# Curriculum Vitae

Graduate Study Applicant

## Personal details



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| **Name** | Shivani |
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| **Phone number** | +91 8307850852 |
| **Address** | 213, Muhar Patti, near Songal Road,<br>Bhana, Kaithal, Haryana, 136043 |
| **Nationality** | Indian |
| **Objective** | Motivated chemistry enthusiast, driven to pursue Advanced research in electrochemical catalysis and nanomaterials, with a strong interest in sustainable chemical processes. Eager to apply analytical skills, and innovative thinking to the research, while continuously learning and advancing towards long-term term goals in research and development |
| **LinkedIn** | www.linkedin.com/in/shivani-sharma-194429359 |

## Education

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| **July 2024 - Present** | **Post-Graduation**<br>IIT Bombay, Mumbai<br>9.4 CPI |
| **July 2020 – July 2023** | **Undergraduation**<br>Shivaji College, University of Delhi, New Delhi<br>8.9 CGPA |
| **May 2018 – May 2020** | **Intermediate (+2)**<br>Green Valley Public School, Pai, Kaithal, Haryana<br>94.4% |
| **May 2013– May 2018** | **Matriculation**<br>Green Valley Public School, Pai, Kaithal, Haryana<br>97.2% |
| **May 2006 – May 2013** | **Elementary School**<br>B.R.D.M Public School, Kaithal, Haryana |

# Scholastic Achievements

- Secured 9.4 CPI in the M.Sc. Chemistry program at IIT Bombay.
- Secured All India Rank 27 in IIT JAM Chemistry 2024 amongst 14,340 aspirants.
- Acquired a perfect AA grade in all the laboratory courses in Autumn Semester 2024.
- Acquired a perfect 10.0 CGPA in Math (as a minor) in the last two semesters at the undergraduate level.
- Selected as participant for Talent- Spot 2025, organised by Kyoto University iCeMS (Mumbai, 2025)

# Master's Project

**Title:** High-Efficiency Ammonia production via electrochemical nitrate reduction on a Iron-Molybdenum oxide.

**Guide: Prof. Subramaniam Chandramouli, IIT Bombay**

Synthesised $FeMoO_4$ electrocatalysts through mechanochemical milling followed by controlled thermal treatment under inert and reducing atmospheres. Investigated their performance for electrochemical nitrate reduction to ammonia in alkaline media using a three-electrode electrochemical setup. Characterized the materials using PXRD, SEM, TEM/HRTEM, HAADF-EDS elemental mapping, BET, XPS, and NMR spectroscopy to establish structure–property relationships.
Performed Electrochemical studies using linear sweep voltammetry and chronoamperometry and quantifies ammonia formation through $^1H$ NMR spectroscopy to evaluate the catalytic behaviour. The influence of synthesis parameters and catalyst surface properties on nitrate reduction behaviour and ammonia formation was explored.

# Skills

**LABORATORY SKILLS**

- **Spectroscopic Technique:** NMR, EPR, UV-Visible, FTIR, Fluorescence, Mass Spectrometry, colorimetry, Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), X-Ray Photoelectron Spectroscopy (XPS)
- **Crystallographic Technique:** PXRD, Single Crystal XRD
- **Electrochemistry Technique:** Cyclic Voltammetry (CV), Linear Sweep Voltametry (LSV), Chronoamperometry (CA)
- **Separation Technique:** Fractional distillation, Chromatography (column, paper, TLC, HPLC) solvent extraction, gravimetric separation, rotary evaporation
- **Titrimetric Methods:** Redox titration, complexometric titration, conductometric & potentiometric titration, Iodometry & Iodimetry titration
- **Others:** Organic Synthesis, purification of compounds, crystallization, qualitative inorganic & organic analysis

**TECHNICAL SKILLS**

- **Programming Languages:** Python (Basic), Q-Basic
- **Software Skills:** MS Office, Chemdraw (for creating 2D representation of molecules), MestreNova(for NMR analysis), Origin (data analysis and graphing), PyMol, Image J(image processing and analysis), EC-Lab (controlling and analysing electrochemical experiments), X'Pert Highscore (analysing X-Ray Diffraction Data), Canva

## Experiences

- Completed Teaching Assistants Skill Enhancement and Training **(TASET) program course** at IIT Bombay.
- **Mentored** a group of 5 students in their academics, social, and extracurricular activities, ensuring overall well-being.
- Part of a 330+ member team of **ISCP (Institute Student Companion Programme)** selected by interviews, ensuring smooth transition and holistic development of students in IIT Bombay.
- Volunteered to provide **free of cost** academic support to **underprivileged students** in the local community during intermediate studies.
- Volunteered in the Intercollege department fest organised by the Department of Chemistry, University of Delhi.

## Hobbies

- Painting
- Playing Badminton
- Fashion and Styling [ Showstopper'25, IIT Bombay]
- Costume Designing [ Kaleidoscope'25, IIT Bombay]