

CURRICULUM VITAE

Dr. Pankaj Gupta

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Career Objective:

- To be associated with a progressive organization that gives me the scope to utilize and enhance my knowledge and research skills in the area of chemistry in accordance with the latest trends

Educational Qualification:

- ❖ **B.Sc. (Hons)** Chemistry from Hansraj College, University of Delhi (2009-2012)
- ❖ **M.Sc. (Hons)** Chemistry from Indian Institute of Technology, Roorkee (2012-2014)
- ❖ **Ph.D.** in Inorganic materials chemistry from Department of chemistry, University of Delhi (2014-2020)

Title of Thesis:

- Studies on multifunctional inorganic materials: Selected examples from layered double hydroxide, metal borates, spinel structured oxides and derivative of polyaniline

Research Interest:

- Development of new materials such as organic intercalated layered double hydroxides, magnetic transition metal and rare earth borates, metal oxides, ternary metal sulfides, conducting polymers, polymer composites with layered double hydroxides and their multifunctional applications using different synthetic procedures (wet chemical synthesis, sol-gel, urea hydrolysis, refluxing, hydrothermal, chemical oxidative route, In situ radical polymerization, etc.) involving novel reactivity concepts to enable the rapid removal of industrial effluents.
- Biomedical application of substituted polymers.
- Application of new characterization techniques and software for the exploration of the synthesized materials.
- Exploration of catalytic oxidation or reduction of organic molecules, organic transformation, photoluminescence, optical properties, adsorption, photocatalytic degradation (industrial organic carcinogenic dyes, phenolic compounds, waste water treatments, etc.), magnetism, dielectric, conductivity, electronics, bioelectricity in microbial fuel cell and fire retarding studies using newly design materials.

Research Skills:

- Practical experience of synthetic organic, inorganic, and analytical chemistry
- Performing micro-scale as well as macro scale reaction

- Expertise in the synthesis of conjugated conducting organic polymers such as polypyrrole, polythiophene, polyaniline, substituted polyaniline, polycarbazole, etc., and their applications in electronics, adsorption, photocatalytic, biosensors, etc.
- Expertise in the synthesis of polymer composite materials.
- Experience in synthesis of electronic chemicals such as lithium doped spinels, metal oxides, metal sulphides, metal fluorides, polymeric borates, semiconducting layered double hydroxides, etc.
- Experience of handling instruments like FT-IR, UV-visible spectrometer, Photoluminescence, PXRD, Fluorescence, Particle size analyser LA960, ICP-OES, HPLC, Karl Fischer titration, Polarimeter.
- Characterization of compounds by various spectroscopic techniques including NMR, GC-MS, XPS, FTIR, UV-visible, TGA/DSC, PXRD, Raman, PL, SEM, TEM, Potentiometry, Viscometer, pH meter, spectrophotometer, ICP-OES, etc.
- Theoretical knowledge of TGA, DSC, HPLC, LCMS, GC-MS, SEM, Karl Fischer titration, volumetric titration and TEM.
- Good Knowledge of various software's such as origin, Microsoft, ChemDraw, Diamond, Power X, Delta, Gatun Digital Micrograph, PowDLL Converter, Indexing, TOPAS, GSAS, Full Proof, Colour calculator SPDs etc.
- Experience of writing and presentation of research findings.

Professional Experience

- **I have worked as an Assistant Professor (Researcher) at Sharda University since 17/07/2019 to 30/06/2021.**
 1. I have guided bachelor and master students for the dissertation project.
 2. Synthesized of materials such poly-m-chloroaniline, Cd²⁺ doped ZnAl₂O₄, transition metal doped CdGa₂O₄, ethylene glycol intercalated iron/copper layered double hydroxide, Eu³⁺, Tb³⁺ and Er³⁺ doped (Y,Gd)BO₃, Mn²⁺ and Fe²⁺ doped YBO₃, etc. and characterized by analytical instrumentation techniques such as PXRD, NMR, TGA/DSC, Raman, FTIR, UV-visible, BET, SEM, TEM, etc.
 3. Synthesis of chloro substituted polyaniline and their biological application.
 4. In situ radical polymerization of methyl methacrylate and styrene using benzoyl peroxide and formation of composite material with layered double hydroxide.
 5. Published various research papers in good international journal.
- **Associate Manager (R&D) at Vishnu Chemicals Private Limited since 28/June/2021 to present.**
 1. Method development for the synthesis of various paint pigment materials such as chromium oxide green, titanium oxide, red oxide (Fe₂O₃), yellow oxide (FeOOH), etc.
 2. Synthesis of chromium derivative (sodium dichromate, ammonium dichromate, basic chromium sulfate, potassium dichromate, chromic acid), sulfate (yellow sodium sulfate and white sodium sulfate) and sulfide compounds, sodium bromide, barium hydroxides.
 3. Hydrometallurgical extraction of metals FeSO₄.7H₂O, Al₂O₃, TiO₂, MgSO₄.7H₂O, Cr₂O₃, etc) from mud waste.
 4. Extraction of Li₂CO₃, NiSO₄, CoSO₄ from waste battery materials.

5. Leaching of ZnSO₄ from waste zinc scrap.
6. The chemical quality is checked by various analytical parameters such as Karl-Fischer titration, TDS, GPL, bulk density, mesh size, % purity, insoluble matters, pigment color, pH, hardness, chlorine content, conductivity, etc.
7. Analysis of compound by various analytical techniques such as ICP, atomic absorption spectroscopy, UV-Visible, C-S analyzer, particle size analyzer, powder X-ray diffraction, Raman, thermogravimetric analysis, etc.

Internship and project:

- Summer project during May-July 2013 under the supervision of **Prof. Dr. Ganesh Pandey, Director, Center of Bio-Medical Research, Lucknow** on topic "**7-azabicyclo-[2,2,1]-heptane**".
- Dissertation under the supervision of **Dr. Kaushik Ghosh, Indian Institute of Technology, Roorkee** on the "**synthesis and characterization of small organic molecule and their metal complexes**" for structural and functional modeling of several metalloenzymes, protein and/or DNA interaction studies.

Conferences:

- Manganese containing ternary copper sulfides synthesis by thermolysis method in ethylene glycol, **Pankaj Gupta**, Meenakshi Gusain, Rajamani Nagarajan*, ICMTech-2016, Delhi University.
- Ethylene Glycol Intercalated Monometallic Layered Double Hydroxide based on iron by self-assembly: An effective bifunctional catalyst, **Pankaj Gupta**, Rajamani Nagarajan*, BARC-2016, Mumbai.
- Fine tuning bifunctional properties of Y_{0.5}Gd_{0.5}BO₃ by doping with Ce³⁺ and co-doping with Li⁺, Ca²⁺ and Al³⁺ following an epoxide mediated gel approach, **Pankaj Gupta**, Rajamani Nagarajan*, Advances in Analytical Sciences, ICAAS-2018, Indian Institute of Petroleum-Dehradun, Uttarakhand.
- International seminar on 'Effect of Pollution on Human Health' Jointly organized by Department of Chemistry, University of Delhi and Indian Academy of Biomedical Sciences (IABS), December 1st 2017.
- Member of the organizing committee of the DST Inspire Science camp-2019 organized from 29th July to 2nd Aug 2019 and actively involved School students in doing chemistry practical and clarified their doubts.
- ACS Science talk lecture on topic entitled "Exciting World of Molecular Electronics" by Prof. Satish A. Patil, Solid State and Structural Chemistry Unit Indian Institute of Science, Bangalore on 19 June 2020.

Workshop attended:

- Workshop on Spectro-electrochemistry.
- IUCr Workshop on X-Ray Diffraction systems and related applications containing XRD Basics, Experimental Techniques and Data Analysis using High Score Plus Software, Department of Chemistry, University of Delhi, New Delhi, 25th -26th September 2014

Awards and achievements:

- Secured 160 rank in Joint admission test (JAM) for M.Sc. (2012).
- Qualified UGC-JRF with 86 rank in 2013.
- Qualified Gate-2019.

- Second best Prize for the paper entitled ‘Ethylene Glycol Intercalated monometallic Layered Double Hydroxide based on iron by self-assembly: An effective bifunctional catalyst’, **Pankaj Gupta**, Rajamani Nagarajan*, BARC 2016, Mumbai.
- Best Poster Award for paper entitled ‘Fine tuning bifunctional properties of $Y_{0.5}Gd_{0.5}BO_3$ by doping with Ce^{3+} and co-doping with Li^+ , Ca^{2+} and Al^{3+} following an epoxide mediated gel approach’, **Pankaj Gupta**, Rajamani Nagarajan*, Advances in Analytical Sciences, ICAAS-2018, IIP-Dehradun, Uttarakhand.

Publications:

1. Kaushik Ghosh*, Sweetly Rathi, **Pankaj Gupta**, Priya Vashisth and Vikas Pruthi, A simple fluorescent probe derived from naphthylamine for selective detection of Hg^{II} , Fe^{II} and Fe^{III} ions in mixed aqueous media: Applications in living cells and logic gates, *Eur. J. Inorg. Chem.*, **2015**, **311-317**.
2. Rajamani Nagarajan*, **Pankaj Gupta**, Poonam Singh and Pinki Chakraborty, Ethylene glycol intercalated monometallic layered double hydroxide based on iron as an efficient bifunctional catalyst, *Dalton Trans.*, **2016**, **45**, **17508-17520**.
3. **Pankaj Gupta** and Rajamani Nagarajan*, Fine tuning bifunctional properties of $Y_{0.5}Gd_{0.5}BO_3$ by doping with Ce^{3+} and co-doping with Li^+ , Ca^{2+} and Al^{3+} following an epoxide mediated gel approach, *Mater. Today Chem.*, **2018**, **7**, **15-24**.
4. **Pankaj Gupta**, Manish Kumar and Rajamani Nagarajan*, Inter play between defects and cation non-stoichiometry in lithium substituted $CdGa_2O_4$ leading multifunctional behavior, *J. Phys. Chem. C*, **2018**, **122**, **22094-22105**.
5. Richa Tomar, Rahul Pandey, N. B. Singh*, Manoj Kumar Gupta and **Pankaj Gupta**, Electrical properties of Barium Titanate in presence of Sn^{2+} dopant, *SN Appl. Sci.*, **2020**, **2**, **226**.
6. Anupam Aggarwal*, Amit Kumar, **Pankaj Gupta**, Richa Tomar, and N. B. Singh, Cu(II) ion removal from water by charcoal obtained from marigold flower waste, *Mater. Today Proceedings*, **2021**, **34**, **875-879**.
7. **Pankaj Gupta***, Mohit Sahni and Sunil Chauhan, Enhanced photoluminescence properties of rare earth elements doped $Y_{0.50}Gd_{0.50}BO_3$ phosphor and its application in red and green LEDs, *Optik*, **2021**, **240**, **166810**.
8. **Pankaj Gupta***, Mohit Sahni and Sunil Chauhan, Manifestation of multifunction capabilities by stabilizing cadmium together with zinc and aluminum in spinel oxide, *J. Mater. Sci. Mater. Electron.* **2021**, **32**, **15317-15330**.
9. Richa Tomar, Karan Surana, **Pankaj Gupta** and N.B. Singh, Tin doped barium titanate ($BaTiO_3$) synthesized through molten salt method as promising dielectric material, *Asian J. Chem.* **2021**, **33**, **2212-2218**.
10. **Pankaj Gupta***, Richa Tomar, N. B. Singh, Chromium doped vaterite $Y_{0.50}Gd_{0.50}BO_3$ as an excellent photocatalytic and magnetic material, *Bull. Mater. Sci.* **2021**, **44**, **251 (1-11)**.
11. **Pankaj Gupta***, N. B. Singh and Mohit Sahni*, Adsorption and reduction of carcinogenic organics by ordered semi-crystalline poly-m-chloroaniline (PmClA), *High Perform. Polym.* **2022**, **34**, **162-172**.
12. **Pankaj Gupta***, Richa Tomar, Mohit Sahni and Sunil Chauhan, Cobalt, Nickel and Copper doped non-stoichiometric cadmium gallate as a prominent magnetic and photocatalytic material, *Chem. Phys.* **2022**, **554**, **111419 (1-11)**.

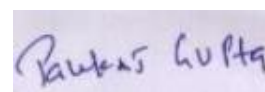
13. Babita Tripathi, Sunil Chauhan*, Manoj Kumar, Mohit Sahni, **Pankaj Gupta**, Prakash Chand Sati, Satyendra Singh, Daksh Agarwal, R.C. Singh, Structural, magnetic, optical and photocatalytic properties of Ca-Ni doped BiFeO₃ nanoparticles, *J. Mater. Sci.: Mater. Electron.* **2022, 33, 16856.**
14. **Pankaj Gupta**, Sonika Panghal, Mohit Sahni*, Structural and thermal property of poly (methyl methacrylate) (PMMA) and polystyrene (PS)/ethylene glycol intercalated Fe²⁺/Fe³⁺ LDH composite, *Macromol. Symposia.* **2023, 407, 2200074.**
15. **Pankaj Gupta***, Khushboo Baliyan, Shreya Chaudhary and Richa Tomar* Manganese and iron doped cadmium gallate spinel as a multifunctional inorganic material, *Macromol. Symposia.* **2023, 407, 2200111.**

Patent:

1. Dr. Mohit Sahni, Dr. Lalit Chauhan, Dr. R.M. Mehra, Dr. Sunil Chauhan, **Dr. Pankaj Gupta**, Dr. Piyush Kumar Gupta, Smart Monitoring system for electrical appliances, Indian patent filled on 13/07/2021 with application no: 202111031415A.
2. Mrs. Babita Tripathi, Dr. Sunil Chauhan, Dr. Mohit Sahni, Dr. Ram Chandra Singh, Dr. Manoj Kumar, **Dr. Pankaj Gupta**, Dr. Satyendra Singh, Multilayer 2D MoS₂ nanoflowers and process for synthesizing MoS₂, Indian patent filled on 03/09/2021 with application no: 202111037242A.
3. Dr. Sunil Chauhan, Dr. Mohit Sahni, Mr. Chief Anand, Mrs. Babita Tripathi, Dr. Ram Chandra Singh, Dr. Satyendra Singh, **Dr. Pankaj Gupta**, Dr. Manoj Kumar, Dr. Munendra Singh, Photocatalytic activity of Na substituted bismuth ferrite nanoparticles and process for preparing the same, Indian patent filled on 03/09/2021 with application no: 202111037400A.

Declaration:

I hereby declare that all the above furnished details are true to the best of my knowledge and belief.



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