HOMENDER KUMAR

S-4, Gurudev Rabindranath Tagore Apartment,
IIT (BHU), Varanasi-221005, U.P.
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OBJECTIVE: I would like to explore and share knowledge about research as well as academics with students. Introduce interesting activities in the class, which would help in the development of students' knowledge level.

EDUCATIONAL QUALIFICATION:

- **Ph.D.** from Indian Institute of Technology (BHU), Varanasi, India. Discipline: Mechanical Engineering
  Grade: 8.5 CPI coursework (Status – Thesis submitted in December 2021)
  Thesis Title: Investigation on the tribological performance of polyalphaolefins (PAOs) based lubricant with nanoadditives

- **M.Tech** from Indian Institute of Technology (BHU), Varanasi, India.
  Discipline: Machine Design
  Grade: 7.6 CPI (passing year – 2015)
  Thesis Title: Study and performance of micro-electro mechanical system (MEMS) harvesting device

- **B.Tech** from ITS Engineering College, Greater Noida (Gautam Buddha Technical University, Lucknow)
  Discipline: Mechanical Engineering
  Percentage: 65 % (passing year – 2012)
  Thesis Title: Analysis and prediction of shell and tube type heat exchanger using simulation

- **Intermediate (XIIth)** from Shri Ram Public Inter College, Amroha (U.P. State Board, Allahabad)
  Percentage: 74.2 % (passing year – 2007)

- **High School (Xth)** from MQM Inter Collage, Amroha (U.P. State Board, Allahabad)
  Percentage: 63 % (passing year – 2005)

EXPERIENCE: (*ACADEMIC: 3 MONTH*)

- Organization: Shri Venkateshwara University, Gajraula, Amroha, U.P.
  Designation: Assistant Professor (Department of Mechanical Engineering)
  Duration: 10/09/2015 to 19/12/2015

PUBLICATIONS: (*CITATIONS-32, H-INDEX- 4, I10 INDEX-1*)

JOURNALS:

1) **Homender Kumar**, and A. P. Harsha. "Investigation on friction, anti-wear, and extreme pressure properties of different grades of polyalphaolefins with functionalized multi-walled carbon nanotubes as an additive." *Journal of Tribology* 142.8 (2020): 081702.
2) **Homender Kumar**, and A. P. Harsha. "Taguchi optimization of various parameters for tribological performance of polyalphaolefins based nanolubricants." *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology* 235.6 (2021): 1262-1280.
3) **Homender Kumar**, and A. P. Harsha. "Enhanced Lubrication Ability of Polyalphaolefin and Polypropylene Glycol by COOH-Functionalized Multiwalled Carbon Nanotubes as an Additive." *Journal of Materials Engineering and Performance* 30.2 (2021): 1075-1089.
4) **Homender Kumar**, and A. P. Harsha. "Augmentation in tribological performance of polyalphaolefins by COOH-functionalized multiwalled carbon nanotubes as an additive in boundary lubrication conditions." *Journal of Tribology* 143.10 (2021): 102202.
5) **Homender Kumar**, and A. P. Harsha. "Influence of oleic acid-treated LaF_3 nanoparticles as an additive on extreme pressure properties of various grades of polyalphaolefins" *Tribology Transactions.* 65.1(2022):96-113.

COMMUNICATED:

1) **Homender Kumar**, A. P. Harsha and Sooraj Singh Rawat. "Tribological evaluation of PAO 100 oil-based lithium greases with chemically functionalized MWCNTs and LaF_3 as nanoadditives" *Tribology International. (***Under review***)*

CONFERENCES:

1) **Homender Kumar**, and A. P. Harsha. "Tribological behaviour of synthetic lubricants with functionalized Multi walled Carbon nanotubes (MWCNT) as additive." *TRIBOINDIA-2018.*
2) **Homender Kumar**, and A. P. Harsha. "The role of COOH functionalized multi walled carbon nanotubes as lubricant additive in different grades of Polyalphaolefin oils." *IndiaTrib-2019.*
3) **Homender Kumar**, and A. P. Harsha. "Wear inhibition performance of polyalphaolefins with oleic acid modified LaF_3 nanoparticles as an additive under extreme pressure conditions." *International Tribology Research Symposium (ITRS-2020).*
4) **Homender Kumar**, and A. P. Harsha. "Anti-wear behaviour of polyalphaolefins with oleic acid treated LaF_3 nanoparticles as an additive under extreme pressure conditions." *TRIBOINDIA-2020.*

BOOK CHAPTER:

1) **Homender Kumar**, and A. P. Harsha. "Group IV Base Stock: Polyalphaolefin–A High-Performance Base Oil for Tribological Applications." *Tribology and Sustainability*. CRC Press 163-188.

WORKSHOPS AND TECHNICAL SYMPOSIUM ATTENDED:

1) Participated in "National Tribology Conference-2016" organized by the Department of Mechanical Engineering, IIT(BHU), Varanasi under the aegis of Tribology Society of India (TSI) during 8-10 December, 2016.
2) GIAN course on "Nanochemistry: From Preorganized Molecular Architectures to Functional Materials" organized by IIT (BHU), Varanasi from 19-23 December, 2016.
3) AICTE sponsored quality improvement program short course on "Materials Tribology: Fundamental and Recent Advances" held at department of Mechanical Engineering, IIT (BHU), Varanasi, from 23-29 March, 2017.
4) Six Days Faculty Development Program on "Nanofluid and its Engineering Application" held at Teaching Learning Center, IIT (BHU), Varanasi, from 06-11 November, 2017.
5) Participated in "9th Summer School in Tribology" organised by Tribology Society of India at Indian Oil Institute of Petroleum Management, Gurugram during 19-23 June, 2017.
6) Workshop on "Academic Writing for Research Scholars" held at Teaching Learning Center, IIT (BHU), Varanasi, during 15-19 January, 2019.
7) AICTE Training and Learning (ATAL) Academy FDP on "3D Printing & Design" held at MECHANICAL ENGG DEPTT, IIT(BHU) VARANASI from 05-09 October, 2019.
8) One day webinar on "Smart Manufacturing" by Dr. Bhupesh Kumar Lad, Associate Professor, IIT Indore (M.P.) organized by Department of Industrial and Production Engineering, Shri G. S. Institute of Technology & Science, Indore (M.P.) on 1 June, 2020.
9) One day webinar on "Refrigerants in Engineering Applications" organized by Department of Mechanical Engineering, Vidyavardhaka College of Engineering, Mysuru on 22 June, 2020.
10) One Week Online Workshop on "Interdisciplinary Approach of Tribology in Engineering and Biomedical Research" held at the Department of Mechanical Engineering, National Institute of Technology Silchar, Assam during 04-08 August, 2020.
11) Five days virtual international course on "Tribology and Sustainability" organized by the Department of Mechanical Engineering of SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu from 24-28 August, 2020.
12) One Week Online Short-Term Course on "Innovation and Research in Welding, Joining and Cutting Technology" held at Department of Mechanical Engineering in association with Institute Innovation Cell, NIT Silchar, during 07-11 September, 2020.
13) One-week AICTE sponsored online short-term training programme series on "RECENT ADVANCES IN TRIBOLOGY AND SURFACE ENGINEERING: Series 2 of 4- Tribology of Machine Components and Applied Tribology", organized by the Department of Mechanical Engineering of Saintgits College of Engineering, Kottayam from 14-19 September, 2020.
14) One-week AICTE sponsored online short-term training programme series on "RECENT ADVANCES IN TRIBOLOGY AND SURFACE ENGINEERING: Series 3 of 4-

Introduction to special topic like – Nanotribology, Biotribology, Space Tribology, Biomimetics and Tribology in Industry", organized by the Department of Mechanical Engineering of Saintgits College of Engineering, Kottayam from 12-17 October, 2020.

15) One-week AICTE sponsored online short-term training programme series on "RECENT ADVANCES IN TRIBOLOGY AND SURFACE ENGINEERING: Series 4 of 4-Surface Characterization and Treatments in Tribology", organized by the Department of Mechanical Engineering of Saintgits College of Engineering, Kottayam from 23-28 November, 2020.
16) Online short-term course on "Advanced Materials Testing and Characterization" organized by the Department of Materials Science and Engineering, National Institute of Technology, Hamirpur, from 11-15 January, 2021.
17) AICTE Training and Learning (ATAL) Academy Online FDP on "Augmented Reality (AR)/ Virtual Reality (VR)" organized by Sardar Vallabhbhai National Institute of Technology, Surat, from 18-22 January, 2021.
18) SERB sponsored one day Research Faculty Training Programme (Hybrid Mode) on "Development of Ti alloy-based composites by mechanical alloying and stirrer casting route for dental applications" organized by Department of Mechanical Engineering, IIT (BHU), Varanasi on 12 February, 2022.

TECHNICAL SKILL:

- Software: Origin, Minitab, Gwyddion
- Material science field software: Image J, X'Pert High Score
- Instrumental skills: SEM, TEM, SPM, XRD, Four-ball Tribometer, Pin-on-Disc Tribometer, SRV-5 Tribometer

AREA OF INTEREST:

- Strength of material
- Theory of machine
- Tribology

PERSONAL INFORMATION:

Father's Name: Hemraj Singh

Mother's Name: Rameswari Devi

Date of Birth: 12-12-1989

Status: Married

Parment Address: Village-Dhaktora, Post-.Gulariya, Distt.-Amroha, 244221, U.P.

Nationality: Indian

REFERENCES:

Name: Dr. A. P. Harsha

Designation: Professor

Address: Department of Mechanical Engineering, Indian Institute of Technology (BHU), Varanasi, 221005, U.P.

Email: apharsha.mec@iitbhu.ac.in

Contact No: +91-9415343426

Name: Dr. R. K. Gautam

Designation: Professor

Address: Department of Mechanical Engineering, Indian Institute of Technology (BHU), Varanasi-221005, U.P.

Email: rkg.mec@iitbhu.ac.in

Contact No: +91-9412956461

Name: Dr. Rajeev Nayan Gupta

Designation: Assistant Professor

Address: Department of Mechanical Engineering, National Institute of Technology, Silchar-788010, Assam

Email: rajeev@mech.nits.ac.in

Contact No: +91-8875619759

I hereby declare that all the information given above is correct to the best of my knowledge.

Homender Kumar

Date: 30/04/2022 **Homender Kumar**