine Elements
- Quality Control Systems
- Analytical Modelling

EDUCATION

2024
Ph.D. (Mechanical Engineering)
IIT-Indian School of Mines, Dhanbad | 9.00 CGPA

2015
M. Tech**(Mechanical Engineering)**
Indian School of Mines,Dhanbad
Gold Medalist| 9.99 CGPA

2013
B.Tech. (Mechanical Engineering)
Veer Surendra Sai University of Technology, Burla | 9.21 CGPA

IT SKILLS

- SolidWorks
- LabView
- Design Expert
- Origin Pro
- X-pert High score
- MATLAB
- Minitab
- Ansys
- Fluent

ABOUT ME

Academic professional with over 9 years of experience, in search of challenging roles as an Assistant Professor role in the Mechanical Engineering in a reputed university, specializing in tribology, leveraging a Master's degree in Mechanical Engineering and a strong publication record.

PROFILE SUMMARY

- Leading academic initiatives as an Assistant Professor at Indira Gandhi Institute of Technology, Sarang, displaying expertise in teaching UG and PG courses of Mechanical Engineering, guiding students' projects and handling R &D Projects.
- Areas of Interest: Tribology, Nanolubricants and Surface Engineering
- Executed projects focusing on enhancing the tribological and rheological properties of lubricants by dispersion of nanoparticles additives.
- Proficient in utilizing Finite Element Analysis and Computational Fluid Dynamics for optimizing mechanical designs, showcasing a strong analytical mindset and problem-solving skills crucial for innovative research and development projects.
- Experienced in teaching Mathematics to JEE-Advance aspirants

WORK EXPERIENCE

July'17-Present

IGIT, Sarang, Dhenkanal, Odisha-759146
Assistant Professor
Responsibilities:

- Spearheading academic curriculum development in Mechanical Engineering.
- Conducting research on advanced nanolubricants for HEMM applications.
- Institute Website In-charge
- Implementing innovative teaching methodologies to enhance student learning.
- Organizing workshops and seminars to promote industry-academia interaction.
- Supervising undergraduate and postgraduate research projects.

July'15-July'17

Aakash Educational Services Private Limited, New Delhi
Asst. Lecturer and Academic Coordinator
Responsibilities:

- Teaching Mathematics to JEE-Main and JEE-Advance Aspirants
- Academic coordinator of foundation batch
- Preparing innovative techniques for easy and fast problem-solving in competitive exams
- Encouraging and motivating young minds to prepare them for technical competition
- Other institutional administration duties for foundation section

SOFT SKILLS

Problem-solver ●●●●●

Coordinator ●●●●●

Communicator ●●●●●

Decision-maker ●●●●●

CERTIFICATION

Post Graduate Diploma in Applied Statistics (IGNOU) with 89.1 % (First Class Distinction)

AWARDS & ACHIEVEMENTS

- Won **Best Post-Graduate Gold Medal** from IIT-ISM Dhanbad 2015 Convocation
- Won **Best Presentation award** at 2nd National Conference on Multi-Dimensional Advancement in Mechanical Engineering, 27-28th December, 2017, Government College of Engineering, Kalahandi, India.
- Guided 5 Post Graduation Projects and 6 Under Graduation Projects
- Qualified GATE 2015.
- Qualified OJEE 2009.

BOOK CHAPTERS

- **Ghosh G.K.**, Kotia A., Kumar N., Ghosh S.K. (2021) Performance Evaluation of Graphene-Gear Oil Nanolubricants in Rayleigh Step Bearing. In: Prakash C., Krolczyk G., Singh S., Pramanik A. (eds) Advances in Metrology and Measurement of Engineering Surfaces. Lecture Notes in Mechanical Engineering. Springer, Singapore.

Professional Memberships

- Tribology Society of India (LM #6062)
- Associate Member of Institute of Engineers (AMIE) India (Membership No: AM3033581)

R & D PROJECTS COMPLETED

1. **Experimental Investigation of tribological properties and oil film thickness analysis of Gear oil based Nanolubricants** sanctioned by **NPIU** worth Rs. 15,57,000 in June 2019
2. **Optimization of Tribological Characteristics of Industrial Engine oil based Nanolubricants using Taguchi Method** sanctioned by **TEQIP-III** worth Rs. 1,85,000 in June 2019

PUBLICATIONS (SCI Indexed)

1. **Gaurab Kumar Ghosh,** Ankit Kotia, Niranjan Kumar**,** Subrata Kumar Ghosh, (2021), Optimization and modeling of rheological characteristics for graphene-gear oil based nanolubricant using response surface methodology, Colloids and Surfaces A: Physicochemical and Engineering Aspects (Elsevier), Vol. 630, https://doi.org/10.1016/j.colsurfa.2021.127605 (**SCI**, **Q2**, **Impact Factor: 5.2**)
2. Ankit Kotia, **Gaurab Kumar Ghosh**, Isha Srivastava, Piyush Deval, Subrata Kumar Ghosh, (2019), Mechanism for improvement of friction /wear by using Al_2O_3 and SiO_2-gear oil nanolubricants, Journal of Alloys and Compounds (Elsevier), Vol 782:592-599. (**SCI**, **Q1 Impact Factor: 6.2**)
3. **Gaurab Kumar Ghosh**, Sikta Panda, Ritesh Kumar Patel, Ankit Kotia, Niranjan Kumar, Subrata Kumar Ghosh, (2024), Evaluation of tribological efficacy and EP lubricity properties of gear oil (EP90) energized with MoS_2 nano-additives, Journal of Dispersion Science and Technology (Taylor and Francis), 1-11, DOI: 10.1080/01932691.2024.2303329 **(SCI, Q4 Impact Factor 2.2)**
4. **Gaurab Kumar Ghosh**, Sikta Panda, Ankit Kotia, Niranjan Kumar, Subrata Kumar Ghosh, (2024), The conjoint effect of lab-grown nano-graphen dispersant and omega-9 fatty acid surfactant on performance of CI engine, Journal of Dispersion Science and Technology (Taylor and Francis), 1-14, DOI: 10.1080/01932691.2024.2376692 **(SCI, Q4 Impact Factor 2.2)**
5. Ankit Kotia, **Gaurab Kumar Ghosh**, Subrata Kumar Ghosh (2018), Analytical modelling of interfacial thermal conductivity of nanofluids for advanced energy transfer, Iranian Journal of Science and Technology, Transactions A: Science. (**SCI, Q2 Impact Factor 1.7)**

PUBLICATIONS IN SCOPUS INDEXED JOURNALS FROM CONFERENCES

1. A. Kumar, S. Panda, **G. Kumar Ghosh** et al., Numerical simulation of weld nugget in resistance spot welding process, Materials Today: Proceedings 27 (2020) 2958-2963. (Also selected for special issue in ISNNAM 2020, University of Johannesburg).
2. A. Saxena, S. Gangwar, **G. K. Ghosh** et al., Rheological properties analysis of MWCNT/graphene hybrid-gear oil (SAE EP-90) nanolubricants, Materials Today: Proceedings, https://doi.org/10.1016/j.matpr.2020.02.973.
3. A. Ranjan Pani, R. Kumar Patel and **G. Kumar Ghosh**, Buckling analysis and material selection of connecting rod to avoid hydrolock failure, Materials Today: Proceedings 27 (2020) 2121-2126. Publications in Conference)

NPTEL Swayam Courses Completed

- **Mechanical Measurement Systems** conducted by **IIT Roorkee** during Jan-March 2022 (8 Weeks)
- **Advanced Machining Processes** conducted by **IIT Guwahati** during Aug-October 2021 (8 Weeks)
- **Failure Analysis and Prevention** conducted by **IIT Roorkee** during Jan-March 2021 (8 Weeks)
- **Introduction to Mechanical Vibration** conducted by **IIT Roorkee** during July-December 2020 (8 Weeks)
- **Principles of Casting Technology** conducted by **IIT Roorkee** during Jan-March 2019 (8 Weeks)
- **Manufacturing Process Technology-Part I** conducted by **IIT Kanpur** during Jan-March 2016 (8 Weeks)
- **Particle Characterization** conducted by **IIT Madras** during Feb-May 2015 (8 Weeks)

PERSONAL DEETAILS

Address	: C/O- Dharani Dhar Ghosh Flat No.: 2E, Block 2 Merlin Uttara, 94/7K G.T. Road P.O: Hindmotor, Kotrung Dist: Hooghly, West Bengal-712233
Date of Birth	: 1st December 1990
Languages Known	: English, Hindi, Bengali
Marital Status	: Married

PUBLICATIONS IN CONFERENCE PROCEEDINGS

1. Sahoo, J.P., Patel, R. and **Ghosh, G.K**., Design and analysis of high-pressure hydraulic accumulator, 2nd International conference on Industrial and Manufacturing systems (CIMS-2021), 11-13th November 2021, jointly organized by Punjab Engineering college and National Institute of Technology, Jalandhar

2. Panda, S., Nayak, S. and **Ghosh, G.K.,** Comparative study on mechanical properties of Luffa Cylindrica and Jute fibre reinforced epoxy with graphene nanoparticles, Research and Developments in Material Processing, Modeling and Characterization (RDMPMC), 26-27th Aug 2020, National Institute of Technology, Jamshedpur, India

3. **Ghosh, G.K**. and Patel, R. K., Experimental investigation of resistance spot welding on mild steel (G3302) and stainless steel (SS202) Sheets, conference proceedings: International Conference on Contemporary Design and Analysis of Manufacturing and Industrial Engineering Systems (CDAMIES), 18-20th January, 2018, National Institute of Technology, Tiruchirappalli, India.

4. **Ghosh, G.K.,** Kotia, A.and Ghosh, S. K., Wear modelling and simulation in Pin-on-Disc Tribometer with gear oil based nanolubricants, 19th ISME conference on Advances in Mechanical Engineering, 20-22nd December 2018, National Institute of Technology, Jalandhar, India.

5. Patel, R. K., **Ghosh, G.K.** and Pradhan, S. R., Fatigue and Modal analysis of Crankshaft using ANSYS software, 19th ISME conference on Advances in Mechanical Engineering, 20-22nd December 2018, National Institute of Technology, Jalandhar, India.

6. **Ghosh G.K.** and Patel, R.K., A non-linear model for interfacial layer's thermal conductivity of nanofluid, 2nd National Conference on Multi-Dimensional Advancement in Mechanical Engineering,27-28th December,2017, Government College of Engineering, Kalahandi, India.

7. **Ghosh, G.K**., Kotia, A. and Ghosh, S. K., Mathematical modeling for density of nanofluid considering the effect of interfacial layer, National conference on advances in thermal engineering, 19-20th December, 2014, Indian School of Mines, Dhanbad. (ISBN: 978-81-924744-21-9)

EVENTS ORGANIZED

- **Coordinator** of one-week online TEQIP-III sponsored **Faculty Development Programme** on "Concepts and Applications of Composite Materials (CACM-2021) held at IGIT, Sarang during 23rd-27th Feb 2021.
- **Coordinator** of two weeks online TEQIP-III sponsored **short-term course** on Recent Trends in Mechanical Engineering (RTME-2021) held at IGIT, Sarang during 01st- 12th Feb 2021.
- **Co-coordinator** of TEQIP-III sponsored **Induction Programme** held at IGIT Sarang during 2020-2021 and 2021-2022.
- **Co-coordinator** of a **National conference** (ETESM-2018) held at IGIT, Sarang during March 28-29th 2018.
- **Co-Convenor** of **HORIZON 2018**.

INVITED LECTURES

- Delivered a lecture on "Nanolubricants: future of mechanical and mining machineries" in faculty development program titled "Advanced Materials for Sustainable Mechanical and Mining Applications" conducted by Adarsha College of Engineering, Angul on 27th and 28th March 2024.
- Delivered a lecture on "Nanolubricants: Future of Mechanical System Lubrication" in faculty development program titled "Emerging Technologies in Mechanical Engineering" conducted by S.K.D.A.V govt. polytechnic, Rourkela on 05th October 2021.