

Vikash Meghwal

✉ mevikash.iitk@gmail.com

🌐 mevikash

📺 mevikash

🌐 Website


☎ +91 902 473 6762





Education

- 2019 – Present **BS-MS Dual Degree in Chemistry, Indian Institute of Technology (IIT) Kanpur**
IIT Kanpur, Kalyanpur, Kanpur, Uttar Pradesh 208016.
Master of Science in Chemistry PG CPI - 8.2/10.0
Bachelor of Science in Chemistry UG CPI - 7.0/10.0
- 2017 – 2018 **Intermediate/+2, CBSE Precentage - 71.8%, Lawrence and Mayo Public School Ajmer**
Ajmer in Makarwali, Ajmer, Rajasthan 341512.
- 2015 – 2016 **Matriculation, J&KBOSE - 82.8% or CGPA - 8.8/10.0, Bharti Public High School Bari Brahmana, Chak Ratnu, Jammu and Kashmir 181133.**

SURGE Program (Summer Research Intern)

- May'23-July'23 **Supervisor: Prof. Pratik Sen, Biophysical Chemistry Research Group, Dept. of Chemistry, IIT Kanpur Lab Project**  Website
Title: Elucidation of the Structure and Dynamics of Synergistic Mixed Solvent Systems.
Learning Work: This research project focuses on investigating the structure and dynamics of synergistic mixed solvent systems through distillation, NMR spectroscopy, and data analysis. Strong analytical skills, effective communication, and collaborative approach to research.
Skills: 1. Conducted in-depth investigations using ^1H NMR and absorption spectroscopy to characterize solvent interactions.
2. Deployed **Vacuum Distillation** technique to purify Organic Solvents.
3. Applied **emission spectroscopy** to further understand the behavior of mixed solvent systems.
4. Utilized software tools like **IGOR Pro** and **Origin** for data analysis and visualization.
5. Performed Hydrophobicity trend graph analysis in **python**.

Research Experience (Undergraduate Research Project)

- Jan-May'22 **Supervisor: Prof. Nagma Praveen Research Group, Chemical Biology (Bio-Nanoparticle Lab), Dept. of Chemistry, IIT Kanpur Lab Project**  Website
Title: Studying the SARS-CoV-2 fusion in detail using an opportunistic model for the fusing of the coronavirus membrane. Receptor binding and priming of the spike protein of SARS-CoV-2 for membrane fusion.
Future Work: To create medicines for human consumption and vaccines to combat infections and disease. And use this knowledge to create nanoparticle medicines and enough adoptable vaccines.
Learning from lab: Viruses and Binding fusion in SARS-MERS Covid.
- Jan'23-Present'23 **Supervisor: Prof. Pratik Sen, Biophysical Chemistry Research Group, Dept. of Chemistry, IIT Kanpur Lab Project**  Website
Title: Role of Hydrophobicity in Synergistic Solvation.
Learning from Lab Work: Purification of Organic Solvent, NMR Technique, Vacuum Distillation, Use of Lab Equipment.

Course Assignments

Jan'23-May'23

■ **Supervisor: Prof. Prof. Mainak Sadhukhan, IIT Kanpur**

Title: Numerical Methods in Fortran Programming  ://Fortran

*Implemented Lorenz system solved by **Euler forward** and **Runge Kutta-4** methods and compared using 3D animated plot and X-Z graph with appropriate given points, demonstrating variation in the 3D graph.*

*Implemented **Gauss Legendre Polynomial**, **Monte Carlo**, **Trapezoidal**, and **Simpson's Rule** for integration.*

*Used **Ising Model** to stabilize Energy and Temperature Dependencies, exploring Specific heat in constant volume and Magnetic momentum Magnetisation determination.*

Solved the Schrodinger Wave Function & Density Matrix.




2021-22

■ **Supervisor: Prof. Anish Upadhyaya, IIT Kanpur**

Title: Cantilever ToolBox

Learning Work: Dr. Anil Kumar Verma, LAB & COURSE in CHARGE Anish Upadhyaya, M.D. Dr. Amarendra K Singh is a tutor. We worked on the manufacturing process, as well as designing the structure and components of the ToolBox. We have 9 members in our team. I also created a 3D model of the box in the Fusion360 Designing Tool, and I finalised the cost of the manufacturing process with two other members. It was a group effort.

Self-Project

Personal Website	■ Personal Website: Angular (a web framework), Electron Js, and web development tools were used.  Link
Server and Client App	■ Using Android-studio, created a  Server and  Client application that enables the storage of data on the Google Fire-base Framework.
Desktop Application	■ Using Electron Js, created a desktop application that assists students in managing academic data. Used HTML, CSS, and Java-script in the frontend and backend of the application.
Android App, ChatBot	■ 1. Using Flutter, created a bill-paying Calculator in the restaurant, which also facilitates in tipping. 2. Created a Telegram and WhatsApp Chatting bot on Replit.

Research Interest

- °Quantum – Chemistry
- °Spectroscopy
- °Physical – Chemistry
- °Experimental – Studies
- °Molecular – Simulation
- °Programming

Skills

Languages	■ English, Hindi and Rajasthani.
Programming Languages	■ C/C++, Fortran Programming, Python...
Android Development	■ Android Studio, Flutter, Kotlin, and Postman API.
Frameworks	■ Electron, React, Node.js, Angular.

Skills (continued)

Developer Tools	■	LaTeX, Markdown, Html, css, Git, VS Code, Visual Studio, Sublime Text Editor, Jupiter Notebook, Colab.
Operating System/ Terminal	■	Knowledge of Unix/Linux or Windows environments and APIs, CMD, Power Shell.
Misc.	■	Fusion360, PowerPoint, Adobe Photoshop, MS-Word, Adobe Illustrator, Auto CAD, Overleaf, MongoDB, GNU Plot, Linux Shell, Avogadro, Orca.

Positions of Responsibility

2021-22	■	Council Secretary Exhibition <i>Responsibility for Exhibition Planning and Execution</i>	IIT Kanpur
2020-21	■	Techkriti RoboGames Senior Executive <i>Prepared a database of various colleges and contact them as well as convince them to Participate in the RoboGames RoboCaAD Manoeuvre using abstract calling.</i>	IIT Kanpur
	■	Senior Secretary Chess Club <i>Organizes Chess tournaments for the campus community. Conducted various events on Lichess</i>	IIT Kanpur
2020-20	■	Secretary Ritambhara Antaragni <i>Prepared a database of various fashion giants and We contacted them and convince them to sponsor our event. Contacted various colleges and their fashion societies and increased the participation in the event.</i>	IIT Kanpur
2019-20	■	Volunteer Ritambhara Antaragni <i>Assist the Senior Secretary in organizing an event while Antaragni, Pearl Academy Delhi, and other team members visit the campus. Volunteered for the Hospitality wing of Antaragni-IIT Kanpur's annual cultural fest, where more than 600 people need to stay.</i>	IIT Kanpur

References

Dr. Pratik Sen
Department of Chemistry
Indian Institute of Technology Kanpur
✉ : psen@iitk.ac.in
☎ : +91-512-259-6312

Professor Nagma Preveen
Department of Chemistry
Indian Institute of Technology Kanpur
✉ : nagma@iitk.ac.in
☎ : +91-512-259-2154

Dr. Vinod K. Singh
Department of Chemistry
Indian Institute of Technology Kanpur
✉ : vinodks@iitk.ac.in
☎ : +91 512 259 7291

Dr. Thiruvancheril G. Gopakumar
Department of Chemistry
Indian Institute of Technology Kanpur
✉ : gopan@iitk.ac.in
☎ : +91 512 259 6830