



**Dr. Vijaya Kumari**

**Assistant Professor (On Contract)**

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(HR), India

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- 1. Field of Specialization:** Physical Chemistry
- 2. Teaching Experience:** 8 years
- 3. Profile:** Enthusiastic, responsible, able to work independently using initiative, and as part of a team with a positive attitude. Proficient in teaching with innovative ideas.
- 4. Technical skills:** Experience in handling Ultrasonic Interferometer, Spectrophotometry, Potentiometry, Conductometry, Dipolemetry. Polarimetry, BET surface area analyzer, Photoreactor, Ultrasonication, etc.
- 5. Academic Awards:**
  - Qualified CSIR-UGC NET in June 2012.
  - Qualified GATE (Graduate Aptitude Test in Engineering) in 2012.
  - Got the **Best paper presentation awards** in National Conference on “**Science & Technology for Rural Development**” M.D. University, Rohtak-2019.

**6. Educational Qualifications:**

Degree	Year of passing	University/Institute
PhD	2021	M.D. University, Rohtak
M.Sc.	2011	M.D. University, Rohtak
B.Sc.	2009	M.D. University, Rohtak

**7. Academic Societies Membership:**

Life Member Indian Science Congress Association,  
Kolkata (L-36926).

**8. Career Profile:**

Designation	College/Institution Served	Duration	
		From	To
Assistant Professor (Contract)	M.D. University, Rohtak	21/08/2018	Till Now
Assistant Professor (GF)	Ch. Bansi Lal University, Bhiwani	01/08/2015	22/10/2015
Assistant Professor (GF)	Ch. Bansi Lal University, Bhiwani	23/08/2014	09/05/2015
Assistant Professor (GF)	Govt. College Bhiwani	22/07/2014	22/08/2014
Assistant Professor (GF)	Vaish College Bhiwani	07/10/2013	03/03/2014

**9. Total publications: 15** (14 Research papers + 01 Book Chapter) (**Annexure-I**)

**10. Participation in conferences/seminars: 16** (10 International + National)-  
(**Annexure-II**)

**11. Training Programme:** One day Faculty capacity Building workshop on “e-content Development and iLMS” 27 June 2022, Digital Learning Centre & Faculty Development Centre, M.D. University, Rohtak.

## LIST OF PUBLICATIONS:

1. Vijaya Kumari, Anuj Mittal, Jitender Jindal, Suprabha Yadav, Naveen Kumar. "C-, N- and S-doped ZnO as semiconductor photocatalysts: A Review" **Frontier of Material Science**, 2019, *13(1): 1–22*, doi.org/10.1007/s11706-019-0453-4.
2. Vijaya Kumari, Sanjeev Maken, Kavitha Kumari, Naveen Kumar. "Non-metal modified TiO<sub>2</sub>: A step towards visible light photocatalysis" **Journal of Materials Science: Materials in Electronics**, 2019, *30, 3186–3207*, doi.org/10.1007/s10854-018-00651-9, Anuj Mittal, Bernabe Mari Soucase, Shankar Sharma.
3. Vijaya Kumari, Suprabha Yadav, Nar Singh Chauhan, Naveen Kumar. "Highly efficient, visible active TiO<sub>2</sub>/CdS/ZnS photocatalyst, study of activity in an ultra low energy consumption LED based photo reactor" **Journal of Materials Science: Materials in Electronics**, 2019, *30, 17933–17946*, doi.org/10.1007/s10854-019-02147-6, Anuj Mittal, Shankar Sharma.
4. Suprabha Yadav, Naveen Kumar, Vijaya Kumari, Anuj Mittal, Shankar Sharma. "Photocatalytic degradation of Triclopyr, a persistent pesticide by ZnO/SnO<sub>2</sub> nano-composities" **Materials Today: Proceedings**, 2019, *19, 642-645*, doi.org/10.1016/j.matpr.2019.07.746.
5. Vijaya Kumari, Naveen Kumar, Suprabha Yadav, Anuj Mittal, Shankar Sharma. "Novel mixed metal oxide (ZnO.La<sub>2</sub>O<sub>3</sub>.CeO<sub>2</sub>) synthesized via hydrothermal and solution combustion process – A comparative study and their photocatalytic properties" **Materials Today: Proceedings**, 2019, *19, 650-657*, doi.org/10.1016/j.matpr.2019.07.746.
6. Vijaya Kumari, Suprabha Yadav, Jitender Jindal, Shankar Sharma, Kavitha Kumari, Naveen Kumar. "Synthesis and characterization of heterogeneous ZnO/CuO hierarchical nanostructures for photocatalytic degradation of organic pollutant" **Advanced powder technology**, 2020, *31, 2658-68*, 10.1016/j.appt.2020.04.033.
7. Vijaya Kumari, Suprabha Yadav, Anuj Mittal, Shankar Sharma, Kavitha Kumari, Naveen Kumar. "Hydrothermally synthesized nano-carrots ZnO with CeO<sub>2</sub> heterojunctions and their photocatalytic activity towards different organic pollutants" **Journal of Materials Science: Materials in Electronics**, 2020, *31, 5227-5240*, DOI: 10.1007/s10854-020-03083-6.
8. Vijaya Kumari, Suprabha Yadav, Anuj Mittal, Kavitha Kumari, Bernabe Mari, Naveen Kumar. "Surface Plasmon response of Pd deposited ZnO/CuO nanostructures with enhanced photocatalytic efficacy towards the degradation of organic pollutants" **Inorganic Chemistry Communications**, 2020, *121, 108241*, doi.org/10.1016/j.inoche.2020.108241.

9. **Vijaya Kumari**, Shankar Sharma, Anuradha Sharma, Kavitha Kumari, Naveen Kumar. “Hydrothermal synthesis conditions effect on hierarchical ZnO/CuO hybrid materials and their photocatalytic activity” **Journal of Materials Science: Materials in Electronics**, 2021, 32, 9596-9610, doi.org/10.1007/s10854-021-05622-1.
10. Suprabha Yadav, Naveen Kumar, Bernabe Mari, Anuj Mittal, **Vijaya Jangra**, Anuradha Sharma, Kavitha Kumari. “Ag/ZnO nano-structures synthesized by single-step solution combustion approach for the photodegradation of Cibacron Red and Triclopyr” **Applied nanoscience**, 2021, 11, 1977-1991, doi.org/10.1007/s13204-021-01943-z.
11. **Vijaya Kumari**, Mabel M. Mphahlele-Makgwane, Peter R. Makgwane, Anuradha Sharma, Deepak Parmar, Kavitha Kumari, Naveen Kumar. “Ultrasonically Pd functionalized, surface plasmon enhanced ZnO/CeO<sub>2</sub> heterostructure for degradation of organic pollutants in water” **The European Physical Journal Plus**, 2022, 137, 525, DOI: 10.1140/epjp/s13360-022-02762-z.
12. Anuradha Sharma, Shankar Sharma, Peter R. Makgwane, **Vijaya Kumari**, Kavitha Kumari, Jyoti Kataria, Naveen Kumar. “Ag@AgCl/Cu<sup>2+</sup>-Bi<sub>2</sub>O<sub>3</sub> nanocomposite for decontamination of Rhodamine B: adsorption, kinetics, thermodynamics, and photocatalytic aspects” **The European Physical Journal Plus**, 2022, 137, 825, doi.org/10.1140/epjp/s13360-022-02998-9.
13. **Vijaya Kumari**, Anuradha Sharma, Naveen Kumar, Mika Sillanpaa, Peter R. Makgwane, Md. Ahmaruzzaman, Ahmad Hosseini-Bandegharai, Manju Rani, P. Chinnamuthu. “TiO<sub>2</sub>-CeO<sub>2</sub> assisted heterostructures for photocatalytic mitigation of environmental pollutants: A comprehensive study on band gap engineering and mechanistic aspects” **Inorganic Chemistry Communications**, 2023, 151, 110564, doi.org/10.1016/j.inoche.2023.110564.
14. Shruti Jain, Anuj Mittal, **Vijaya Kumari**, Anuradha Sharma, Jitender Jindal, Peter R. Makgwane, Vinod Kumar, Naveen Kumar, Kavitha Kumari. “A facile synthesized Z-scheme Bi<sub>2</sub>O<sub>3</sub>/SnS/Ag ternary nanocomposite: An expedited visible photocatalysis by plasmonic silver for efficient organic decontamination” **Optical Materials**, 2023, 145, 114434, doi.org/10.1016/j.optmat.2023.114434.
15. **Vijaya Kumari**, Kavitha Kumari, Ravi Rana. **Book Chapter**: “Metal oxide based nano-composite: Greener synthesis routes and their potentiality” in **Metal Oxide-Based Heterostructures Fabrication and Applications**, 2023, 1<sup>st</sup> Edition, 107-139, doi.org/10.1016/B978-0-323-85241-8.00011-6.

## Annexure -II

### Participation and papers presented in conference/seminar/workshop:

Sr. no.	Title of the paper presented	Title of the conference/ seminar	Conference details	Date of Event
1.	Impedance and corrosion resistance characteristics of reanodized anodic alumina film on AA 5052 (PP)	Organics, Metallorganics and Thermodynamics, GJUS&T, Hisar	National (Chemistry)	17-18 Nov, 2017
2.	Photodegradation using ZnO and Sulphur Doped ZnO under UV irradiation (PP)	Bio and Nano Technologies for Sustainable Agriculture, Food, Health and Industry (ICBN-2018), GJUS&T, Hisar	International (Bioscience)	21-23 Feb., 2018
3.	Effect of pH on the photocatalytic degradation of Rhodamine B using ZNO ternary nanocomposites (PP)	Sustainable Agriculture, Energy, Environment and Technology (ICSAEET-2018), M.D. University, Rohtak	International (Environmental science)	24-25 Feb., 2018
4.	Synthesis and characterization of binary ZnO/CeO <sub>2</sub> nanocomposites using ecofriendly hydrothermal method (PP)	Recent Advances in Chemical Sciences (NCRACS-2018), M.D. University, Rohtak	National (Chemistry)	7 March, 2018
5.	Effect of degradation condition on the photocatalytic activity of ternary ZNO nanocomposites (PP)	Global Congress on Biotechnology, Nanotechnology, Energy and Environment (GCBNE-2018) DCRUST, Murthal	International (Biotech)	25-26 April, 2018
6.	Photocatalytic dye degradation for environment purification using ZnO based hybrid materials synthesized by ecofriendly method (PP)	Indo-us Colloquium on Recent Development in Interdisciplinary Research, Hansraj College, Delhi University, Delhi	International	2 July, 2018
7.	Fabrication and photocatalytic study of ZnO/CuO nanocomposites synthesized via hydrothermal method (PP)	Science & Technology for Sustainable Development, ISCA, M.D. University, Rohtak	National (Chemistry)	12-13 Feb., 2019
8.	A comparative study of hydrothermally and Solvothermally Synthesized ZnO nanocomposites (PP)	Sustainable Environment & Agriculture Under Global Climate Change, M.D. University, Rohtak	International (Environmental science)	21 Feb., 2019
9.	Improved photocatalytic properties of size reduced ZnO nanoparticles via PEG-assisted hydrothermal method (PP)	2 <sup>nd</sup> International Conference on Innovations in Chemical, Biological & Environmental Sciences (Science & Technology for a Sustainable Future), Arya PG College, Panipat	International	27-28 Feb., 2019

10.	Synthesis of highly efficient ZnO nanocarrots decorated with CeO <sub>2</sub> nanoparticles for removal of agrochemical wastes ( <b>Best presentation award</b> ) (OP)	Science & Technology for Rural Development, M.D. University, Rohtak	National (Chemistry)	14-15 Oct., 2019
11.	Photocatalytic degradation of Triclopyr, a persistent pesticide using ZnO/CuO nanocomposites (PP)	Innovations in Science Engineering & Technology, Arya PG College, Panipat	International	9-10 Nov., 2019
12.	Photocatalytic degradation of organic pollutants using TiO <sub>2</sub> based hybrid materials for environmental purification (OP)	1 <sup>st</sup> International Conference on "Science & Technology: Rural Development (ICSTRD -2020) ISCA-Rohtak Chapter, M.D. University, Rohtak	International (Chemistry)	4-5 March, 2020
13.	Synthesis, characterization and photocatalytic application of highly efficient, visible active TiO <sub>2</sub> /CdS/ZnS photocatalyst for environmental purification (PP)	Recent Trends on Materials and Life Sciences, M.D. University, Rohtak	National (Chemistry)	29 Sept., 2023
14.	Synthesis and characterization of ZnO and ZnO based hybridized ternary nanocomposites using energy efficient method (PP)	Global Perspective on Science & Technology for Sustainable Development- ISCA, RPS Degree College, Balana, Mahendergarh	National	3-4 Nov, 2023
15.	Photocatalytic Removal of Pollutants from Wastewater Using Highly Energy Efficient Semiconductor Nanophotocatalyst (OP)	Science and Technology for Sustainable Future (ICSTSF-2024) – ISCA Rohtak Chapter, M.D. University, Rohtak	International (Institute of Engineering and Technology)	7-8 Feb, 2024
16.	Surface Plasmon response of Pd deposited ZnO/CuO nanostructures with enhanced photocatalytic efficacy towards the degradation of pesticide (PP)	Emerging Trends in Functional Materials in Sciences, ETFMS-2024, M.D. University, Rohtak	International (Chemistry)	21-22 Nov, 2024