



# KARISHMA

## Contact



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New Delhi, India



## About Me

A driven and detail-oriented researcher with expertise in material synthesis and characterization. Currently, at IIT Delhi, I am working on the synthesis of nanogel-based catalyst particles with enhanced catalytic efficiency and re-usability. Skilled in polymer synthesis, spectroscopy, and data analysis, I leverage tools like MestReNova, Origin, Gaussian, AutoDock, and ChemDraw to drive impactful research.

## Skills

- **Software & Tools:** Avogadro, AutoDock, Origin, Gaussian, MS Office, Discovery Studio, ChemCraft, ChemDraw, MestReNova, ImageJ.
- **Lab Techniques:** DLS, Zeta, SEM, NTA, Contact angle, Chromatography, Fractional Distillation, NMR, FTIR, UV-VIS, Fluorescence Spectroscopy.
- **Research & Analysis:** Polymer Synthesis, Material Characterization, Spectroscopic Techniques, Data Analysis.



## Education

- **M.Tech in Polymer science and engineering** 2023 - 2025  
IIT Delhi, New Delhi | CGPA: 8.93
- **Master's in Chemistry** 2021 - 2023  
NIT Durgapur, West Bengal | CGPA: 8.88
- **Bachelor's in Chemistry Honours** 2018 - 2021  
University of Delhi, New Delhi | CGPA: 8.6



## Projects

- **IIT Delhi Thesis | Prof. Leena Nebhani** 2024 - 2025  
Synthesis of re-usable nanogel-based catalyst particles having enhanced catalytic efficiency, using surfactant free emulsion polymerization method.
- **M.Sc. Project | Prof. Sankar Ch. Moi** 2022 - 2023  
In vitro bio-physical interaction of 1,3-Pentanediamine Based Pd (II) Complexes: Their synthesis, DNA/ BSA binding study, Molecular Docking & Theoretical Study.



## Internships

- **SRF Limited, Pithampur, M.P.** June' 24 - July' 24  
New product development Intern  
In-house development of co-polyester based coating solution for application on BOPET film having heat resistance, ink adhesion and water dispersibility properties.
- **Pluss Advanced Technologies** May' 24 - June' 24  
R & D Intern  
Development of universal calibration curve for calculation of grafting degree or ratio of Maleic Anhydride in polyethylene through FTIR Spectroscopy.
- **Department of Chemistry, University of Delhi | Prof. Rajeev Gupta** June' 24 - July' 24  
Synthesis of various amide-based ligands, their Co<sup>3+</sup> based coordination complexes offering aryl carboxylic acid groups and respective heterobimetallic frameworks; and their characterization through assorted spectroscopic techniques.



## Language

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- English
- Hindi



## Academic and Extracurricular Achievements

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- Secured All India Rank (AIR) 2457 in GATE 2023 among 24,710 students.
- Secured All India Rank (AIR) 2035 in JAM 2021 among 14,473 students.
- Awarded Certificate of Merit for securing 1st position in Class X.
- Awarded Cash prize from Manish Sisodia (Deputy Chief Minister of Delhi) by Delhi Sanskrit Academy for Excellence in 10th Class Sanskrit exam.



## Position of Responsibility

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- Teaching Assistantship: Characterization of Materials using FTIR, UV-VIS, DSC, TGA, DTA, SEM.
- Core Organizing Member, International Symposium on "Advanced Materials for Sustainable Energy Applications" (Jan 16, 2025)