Dr. Vipin Kumar Saini

Assistant Professor

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Education

- **Ph.D.** (Chemistry), 2007, Department of Chemistry, IIT Roorkee, India
- **M.Sc.** (Chemistry), 2001, H.N.B. Garhwal University, Uttrakhand, India

Additional Courses

"General Course on Intellectual property". (Online) World Intellectual property Organization (WIPO) Worldwide Academy, Geneva, Switzerland, 2007.

Professional Experience

- **Assistant Professor,** in School of Environment and Natural Resources, since May 2013.
- **Postdoctoral Researcher**:
    - Group of Adsorption and Adsorbent Materials, at Center for Chemistry and Biochemistry, University of Lisbon, **Portugal** (Jan 2012 – March 2013) and (Sep 2007-Aug 2010).
    - Group of Molecular Photochemistry, at Center for Structural Chemistry, IST, Technical University of Lisbon, **Portugal** (Oct 2010 – Dec 2011)
- **DST-DAAD Research Fellow**
    - Department of Natural Science, Technical University of Chemnitz, **Germany** During 2003-2004.

Taught Courses:

EES-517: Environmental Chemistry
EES-618: Analytical techniques and Instrumentation
EES-620: Green Technologies
ETC-552: Environmental Quality and Pollution Monitoring Techniques
EES-611: Research Methodology
ETC-550: Basic Instrumentation in Environmental Science and Engineering

Research Interests

- Development and characterization of nanoporous materials for their environmental applications, such as selective adsorption of gases and vapors for separation and purification ; adsorptive removal of water pollutants
- Valorization of wastes and by-products through Green Chemistry

Research output summary (as on May 2015)

Total Publications	Articles/ Review	Conference Proceedings	Book / Monograph	Patent	Total Citations	h-index	Cumulative Impact factor
38	**28**	**8**	**1**	**1**	**2549**[#]	**18**[#]	**90.17***

[#] Google Scholar Aug 2015, * Research Gate Aug 2015

Awards and Fellowships

- FCT-Research Fellowship, (twice) 2011 & 2007, from Govt. of Portugal.
- DST-DAAD Fellowship, from Govt. of India & Govt. of Germany, 2003-2004.
- Junior and Senior Research Fellowships from CSIR, Govt. of India, 2003-2007.
- Qualified GATE, in Chemical Science, 2003 with 82.97 percentile and 484 All India Rank.

Achievement

- Invented a laboratory experiment, for Upper-level UG Students of Material Chemistry or Inorganic Synthesis discipline, which was published in Journal of Chemical Education (ACS), 2012.
- Invented a new route of fabricating a very productive 'Carbon-foam' material, using polyurethane foam as template. The same was identified as lucrative method by INPI (Portugal) and accepted for Patent application).
- One of the articles on 'Iron-oxide coated sand material' (published in *JCIS 288, 1, 55, 2005*) achieved 5th position in Science Direct 'Top 25 Hottest Articles' during July-Sept 2005.

Academic Service and Professional Memberships

- **Reviewer:**
  - Journal of Colloidal and Interface (Elsevier),
  - ChemSusChem (Wiley-VCH),
  - Environmental Science & Technology (ACS),
  - Journal of Colloids and Interface Science (Elsevier)
  - Journal of Hazardous Materials (Elsevier),
  - Applied Water Science (Springer),
  - Current Green Chemistry (Bentham Science)

- Journal of Environmental Management (Elsevier)
- Journal of Materials Research and Technology (Elsevier)

- **Membership:** International Adsorption Society, Materials Research Society of India

Research Projects (completed/ongoing)

- Improvement in indoor air quality (IAQ) using natural clay based nanoporous materials; UGC sponsored Major Research Project (Sanctioned in 2015).
- Post-synthetically modified porous MOFs for specific industrial applications. Jan 2012-March 2013 (as Research Scientist)
- Photo-induced electron transfer by artificial Hemo-proteins in Carbon Nanotubes. Oct 2010-Dec 2011 (as Project Scientist)
- Development of Clay-based nanoporous materials for adsorptive removal of pollutants Sept 2007-Aug 2010 (as Post-doc Researcher)
- Solid-waste based low-cost adsorbents for removal of toxic substances from wastewaters, June 2003-May 2007 (as JRF and SRF)

Research Presentations

1. National Seminar on 'Perspectives in Plant and Environmental Sciences', Composite zeolite foam / metal organic framework (MOF-199) for the adsorption of volatile organic compounds, Department of Botanical & Environmental Sciences, Guru Nanak Dev University, **Amritsar** (Punjab) March 11-12, 2014.
2. National Seminar on 'Chemistry For a Better Tomorrow: Current Trends and Challenges', Ethane Selective IRMOF-8 and its application in Ethane-Ethylene Separation by Adsorption, at Mata Gujri College, **Fatehgarh Sahib**, Punjab on March 8, 2014
3. 37th Iberian Reunion of Adsorption, Microcellular carbon foam from different sucrose impregnated foam shaped templates, **Seville, Spain**, Sept 2012
4. 3rd Jornadas Ibéricas de Fotoquímica, Polyelectrolyte-assisted functionalization of carbon nanotubes with ordered assemblies of a water soluble porphyrin **Granada, Spain**, Sept 2011.
5. 35th Iberian Reunion of Adsorption, *Adsorption properties of SBA-15 and its carbon replica CMK-3* **Lisbon, Portugal**, Sept 2010
6. 33th Iberian Reunion of Adsorption, *Selective adsorption of biogas components on pillared clays at high-pressure* **Madrid, Spain**, Sept 2008
7. 11th National Symposium on Hydrology with focal theme on Water Quality, *Analysis of phenols in wastewater using capillary electrophoresis and solid phase extraction* **Roorkee**, India, Nov 2004
8. International, Symposium on Sensor Science I3S, *A porphyrin based potentiometric sensor for Zn^{2+} determination* **Paris, France**, June, 2003

Publications

Monograph/Book

'Solid waste based adsorbents for wastewater treatment. **Vipin Kumar Saini**, ISBN: 978-3-8473-2783-7, LAP LAMBERT Academic Publishing, Saarbrücken, Germany (2012).

Patent

Carbon foam and a process of making the same. **Vipin K. Saini**, João Pires, and Moisés L. Pinto, INPI, Portugal, (Appl. number PT 105753).

Research Articles/Review

1. Introduction of aluminum to porous clay heterostructures to modify the adsorption properties. Moisés L. Pinto, **Vipin K. Saini**, José M. Guil, João Pires, **Applied Clay Science**, 101, 497-502 (2014). (Impact factor 2.467)
2. Ethane Selective IRMOF‐8 and Its Significance in Ethane−Ethylene Separation by Adsorption. **Vipin K. Saini**, João Pires, and Moisés Pinto, **Applied Materials and Interface (*ACS*)**, 6 12093–12099 (2014) (Impact factor 6.723)
3. Post-synthetic modification of MIL-101 structure with polyoxometalates nanoclustures and its effect on adsorption of ethane and ethylene. **Vipin K. Saini**, Moises Pinto, Carlos M Granadeiro, João Pires, ***Adsorption (Springer)***, 20 (4) 533 (2014). (Impact factor 1.553)
4. Novel heterogeneous catalysts based on MOF-supported polyoxometalates, Carlos M Granadeiro, **Vipin K. Saini**, João Pires and others. ***Catalysis Today*** (Elsevier), 218–219, 35 (2013). (Impact factor 2.98)
5. Synthesis and adsorption properties of micro/mesoporous carbon-foams prepared from foam-shaped sacrificial templates. **Vipin K. Saini**, João Pires, and Moisés Pinto, ***Materials Chemistry and Physics*** (Elsevier), *138, 877 (2013).* (Impact factor 2.259)
6. Monovacant polyoxometalates incorporated into MIL-101(Cr): novel heterogeneous catalysts for liquid phase oxidation. Carlos M Granadeiro, **Vipin K. Saini**, João Pires, and others, ***Applied Catalysis A: General*** (Elsevier), *453, 316 (2013)*. (Impact factor 3.910)
7. Polyelectrolyte-Assisted Noncovalent Functionalization of Carbon Nanotubes with Ordered Self-Assemblies of a Water-Soluble Porphyrin**.** Suzana M. Andrade, Perumal Raja, **Vipin K Saini**, and Sílvia M. B. Costa, ***ChemPhysChem*** (Wiley-VCH), *13, 3622 (2012)*. (Impact factor 3.419)
8. Synthesis of foam shaped nanoporous zeolite material: A simple template based method. **Vipin K. Saini** and João Pires. ***Journal of Chemical Education*** (ACS)*, 89(2), 276 (2012)*. (Impact factor 0.817)
9. Natural clay binder based extrudates of mesoporous materials: improved materials for selective adsorption of natural and biogas components**. Vipin K. Saini**, João Pires, and Moisés Pinto, ***Green Chemistry*** (RCS)*, 13, 1251 (2011)*. (Impact factor 8.02)
10. Characterization of hierarchical porosity in novel composite monoliths with adsorption studies. **Vipin K. Saini**, João Pires, and Moisés Pinto, ***Colloids and Surfaces A:***

Physicochemical and Engineering Aspects (Elsevier), *373, 1-3, 158* (2011). (Impact factor 3.417)

11. High-pressure adsorption studies of ethane and ethylene on clay-based adsorbent materials**. Vipin K. Saini**, João Pires, and Moisés Pinto, ***Separation Science and Technology*** (Taylor & Francis), *46, 1* (2011). (Impact factor 1.16)
12. How the adsorption properties get changed when going from SBA-15 to its CMK-3 carbon replica**. Vipin K. Saini**, Marta Andrade, Moisés L. Pinto, Ana P. Carvalho, and João Pires, ***Separation and Purification Technology*** (Elsevier), *75, 3, 366* (2010). (Impact factor 2.894)
13. Applications of Clay Based Composite Materials in Adsorptive Separation and Purification of Gases (Review Article) **Vipin K. Saini** and João Pires, ***Recent Patents in Material Sciences***, (Bentham Science) *3, 2, 129* (2010). (Impact factor)
14. Studies on Selective Adsorption of Biogas Components on Pillared Clays: An Approach for Biogas Improvement**.** João Pires, **Vipin K. Saini**, and Moisés Pinto, ***Environmental Science & Technology*** (ACS), *42, 8727* (2008). (Impact factor 5.257)
15. Adsorption studies on the removal of Vertigo Blue 49 and Orange DNA13 from aqueous solutions using carbon slurry developed from a waste material**.** V.K.Gupta, I. Ali, and **Vipin K. Saini**, ***Journal Colloid Interface Science*** (Elsevier)*, 315, 87* (2007). (Impact factor 3.172)
16. Removal of Reactofix Navy Blue 2 GFN from aqueous solutions using adsorption techniques**.** V.K.Gupta, R. Jain, S. Varshney, and **Vipin K. Saini**, ***Journal Colloid Interface Science*** (Elsevier), *307, 326* (2007). (Impact factor 3.172)
17. Defluoridation of aqueous solution by adsorption technology using waste carbon slurry**.** V.K.Gupta, I. Ali, and **Vipin K. Saini**, ***Water Research*** (Elsevier), *41, 3307* (2007). (Impact factor 4.655)
18. Removal of 2,4-D and carbofuran pesticides using fertilizer and steel industry wastes. V.K.Gupta, I. Ali, Suhas, and **Vipin K. Saini**, ***Journal Colloid Interface Science*** (Elsevier)*, 299, 556* (2006). (Impact factor 3.172)
19. Analysis of phenols in wastewater using capillary electrophoresis and solid phase extraction**.** V.K. Gupta, **Vipin K. Saini**, Imran Ali and H.Y. Aboul-Enein, ***International Journal of Environment and Pollution*** (Inderscience), *27(1-3), 95* (2006). (Impact factor 0.632)
20. Studies on the interaction of some azo dyes (naphthol red-J and direct orange) with nontronite mineral. V.K. Gupta, Dinesh Mohan, **Vipin K. Saini**, ***Journal Colloid Interface Science*** (Elsevier)*,* 298(1), 79 (2006). (Impact factor 3.172)
21. Biosorption of copper (II) from aqueous solutions by algae spirogyra species**.** V. K. Gupta, Arshi Rastogi, **Vipin K. Saini**, and Neeraj Jain, ***Journal Colloid Interface Science*** (Elsevier)*, 296, 59* (2005). (Impact factor 3.172)
22. Adsorption of As (III) from aqueous solutions by iron-oxide coated sand**.** V. K. Gupta, **Vipin K. Saini** and Neeraj Jain, ***Journal Colloid Interface Science***, (Elsevier) *288(1), 55* (2005). (Impact factor 3.172)
23. Removal of dyes from wastewater using bottom ash**.** V. K. Gupta, I. Ali, **Vipin K. Saini**, Tom Van Gerven, Bart Van der Bruggen, and Carlo Vandecasteele, ***Industrial & Engineering Chemistry Research*** (ACS), *44(11), 3655* (2005).). (Impact factor 2.206)

24. Removal of chlorophenols from wastewater using red mud: an aluminium industry waste**.** V.K.Gupta, I. Ali, and **Vipin K. Saini**, ***Environmental Science & Technology*** (ACS)*, 38, 4012* (2004).). (Impact factor 5.257)
25. Removal of rhodamine B, fast green and methylene blue from wastewater using red mud, an aluminum industry waste. V.K.Gupta, I. Ali, Suhas, and **Vipin K. Saini**, ***Industrial & Engineering Chemistry Research*** (ACS), *43, 1740* (2004).). (Impact factor 2.206)
26. Carbosilane dendrimers with end-grafted silacrown- and crown-ether units", Roy Buschbeck, H. Lang, Shiva Agarwal, **Vipin K. Saini**, and V. K. Gupta, ***Synthesis*** (Thieme), (8), 1243 (2004).). (Impact factor 2.50)
27. A Porphyrin Based Potentiometric Sensor for Zn^{2+} determination. V.K.Gupta, D.K.Chauhan, **Vipin K. Saini**, S. Agarwal, M. Antonijevic and H. Lang, ***Sensors*** (MDPI), *3, 223* (2003).). (Impact factor 1.953)
28. Removal of cadmium and nickel from wastewater using bagasse fly ash - a sugar industry waste**.** V.K. Gupta, C. K. Jain, I. Ali, M. Sharma, and **Vipin K. Saini**, ***Water Research*** (Elsevier)*, 37(16), 4038* (2003).). (Impact factor 4.655)