Dr. Aayoosh Singh

Assistant Professor (Guest)

Department of Chemistry,
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CURRENT POSITION

Assistant Professor (Guest) at *Department of Chemistry, Maharaja Suhel Dev University, India,* from October 1, 2024.

- Teaching responsibilities include undergraduate and postgraduate courses in **Inorganic and Organic Chemistry**.
- Actively involved in curriculum development and academic mentoring.
- Research specialization in the **design and development of multi-stimuli responsive optical materials**, with applications in sensing, imaging, and smart material technologies.

Ph.D. SUPERVISOR & AFFILIATION

Name	: Dr. V. P. Singh
Designation & Department	: Professor, Department of Chemistry
Institution	: Institute of Science, Varanasi–221005, India
Duration	: Nov 2005 – present
Thesis Title	: **Design and Development of some Coumarine-based Multifunctional Optical Materials for Detection of Zn^{2+} & Cu^{2+} ions with Bioimaging.**

KEY SKILLS

- Expertise in the design and multistep synthesis of both organic and inorganic optical materials.
- Extensive experience in photochemical sensing and modulation of photophysical properties.
- Proficient in Single Crystal X-ray Diffraction (SC-XRD) analysis with hands-on experience.
- In-depth knowledge of characterization techniques, including FT-IR, NMR, HRMS, UV- Vis, fluorescence spectroscopy, FE-SEM, HR-TEM, DSC and PXRD.
- Skilled in data analysis and interpretation using scientific software such as Origin, Olex2, ORTEP, Mercury, Gaussian, GaussView, and MestReNova.
- Experienced in manuscript preparation, PowerPoint presentations, and project proposal development.
- Disciplined work habits and the ability to foster a collaborative and productive research environment.
- Proven ability in training, mentoring, and supervising undergraduate and postgraduate students in research projects.

RESEARCH PUBLICATIONS

PUBLISHED RESEARCH PAPERS

[1] **Aayoosh Singh**, Pranjalee Yadav, Saumya Singh, Pradeep Kumar, S. Srikrishna, Vinod P. Singh*, A multifunctional coumarin-based probe for distinguishable detection of Cu^{2+} and Zn^{2+}: its piezochromic, viscochromic and AIE behavior with real sample analysis and bio-imaging applications, ***J. Mater. Chem. C.***, 2023, 11, 13056–13066. https://doi.org/10.1039/D3TC02554C

[2] **Aayoosh Singh**, Pranjalee Yadav, Amit K. Singh, Rupen Tamang, Biplob Koch and Vinod P. Singh*, Ultrasound defect sensitive mechanochromic material with blue-shifted emission for the detection of Cu^{2+} in Alzheimer's disease cells, ***Mater. Chem. Front.***, 2025, 9, 1520–1533. https://doi.org/10.1039/D5QM00203F

[3] **Aayoosh Singh**, Amit Kumar Singh, Pranjalee Yadav, Avanish Kumar Singh, Pradeep Kumar, Saripella Srikrishna, and Vinod P. Singh*, A Stimuli Responsive Multifunctional Smart Luminophore with Aggregation-Induced Enhanced Emission, (***manuscript submitted in Adv. Opt. Mat.***).

[4] Ankush Kumar Singh,# **Aayoosh Singh**,# Mithilesh Patel, Vinod P. Singh and Rosy*, Metal-free graphitic carbon nitride nanosheet for dual mode fluorescence and electrochemical detection of para-nitrophenol, ***Nanoscale***, 2025, 17, 13238. **#equal contribution**, https://doi.org/10.1039/D5NR00874C

[5] Amit K. Singh, Pranjalee Yadav, **Aayoosh Singh**, Avanish K. Singh, Shashi K. Sharma, Vijay K. Sonkar and Vinod P. Singh*, A coumarin-derived multi-faceted optical material with molecular logic gate for bioimaging, ***J. Mater. Chem. C***, 2025, Advance Article. https://doi.org/10.1039/D5TC01412C

[6] Sarita Gond, Pranjalee Yadav, **Aayoosh Singh**, Somenath Garai, Anusmita Shekhar, Subhash Chandra Gupta and Vinod P. Singh*, A colorimetric and 'OFF–ON' fluorometric chemosensor based on a rhodamine-pyrazole derivative for the detection of Al^{3+}, $Fe^{3+}$and Cr^{3+} metal ions, and its intracellular application, ***Org. Biomol. Chem.***, 2023, **21**, 4482–4490. https://doi.org/10.1039/D3OB00434A

[7] Pranjalee Yadav, **Aayoosh Singh**, Gautam Kumar, Saumya Singh and Vinod P. Singh*, Anthracene appended AIEgen as a reversible fluorescence sensor for hazardous cyanide ion in environmental samples and fabrication of portable test kit for on spot detection, ***Spectrochim. Acta A Mol. Biomol. Spectrosc.***, 2025, 329, 125557. https://doi.org/10.1016/j.saa.2024.125557

[8] Avanish Kumar Singh, **Aayoosh Singh**, Pranjalee Yadav, Amit Kumar Singh and Vinod P. Singh*, Carbazole-quinoline based ultrasensitive fluorometric sensor for detection of Hg2+ in aqueous medium: Crystal structure, DFT and real sample application, ***J. Mol. Struct.***, 2025, 1337, 142197.

[9] Gautam Kumar, Ananya Srivastava, Sarita Gond, Pranjalee Yadav, **Aayoosh Singh** and Vinod P. Singh*, A reversible and selective chromogenic thiazole tagged chemosensor for Hg^{2+} in aqueous medium: Crystal structure, theoretical investigations and real sample analysis, ***J. Mol. Struct.***, 2023, 1283, 135281. https://doi.org/10.1016/j.molstruc.2023.135281

[10] Pranjalee Yadav, Sarita Gond, **Aayoosh Singh**, Vinod P. Singh*, Development of a reversible chromogenic sensor for Cu^{2+} in aqueous ethanol, ***Mater. Lett.***, 2021, 295, 129869. https://doi.org/10.1016/j.matlet.2021.129869

PUBLISHED BOOK CHAPTERS

[1] Sarita Gond and **Aayoosh Singh***, Revolution in Chemistry Education Via National Education Policy (NEP): A Path To Sustainability And Innovation, Reimaging School Education in the 21st Century: Policies to Practices, pp 137-149.

CONFERENCES & WORKSHOPS

- ✓ Participated in **NASI Lecture–Workshop on "Writing of a Good Research Paper: Technical & Ethical Aspects"**, 04 December 2021, Department of Chemistry, Institute of Sciences, Banaras Hindu University, Varanasi.
- ✓ A poster was presented at **National Symposium on Brainstorming Meeting on Chemistry at the Interface (BSCI–2022)**, 26 to 27 December 2022, Department of Chemistry, Institute of Sciences, Banaras Hindu University, Varanasi.

- ✓ A poster was presented at **Modern Trends in Inorganic Chemistry (MTIC-2022),** 15 to 17 December 2022, Department of Chemistry, Institute of Sciences, Banaras Hindu University, Varanasi.
- ✓ A poster was presented at **32nd CRSI National Symposium in Chemistry (CRSI-NSC-32),** 02 to 04 Febraury 2024, Department of Chemistry, BITS Pilani, Pilani Campus, Rajasthan.

ACADEMIC QUALIFICATION

- Qualified IIT–JAM in Chemistry, 2017, 2018.
- Qualified GATE in Chemical Sciences, 2019, 2020.
- Qualified JOINT CSIR-UGC NET Test in Chemical Sciences, DEC. 2018, JUNE 2022.
- Post-Graduation (M.Sc.) in Chemistry from V.B.S.P.U., Jaunpur.
- Graduation (B.Sc.) in Chemistry from M.G.K.V.P., Varanasi.

PERSONAL DETAILS

- Address: Sukkhipur, Sadar, Jaunpur–222001, Uttar Pradesh, India.
- Date Of Birth : 10 January 1998
- Marital Status : Unmarried
- Gender : Male
- Language: Hindi, English, German

REFERENCES

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