

# Manoj Kumar Maurya

Simulation Group

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## Education

- 2018 – 2024    **Ph.D., Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India**  
Thesis title: *Tuning mechanical and thermal properties of polymers.*  
CPI: 8.00/10
- 2016 – 2018    **M.Tech., Department of Mechanical Engineering, Indian Institute of Engineering Science and Technology, Shibpur, India.**  
Thesis title: *Measurement of Fatigue Crack Growth Rate and analysis of crack closer of SS403 stainless steel by experiment and digital image correlation (DIC).*  
Percentage: 81.50%
- 2010 – 2014    **B.Tech., Department of Mechanical Engineering, BBDNIIT, Lucknow, India.**  
Percentage: 76.30 %

## Professional Experience

- July 2024 – current    Post-doctoral researcher at the Institute of Microsystems Engineering, Albert-Ludwigs-University Freiburg, Germany.
- March 2024    I also served as an organizing member for the Mechanical Sciences Young Investigator Meet held at the Indian Institute of Technology Kanpur, India.
- December 2022    I served as an organizing member in COPEN-12, an International conference on precision, micro, meso and nano-engineering at the Indian Institute of Technology Kanpur, India.
- 2019-2020    I served as an organizing member in COPEN-12, an International conference on precision, micro, meso and nano-engineering at the Indian Institute of Technology Kanpur, India.
- 2017 – 2018    MTech Trainee at CSIR/National Metallurgical Laboratory (NML), Jamshedpur, Jharkhand, India.

## Peer Reviewed Journal Publications

- 1 **Maurya, Manoj Kumar** et al. "Thermal conductivity of bottle-brush polymers". In: *Langmuir* 40.8 (2024), pp. 4392–4400.
- 2 **Maurya, Manoj Kumar** and Manjesh Kumar Singh. "Computational indentation in weakly cross-linked polymer networks". In: *International Journal of Advances in Engineering Sciences and Applied Mathematics* (2023), pp. 1–11.
- 3 **Maurya, Manoj Kumar** et al. "Computational indentation in highly cross-linked polymer networks". In: *Phys. Rev. E* 106 (2022), p. 014501.
- 4 **Maurya, Manoj Kumar** et al. "Thermal Conductivity of Semicrystalline Polymer Networks: Crystallinity or Cross-Linking?" In: *ACS Macro Letters* 11 (2022), pp. 925–929.

## Conference Presentations

### Oral Presentations

- 1 Ajay Kumar, **Manoj Kumar Maurya** and Manjesh Kumar Singh. "Mechanical and Tribological Properties of Cross-Linked Polymer Networks". In: IndiaTrib 2024. Fairfield By Marriott, Kolkata, India., 2024.

- 2 **Manoj Kumar Maurya** and Manjesh Kumar Singh. "Thermal conductivity of bottlebrush polymers". In: Research scholar day (RSD), Mechanical Engineering department. Indian Institute of Technology Kanpur, India., 2024.
- 3 **Manoj Kumar Maurya** and Manjesh Kumar Singh. "Computational Indentation in Weakly Cross-Linked Polymer Networks". In: TribolIndia 2023. National Institute of Technology Srinagar, Jammu and Kashmir, India., 2023.
- 4 **Manoj Kumar Maurya** et al. "Thermal Conductivity of Semicrystalline Polymer Networks: Crystallinity or Cross-Linking?" In: SKM DPG Conference. TU Dresden, Germany., 2023.
- 5 **Manoj Kumar Maurya** and Manjesh Kumar Singh. "Adhesion Study of Highly Cross-Linked Polymer Network Using Explicit Indenter: A Molecular Dynamics Simulation Approach". In: IndiaTrib-2022. Indian Institute of Technology, Delhi, India., 2022.
- 6 **Manoj Kumar Maurya** et al. "Computational Indentation in Highly Cross-Linked Polymer Networks". In: ME@75: Research Frontiers Conference. Indian Institute of Science, Bengaluru, India., 2022.
- 7 **Manoj Kumar Maurya** and Manjesh Kumar Singh. "Nano-Indentation of Highly Crosslinked Polymer Networks: A Molecular Dynamics Simulation Study". In: 2nd Virtual International Tribology Research Symposium (ITRS-2201). Online Mode, 2021.

## Poster Presentations

- 1 **Manoj Kumar Maurya** and Manjesh Kumar Singh. *Thermal conductivity of bottlebrush polymers*. compFlu-2023. Indian Institute of Technology, Madras, India., 2023.
- 2 **Manoj Kumar Maurya** et al. *Computational indentation in highly cross-linked polymer networks*. Departmental review in Mechanical Department. Indian Institute of Technology, Kanpur, India., 2022.
- 3 **Manoj Kumar Maurya** et al. *Thermal Conductivity of Semicrystalline Polymer Networks: Crystallinity or Cross-Linking?* Institute Research Symposium. Indian Institute of Technology, Kanpur, India., 2022.

## Workshops

- 1 *Molecular Dynamics for Material Science at Lorentz Center, Universiteit Leiden, 7 - 11 April 2025.*

## Teachings

Teaching Assistantship (U.G.)	■ Dynamics and Vibrations, Nature and Properties of Materials, Introduction to Elasticity and Advanced Mechanics of Solids.
Teaching Assistantship (P.G.)	■ Molecular Simulations in Mechanical Engineering.
Lab Assistantship	■ Atomic Force Microscope (AFM) (four semesters), Digital Image Correlation (DIC), and Fatigue Testing Machines.
Tutorship	■ Engineering Graphics and Design.

## Skills

**Working Proficiency Language:** English.

**Native Language:** Hindi.

**Operating Systems:** Linux and Windows.

**Coding:** Python, MATLAB, C++,  $\LaTeX$ .

**Software:** LAMMPS, Packmol, Abaqus, High Performance Computing (HPC) tools.

**Visualization Tools:** OVITO and VMD.

**Experimental Skills:** UTM, Digital Image Correlation (DIC), Atomic Force Microscopy (AFM), and Tribometer.

## References

### 1. Dr. Manjesh Kumar Singh

Department of Mechanical Engineering,  
Indian Institute of Technology,  
Kanpur, India.

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### 2. Prof. Dr. Lars Pastewka

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### 3. Prof. Partha Pratim Dey

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Shibpur, India.

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### 4. Dr. Debashish Mukherhji

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University of Göttingen,  
Friedrich-Hund-Platz 1 37077 Göttingen Germany.

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