

Dr. Sandeep Kaushal

Ph. D, M. Sc., UGC-NET

Assistant Professor

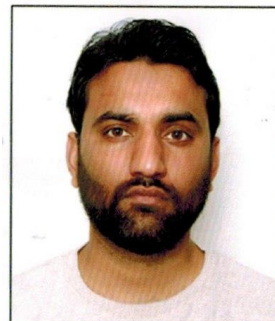
Department of Chemistry

Sri Guru Granth Sahib World University

Fatehgarh Sahib, Punjab, India

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Research Interest/ Specialization:

Synthesis of hybrid ion-exchange, Heterojunction, Graphene Oxides, Metal Organic Frameworks, Ionic Liquids based nanocomposites, Electrochemical Studies on ion exchange membranes, Sensors for heavy metal ions detection, degradation of organic pollutant pesticides & antibiotics.

Ph. D. Thesis Title: “Synthesis, Characterization and Applications of Zirconium Based Inorganic Ion Exchangers”

ACADEMIC QUALIFICATIONS:

Degree	Institution	Year	Percentage/ Division
Ph. D. Chemistry	Punjab Technical University, Jalandhar	2016	1 st (Course work)
M. Sc. Chemistry	Dr. Bhim Rao Ambedkar University, Agra	2007	1 st
B. Ed.	Jammu University, Jammu	2005	1 st
B. Sc. (Non-Medical)	Himachal Pradesh University, Shimla	2004	2 nd
XII	Himachal Pradesh Board of School Education, Dharamshala	2000	1 st
UGC/CSIR National Eligibility Test for Assistant Professor	NET (UGC-CSIR)	2012	
CTET	C.B.S.E. New Delhi	2013	
HPTET	HPSSSC, Hamirpur	2012	

TEACHING INTEREST:

Chemistry (General course for UG students of Engg.), Physical Chemistry (UG students of chemistry), Inorganic Chemistry & Group Theory (PG students of chemistry), Analytical Chemistry, Instrumental methods of analysis – Graduate students of Chemistry.

TEACHING EXPERIENCE:

Name of the Institution	Position	From	To	Subject/Courses taught
Sri Guru Granth Sahib World University, Fatehgarh Sahib	Assistant Professor	July, 2014	Till date	Inorganic Chemistry, Group Theory & Metal Carbonyl, Solid State Chemistry, Advance Inorganic Chemistry, Industrial Chemistry Analytical Chemistry, General Chemistry (UG Physics) Chemistry Laboratory courses
RIMT-IET, Mandigobindgarh	Assistant Professor	August, 2008	April, 2014	Engineering Chemistry, Environmental Chemistry, Chemistry Laboratory course
Doaba Polytechnic College, Raipur	Lecturer	January, 2008	August, 2008	Engineering Chemistry, Chemistry Laboratory course

Research Supervision:**Doctorate of Philosophy**

Sr. No.	Name of Student	Title of Thesis	Enrolment Year
1	Rupinder Kaur	Synthesis and Characterization and applications of nanocomposite ion exchangers	2014
2	Ashutosh Sharma	Selective N-alkylation of amines with dialkyl carbonates in the presence of zirconium and aluminum based MOFs and nanocomposites	2017
3	Vanita Kumari	Synthesis, characterization and applications of Graphene Oxide based nanocomposites	2018
4	Karina Khan	Synthesis and Characterization of MnV_2O_6 based heterojunction and its photocatalytic application for the degradation of insecticide	2019

Post-graduation level:

Sr. No	Name of Student	Research Topic	Year of completion
1	Ashutosh Sharma	Synthesis, applications of cellulose acetate doped tin(IV) Iodophosphate composite ion exchanger	2017
2	Kanwalpreet Kaur	Synthesis, applications and characterization of cellulose acetate-zirconium molybdate composite ion exchanger	2017
3	Astha Goyal	Ionic liquid-zirconium metal organic frameworks composite for heavy metal ion detection	2018
4	Jagseer Kaur	Synthesis and Characterization of Boron doped graphene oxide -Lanthanum based metal organic framework: Applications as photocatalyst	2018
5	Navjot Kaur	Bromide selective ion selective electrode based on BGO-MOF composite	2018
6	Kiranjot Kaur	Ionic Liquid incorporated Zirconium-fumarate metal organic frameworks Composite with photocatalytic activity	2018
7	Amandeep Kaur	Electrochemical studies based on BN-ZrP nanocomposite	2018
8	Shamsher Singh	Synthesis and applications of boron nitride doped tin (iv)phosphate based composite ion exchanger	2018
9	Vanita Kumari	Development of advanced nanocomposite membranes using graphene oxidefor water treatment	2018
10	Gurmeet Kaur	Synthesis, Characterization and application of Calcium Fumarate Metal Organic Framework for the adsorptive removal of pesticide	2019
11	Jasmeen Kaur	Adsorptive removal of Ferric ion with Calcium Fumarate Metal Organic Framework	2019
12	Kamalpreet Kaur	Fabrication and Characterization of MnV ₂ O ₆ /ZnO heterostructure with improved photocatalytic activity for the degradation of Crystal Violet dye	2019
13	Manpreet Kaur	Pectin based Graphene Oxide nanocomposite - its synthesis and application in selective cationic and anionic dye removal from aqueous solution	2019
14	Navdeep Kaur	Pectin-based Graphene Oxide Composite: its Synthesis, characterization and Application as an adsorbent for the removal of heavy metal ion from the aqueous solution	2019
15	Parul	Synthesis and Characterization of MnV ₂ O ₆ /ZnO heterojunction and its photocatalytic application for the degradation of insecticide	2019

Publications in peer reviewed journals

Publications in 2020:

1. Kaushal, S.; Kaur, H.; Kumar, S.; Badru, R.; Mittal, S.; Singh, S. Novel Horizon: Smart TiO₂/Sn(IV)SbP Nanocomposite with Enhanced Electrochemical and Photocatalytic Properties, *Russ. J. Inorg. Chem.* **2020**, 65(4), 616–625.
2. Parul; Kaur, K.; Badru, R.; Singh, P.; Kaushal, S. Photodegradation of organic pollutants using heterojunctions: a review, *J. Environ. Chem. Eng.* **2020**, 8, 103666-103685.
3. Kumari, V.; Badru, R.; Singh, P.; Kaushal, S. Synthesis and Electrochemical behaviour of GO doped ZrP based membranes, *J. Environ. Chem. Eng.* **2020**, 8, 103690-103698.

Publications in 2019:

4. Kaur, R.; Kaushal, S.; Singh, P. Selective removal of lead (II) ions and estimation of Ca (II) ions using poly-o-toluidine–zirconium (IV) molybdophosphate, *Chem Pap.* **2019**, 73(8), 2027–2039.
5. Kaushal, S.; Badru, R.; Singh, P.; Kumar, S.; Mittal, S.K. Estimation of Trace Level Cadmium (II) by Polyaniline-Zirconium Phosphoborate Nanocomposite-based Membrane Electrode, *J. Anal. Chem.* **2019**, 74, 800-808.
6. Kaur, R.; Kaushal, S.; Singh, P. Efficient removal of Hg (II) ions from waste water by a new nano-composite poly-o-toluidine tin-zirconium (IV) molybdophosphate *Int. J. Environ. An. Ch.* doi.org/10.1080/03067319.2019.1659253.

Publications in 2018:

7. Kaushal, S.; Badru, R.; Kumar, S.; Kaur, H.; Singh, P. Efficient Removal of Cationic and Anionic Dyes from Their Binary Mixtures by Organic–Inorganic Hybrid Material, *J. Inorg. Organomet. Polym. Mater.* **2018**, 28(3), 968.
8. Kaushal, S.; Boparai, J.K.; Kaur, R.; Singh, G.; Kang, T.S.; Badru, R.; Singh, P.; Sharma, P.K. Purification of Metagenomic DNA using Novel Nanocomposite Titanium Dioxide-polyaniline Tin (IV) antimonophosphate, Insights into the Mechanism Underlying Purification Process, *Curr. Biotechnol.* **2018**, 7, 1.
9. Singh, M.; Kaushal, S.; Singh, P.; Sharma, J. Boron doped graphene oxide with enhanced photocatalytic activity for organic pollutants, *J. Photochem. Photobiol.* **2018**, 364,130.

Publications in 2017:

10. Kaushal, S.; Mittal, S.; Singh, P. Developments in Synthesis, Characterization and Applications of Composite Ion-exchange Materials: A Review, *Orient. J. Chem.* **2017**, 33(4), 1726.
11. Kaushal, S.; Kaur, M.; Mittal, S.K.; Singh, P. Determination of Cr(III) in industrial effluents by ZnO-SnSbP nanocomposite, *Asian J. Chem.* **2017**, 29(7), 1595.
12. Kaushal, S.; Kang, Singh, G.; Kang, T.S.; Singh, P. Synthesis and characterization of a tin(IV) antimonophosphate nano-composite membrane incorporating 1-dodecyl-3-methylimidazolium bromide ionic liquid, *RSC Advances.* **2017**, 7, 12561.
13. Kaushal, S.; Mittal, S.K.; Singh, P. Barium selective electrode based on Zirconium phosphoborate ion exchanger, *Asian J. Chem.* **2017**, 29(2), 375.

Publications in 2016:

14. Kaushal, S.; Badru, R.; Kumar, S.; Mittal, S.K.; Sharma, P.K.; Singh, P. Electrochemical behavior of a membrane based on zirconium(IV) phosphoborate nanocomposite and its application in dye removal, *RSC Advances.* **2016**, 6, 111606.
15. Kaushal, S.; Badru, R.; Singh, P.; Kumar, S.; Mittal, S.K. Nanocomposite zirconium phosphoborate ion exchanger incorporating carbon nanotubes with photocatalytic activity, *Sep. Sci. Technol.* **2016**, 51(18), 2896.
16. Kaushal, S.; Badru, R.; Kumar, S.; Mittal, S.K.; Singh, P. Fabrication of a mercury(II) ion selective electrode based on poly-o-toluidine–zirconium phosphoborate, *RSC Advances.* **2016**, 6, 3150.

Publications in 2014-15:

17. Kaushal, S.; Sharma, P.K.; Mittal, S. K.; Singh, P. A novel zinc oxide–zirconium (IV) phosphate nanocomposite as antibacterial material with enhanced ion exchange properties, *J. Colloid. Interf. Sci. Comm.* **2015**, 7, 1.
18. Kaushal, S.; Mittal, S. K.; Singh, P. Yttrium (III) Selective Electrode Based On Zirconium (IV) Phosphoborate, *J. New Mat. Electr. Sys.* **2014**, 17, 5.
19. Kaushal, S.; Mittal, S. K.; Singh, P. Electrochemical studies on zirconium phosphoborate based heterogeneous membranes, *J. Electrochem. Sci. Eng.* **2014**, 4 (1), 55.

20. Kaushal, S.; Mittal, S. K.; Singh, P. Study of Effect of Temperature On the Properties And Structure Of Zirconium Phosphoborate Ion-Exchanger, *Int. J. Adv. Tech. Eng. Sci.* **2014**, 2 (12), 663-69.

CONFERENCE AND WORKSHOP ATTENDED:

- Sandeep Kaushal and Pritpal Singh, Tin (IV) antimonophosphate and 1-dodecyl-3-methylimidazolium bromide ionic liquid-based nanocomposite membrane – Synthesis and Electrochemical Characterization,” Vth National Symposium on Advances in Chemical Sciences on 7-8th March 2017.
- Presented paper (**Oral**) in 20th Punjab Science Congress Synthesis held at IET Bhaddal, Punjab, entitled “Characterization and Applications of Polyaniline-Zirconium Phosphoborate Nanocomposite Ion Exchanger,” on 7th February, 2017.
- Presented paper (**Oral**) in 104th Indian Science Congress Association held at SVU, Tirupati, entitled “Cadmium (II) selective electrode based on Polyaniline-zirconium phosphoborate nanocomposite,” on 3-7 January, 2017.
- Sandeep Kaushal and Pritpal Singh, “Electrochemical Studies on Zinc Oxide-Zirconium (IV) Phosphate Nanocomposite Ion Exchange Membrane”, Synergistic Aspects of Chemical and Other Sciences, Punjabi University, Patiala, Feb, 19-20, 2015.
- Sandeep Kaushal and Pritpal Singh, “Poly-o-toluidine Zirconium Phosphoborate Nanocomposite Based Ion Selective Electrode For Potentiometric Determination of Hg(II) Ions With Antibiotic and Photocatalytical Activity”, New Paradigm in Chemical Sciences: Synthetic and Analytical Perspective, Punjabi University, Patiala, Feb, 04-05, 2016.
- Sandeep Kaushal and Pritpal Singh, “Synthesis and Applications of Polyaniline Zirconium Phosphoborate Nanocomposite as Cd(II) Selective Electrode, Antibacterial agent and Photocatalyst”, New Paradigm in Chemical Sciences: Synthetic and Analytical Perspective, Punjabi University, Patiala, Feb, 04-05, 2016.
- Sandeep Kaushal and Pritpal Singh, “Preparation and Characterization of Carbon Nano Tubes Incorporated Nanocomposite Ion Exchanger” Recent Advances in Chemical Biological and Environmental Sciences, M.M. Modi College, Patiala, January, 30-31, 2015.
- National Conference on Preservation of Environment: Challenges before Humanity” held at Sri Guru Granth Sahib World University, Fatehgarh Sahib on 14th March, 2013.

- Unfolding in Vedic Mathematics: Significance and Applications in Modern Science, Organized by Punjab Technical University, April, 28, 2011.
- 98th Indian Science Congress Association held at SRM University, Chennai on 3-7th January, 2011.
- Faculty Development Programme, Sponsored by Department of Science & Technology, Govt. of India, New Delhi in Association with Entrepreneurship Development Institute of India, Ahmadabad, held in RIMT-IET, Madigobindgarh, December 17-23, 2009.

Others

- Having knowledge of interpretation of Field emission scanning electron microscopy, Energy dispersive X-ray spectrometry, Transmission electron microscopy, Thermo-gravimetric–Differential Scanning Calorimetry, Powder X-ray diffraction, Fourier transform-infrared spectroscopy,
- Knowledge of Origin, High Xpert Score etc.

Member of Professional bodies:

Member of Indian Science Congress Association, Kolkata.

PERSONAL DETAILS

Citizenship	:	Indian
Gender	:	Male
Marital Status	:	Married
Father's Name	:	Sh. Jagdish Chand
Mother's Name	:	Mrs. Keshari Devi
Languages	:	English, Hindi, Punjabi