CURRICULUM VITAE

Dr. Aayoosh Singh

Assistant Professor (Guest)
Department of Chemistry, Maharaja Suhel Dev University, Azamgarh-276128, Uttar Pradesh, India
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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**, **postgraduate, PhD** 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.

ACADEMIC QUALIFICATIONS

- **Ph.D. in Chemistry** – Banaras Hindu University (BHU), Varanasi, (**2020-2025**)
- **M.Sc. in Chemistry** – Veer Bahadur Singh Purvanchal University (VBSPU.), Jaunpur (**2017-2019**).
- **B.Sc. in Chemistry** – Mahatma Gandhi Kashi Vidyapith (MGKVP), Varanasi (**2014-2017**).
- **Joint CSIR–UGC NET (Chemical Sciences)** – Qualified in **December 2018** (AIR-23) and **June 2022**.
- **GATE (Chemistry)** – Qualified in **2019** and **2020**.
- **IIT–JAM (Chemistry)** – Qualified in **2017** and **2018**.

Ph.D. SUPERVISOR & AFFILIATION

Name	:	Prof. V. P. Singh
Designation & Department	:	Professor, Department of Chemistry
Institution	:	Institute of Science, Banaras Hindu University, Varanasi – 221005, India
Duration	:	November 2005 – present
Thesis Title	:	***Design and Development of Some Coumarin-Based Multifunctional Optical Materials for Detection of Zn^{2+} & Cu^{2+} Ions with Bioimaging***

RESEARCH PUBLICATIONS

PUBLISHED RESEARCH PAPERS

[1] Yadav, P., **Singh, A.**, Singh, A. K., & Singh, V. P.*, Unravelling the role of various interactions in mechanochromism induced polymorphism: acid fumes sensor kit and double encryption decryption technologies, ***J. Mater. Chem. C,*** **2026**, 14, 6708-6718. https://doi.org/10.1039/D5TC04357C

[2] **Singh, A.**, Yadav, P., Singh, A. K., Tamang, R., Koch, B., & Singh, V. P.*, 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] **Singh, A.**, Singh, A. K., Yadav, P., Singh, A. K., Kumar, P., Srikrishna, S., & Singh, V. P.*, A stimuli-responsive multifunctional smart luminophore with aggregation-induced enhanced emission. ***Adv. Optical Mater.,*** **2025,** 13, e02464. https://doi.org/10.1002/adom.202502464

[4] Singh, A. K.#, **Singh, A.#**, Patel, M., Singh, V. P., & Rosy*, Metal-free graphitic carbon nitride nanosheet for dual-mode fluorescence and electrochemical detection of para-nitrophenol. ***Nanoscale***, **2025,** 17, 13238. https://doi.org/10.1039/D5NR00874C *(#equal contribution)*

[5] Singh, A. K., Yadav, P., **Singh, A.**, Singh, A. K., Sharma, S. K., Sonkar, V. K., & Singh, V. P.*, A coumarin-derived multi-faceted optical material with molecular logic gate for bioimaging. ***J. Mater. Chem. C*****, 2025**, 13, 12388-12399. https://doi.org/10.1039/D5TC01412C

[6] Yadav, P., **Singh, A.**, Kumar, G., Singh, S., & Singh, V. P.*, Anthracene-appended AIEgen as a reversible fluorescence sensor for hazardous cyanide ion in environmental samples and fabrication of a 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

[7] Singh, A. K., **Singh, A.**, Yadav, P., Singh, A. K., & Singh, V. P.*, Carbazole–quinoline based ultrasensitive fluorometric sensor for Hg^{2+} in aqueous medium: crystal structure, DFT, and real sample application, ***J. Mol. Struct.***, **2025**, 1337, 142197. https://doi.org/10.1016/j.molstruc.2025.142197

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

[9] Gond, S., Yadav, P., **Singh, A.**, Garai, S., Shekhar, A., Gupta, S. C., & Singh, V. P.*. A colorimetric and OFF–ON fluorometric chemosensor based on a rhodamine–pyrazole derivative for the detection of Al^{3+}, Fe^{3+}, and Cr^{3+} ions, and its intracellular application. ***Org. Biomol. Chem.***, **2023**, 21, 4482–4490. https://doi.org/10.1039/D3OB00434A

[10] Kumar, G., Srivastava, A., Gond, S., Yadav, P., **Singh, A.**, & Singh, V. P.*, 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

[11] Yadav, P., Gond, S., **Singh, A.**, & Singh, V. P.*, 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

COMMUNICATED MANUSCRIPTS (Under Review)

[12] **Singh, A.**, Singh, A. K., Yadav, P., & Singh, V. P.*, A Multichannel Pyridine-Derived Optical Chemosensor for Ratiometric Fluorescence Sensing of Zn^{2+} and Al^{3+} and Visual Detection of Cu^{2+}

[13] Singh, A. K., **Singh, A.**, Yadav, P., & Singh, V. P.*, A multifaceted AIE-enabled coumarin optical fluorophore for mechanochromic colouration, protonation-driven optical modulation, Al^{3+} ion recognition.

[14] Singh, A. K., Singh, A. K., Yadav, P., **Singh, A.**, & Singh, V. P.* AIEE active carbazole based multi-stimuli responsive smart material with piezochromism, viscochromism and solvatochromism for ratiometric detection of Al^{3+} and CN^-.

[15] Gond S., **Singh, A.**, Yadav, P., & Singh, V. P.*, An AIE-active quinoline probe enables selective, efficient colorimetric fluoride detection with high sensitivity.

PUBLISHED BOOK CHAPTERS

[1] Gond S., and **Singh A.** *, 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, Book Rivers pp 137-149, ISBN: 978-93-6884-495-2, **2025.**

CONFERENCES & WORKSHOPS

- ✓ **3-Days Hands-On Workshop on "Structure Elucidation by Single-Crystal X-Ray Diffraction Analysis"** at Central Discovery Center, Banaras Hindu University, 19-21 Febraury, **2026**.
- ✓ Participated in **Royal Society of Chemistry, Meet the Editors** in collaboration with Banaras Hindu University, Varanasi on 16 January **2026**.
- ✓ International Conference on **Modern Trends in Inorganic Chemistry (MTIC–2025)** — Poster Presentation, Department of Chemistry, University of Delhi, Miranda House, 18–21 December **2025**.
- ✓ **32nd CRSI National Symposium in Chemistry (CRSI–NSC–32)** — Poster Presentation, Department of Chemistry, BITS Pilani, Rajasthan, 02–04 February **2024**.
- ✓ **National Symposium on Brainstorming Meeting on Chemistry at the Interface (BSCI–2022)** — Poster Presentation, Department of Chemistry, Institute of Science, Banaras Hindu University, Varanasi, 26–27 December **2022**.
- ✓ International Conference on **Modern Trends in Inorganic Chemistry (MTIC–2022)** — Poster Presentation, Department of Chemistry, Institute of Science, Banaras Hindu University, Varanasi, 15–17 December **2022**.
- ✓ **NASI Lecture–Workshop on *"Writing of a Good Research Paper: Technical & Ethical Aspects"*,** Department of Chemistry, Institute of Science, Banaras Hindu University, Varanasi, 04 December **2021.**

KEY SKILLS

- Expertise in the design and multistep synthesis of 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 using Origin, Olex2, ORTEP, Mercury, Gaussian, GaussView, and MestReNova.
- Experienced in manuscript preparation, presentations, and project proposal development.
- Disciplined work habits with the ability to foster a collaborative and productive research environment.
- Proven ability in training, mentoring, and supervising undergraduate and postgraduate students.

Awards and Honours

- Sayaji Rao Gaekwad Fellowship, IoE BHU, 2024-2025
- UGC NON-NET Research Fellowship, IoE BHU, 2021-2024
- Incentive to Research Scholar (for Research Publication is published in Q1 Journal), IoE BHU, 2025
- Incentive to Research Scholar (for Research Publication is published in Q1 Journal), IoE BHU, 2023

Membership of Scientific Societies/ Editorial roles

- Chemical Research Society of India (CRSI), Membership No.: LM 4064
- Associate Editor, Science Journal of Chemistry

PERSONAL DETAILS

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