

# Dr. Prajesh Nayak

## *Assistant Professor*



### Office Address:

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### Research Interests

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- ✚ Electrospun nanofibers, Rheology of complex fluids and suspensions, Polymer processing, Polymer rheology, Polymer composites and nanocomposites, Materials characterization, Polymer blends, Biomaterials, Polymer scaffold, Waste valorization.

### Employment History

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- ✚ **Research Scientist**, Inmito Health Tech Pvt. Ltd., Faridabad, Haryana
- ✚ **Guest Faculty** Department of Footwear Technology, Faculty of Engineering, Dayalbagh Educational Institute, Dayalbagh, Agra
- ✚ **Research Associate**, Department of Mechanical Engineering, Indian Institute of Technology Delhi.

### Education

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- ✚ 2026-2026 **Post Doc., Rubber Technology Center, Indian Institute of Technology Kharagpur, India**
- ✚ 2015-2023 **Ph.D., Materials Science and Engineering, Indian Institute of Technology Delhi, India**
  - Thesis title: *Shear Thickening Fluid Encapsulation in Electrospun UHMWPE and its Ballistic Performance Under High Strain Rate*
- ✚ 2013-2015 **M.Tech., Materials Science Center, Indian Institute of Technology Kharagpur, India**
  - Thesis title: *Preparation and Characterization of Phosphonium Modified Organoclay/Poly (methyl methacrylate) Nanocomposites*
- ✚ 2009-2013 **B.Tech., Harcourt Butler Technical University, formerly Harcourt Butler Technical Institute, Kanpur, India**
  - Project title: *Water-Based Thermally Reflective Polyurethane Paint*

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### **Other Details:**

- ✚ Qualified GATE 2013 (Engineering Science, XE)
- ✚ B.Tech. summer training in **Gail (INDIA) Ltd. (Noida)** from **June 2012 to July 2012** on the topic of "Preparation and characterization of HDPE film."

### **Research Publications**

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- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "Investigation of Solution Rheology in Electrospinning of Ultra High Molecular Weight Polyethylene" in 'Fibers and Polymers Journal', Springer Nature, 2021, DOI 10.1007/s12221-000-0000-0, **(I.F 2.4, Q2, SCIE)**.
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "Study of Dynamic Compressive Response of Shear Thickening Fluid Impregnated Ultra High Molecular Weight Polyethylene Felt by Split Hopkinson Pressure Bar" in 'Polymer Composites Journal', Wiley, 2021, DOI 10.1002/pc.26335, **(I.F 4.7, Q1, SCIE)**.
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "Enhancement of Electrospun UHMWPE fiber performance through post-processing treatment" in Journal of Applied Polymer Science, Wiley, DOI.org/10.1002/app.54221, **(I.F 3.1, Q2, SCIE)**.
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "Preparation and Characterization of Electrospun Mat of Ultra-High Molecular Weight Polyethylene/High-Density Polyethylene blends" in Fibers and Polymers, Springer Nature DOI.org/10.1007/s12221-023-00286-6, **(I.F 2.4, Q2, SCIE)**.
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "Investigation of high-strain rate behavior of shear thickening fluid encapsulated electrospun ultra-high molecular weight polyethylene/high-density polyethylene fiber" in Polymer Engineering and Science, Wiley, doi.org/10.1002/pen.26981, **(I.F 3.2, Q2, SCIE)**.
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "The Effects of Electrospinning Parameters on The Morphology of UHMWPE Fibers" in Bulletin of Materials Science, Springer Nature doi.org/10.1007/s12034-025-03451-0, **(I.F 2.1, Q2, SCIE)**.

### **Conference Proceedings**

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- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar, "Studies on the effect of a poly-dispersed nanoparticle on shear thickening behavior of silica suspension," poster presentation in the 10th International Conference on Advancements in Polymeric Materials, CIPET Chennai 2019, India.
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "Studies on the effect of solution parameters on the morphology of electrospun ultrahigh molecular weight polyethylene fiber". Oral presentation in CHEMCON 2019, IIT Delhi.
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar "UHMWPE fibers by electrospinning: Influence of solution concentration and applied voltage on the morphology". Poster presentation on Industry Day, 2019, IIT Delhi
- ✚ Prajesh Nayak, Anup K. Ghosh, Naresh Bhatnagar on "Preparation and Characterization of Electrospun Fibers of UHMWPE/HDPE Blend". Online oral presentation in the 12th International Conference on Advancements in Polymeric Materials, CIPET Bhubaneswar 2021, India

## Workshops & FDPs

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- ✚ Attended short-term course on "Ballistic Materials Manufacturing and Modeling" under the sponsorship of the MHRD scheme for promotion of academic and research collaboration (SPARC) held from 4th to 17th December 2019, IIT Delhi
- ✚ Attended a 3-day online conference "Proficiency improvement on polymer processing and advanced characterization techniques" conducted by the Center of Excellence in Polymer Science & Engineering, PCE, in association with Polymer Processing Academy (PPA) from 01st July to 03rd July 2020
- ✚ Participated in a one-week online faculty development program (FDP) on "Next-Generation Coatings: Polymers, Organic Coatings and Durability Engineering" organized by the Department of Paint Technology, HBTU Kanpur, from 23<sup>rd</sup> to 27<sup>th</sup> February 2026.

## Academic Service & Contributions

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- ✚ Contributed as a volunteer with the Corporate Relations Office in organizing *Industry Day 2019* at the Indian Institute of Technology (IIT) Delhi.
- ✚ Organized an expert lecture titled "*Acrylic-Based CED Coatings for Enhanced Corrosion Protection*" at the Department of Plastic Technology, Harcourt Butler Technical University (HBTU), Kanpur (2026).