Prof. Naveen Kumar

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https://orcid.org/0000-0002-0537-2845
https://www.scopus.com/authid/detail.uri?authorId=56939336400

Ranked in top 2% of World leading Scientists database released by Stanford University USA and Elsevier (2024, 2025).

Date of Birth:	17-10-1980
Field of Specialization:	Chemistry
Teaching Experience:	15 Years
Research Experience	20 Years
Field of Research Interest	**Photocatalysis, Nano-Composite materials, Electrochemical Sensing, Solution Thermodynamics, Phosphor Materials**
Personality traits	Enthusiastic, responsible, able to work independently using initiative, and as part of a team with a positive attitude. Proficient in teaching with innovative ideas.

Research Interest

Our research group mainly works in the area of the materials science and the thermophysical properties of the liquid mixture.

Materials science

Our group is broadly interested in the synthesis of the novel semiconductor materials using the energy efficient techniques. The modification in the structural, optical, and morphological characteristics of these materials is also under consideration by alteration in the synthesis parameters like solvent, temperature, addition of additives etc. Further, the applications of the synthesis samples for the photocatalytic removal of organic pollutants, sensing of harmful volatile organic compounds and gases is also the area of the interest. The luminescent materials are also synthesized by doping of rare earth elements in the semiconductor lattice.

Liquid Mixtures

Beside the field of materials science our group also focus on the thermophysical properties such as excess molar volume, viscosity, refractive index, density, heat capacity and enthalpy of mixing of the liquid mixture. These properties are of great importance in the industrial area.

Academic Awards/Achievements

- Qualified GATE (Graduate Aptitude Test in Engineering) in 2004.

- Qualified UGC-JRF NET for fellowship and lectureship in June 2004.

Educational qualifications

Degree	Year of passing	University/ Institute
Ph. D	2009	M. D. University, Rohtak, Haryana, India
M. Sc.	2004	M. D. University, Rohtak, Haryana, India
B. Sc.	2001	M. D. University, Rohtak, Haryana, India

Academic Societies Membership

- Life Member Indian Science Congress Association, Kolkata.
- Life Member Indian Chemical Society, Kolkata.
- Life Member Indian Thermodynamic society
- Indian Analytical Congress, UK, India
- Life member Material Research Society of India

Career profile

Designation	Institute	Duration	
		From	**To**
Lecturer	Haryana Institute of Technology, Asoda Haryana	July 2008	December 2008
Assistant Professor	Department of Chemistry, M.D. University, Rohtak	May 1, 2010	April 30, 2022
Associate Professor	Department of Chemistry, M.D. University, Rohtak	May 1, 2022	April 30, 2025
Professor	Department of Chemistry, M.D. University, Rohtak	May 1, 2025	Till Date

Project undertaken

Title of the project	Duration	Project Cost / Funding agency	Status
Multifunctional MXenes-Based Ternary Composites for Photocatalytic Carbon Dioxide Reduction and Hydrogen Production	2025-29	AED 8,50,000 (Approx. Rs. 2 Cr.) UAEU, Abu Dhabi (Co-PI)	Sanctioned
Synthesis and Characterization of Mixed metal oxide Semiconductor nano-	2020-21	3 Lakh M D U Rohtak (PI)	On-going

composities for Environmental remediation			
ZnO based hybrid materials – Synthesis, Characterization and application for degradation of pesticides	2019-20	0.5 Lakh DSW, M D U Rohtak, (PI)	Completed
Hybrid TiO_2 based Nanostructures: Synthesis, Characterization, and their Photo catalytic activity	2018-19	0.5 Lakh DSW, M D U Rohtak, (PI)	Completed
Photocatalytic Activity of ZnO composite on degradation of synthetic dye	2017-18	0.5 Lakh DSW, M D U Rohtak, (PI)	Completed
Anodic Oxide Films on Metals and Alloys	2011-2014	8,37,500 UGC, New Delhi, (PI)	Completed

Publications

Research articles in published **147 (Published) (Annexure A) + 3 (Communicated)**

Book Chapters **11 (Annexure B)**

Book: **4 (As Editor) (Publisher: Elsevier-02, CRC-02),**

1 (In Progress)

(i) **Metal Oxide based heterostructures: Fabrication and Applications**
Editors: Naveen Kumar, Bernabe Mari Soucase
https://www.elsevier.com/books/metal-oxide-based-heterostructures/kumar/978-0-323-85241-8

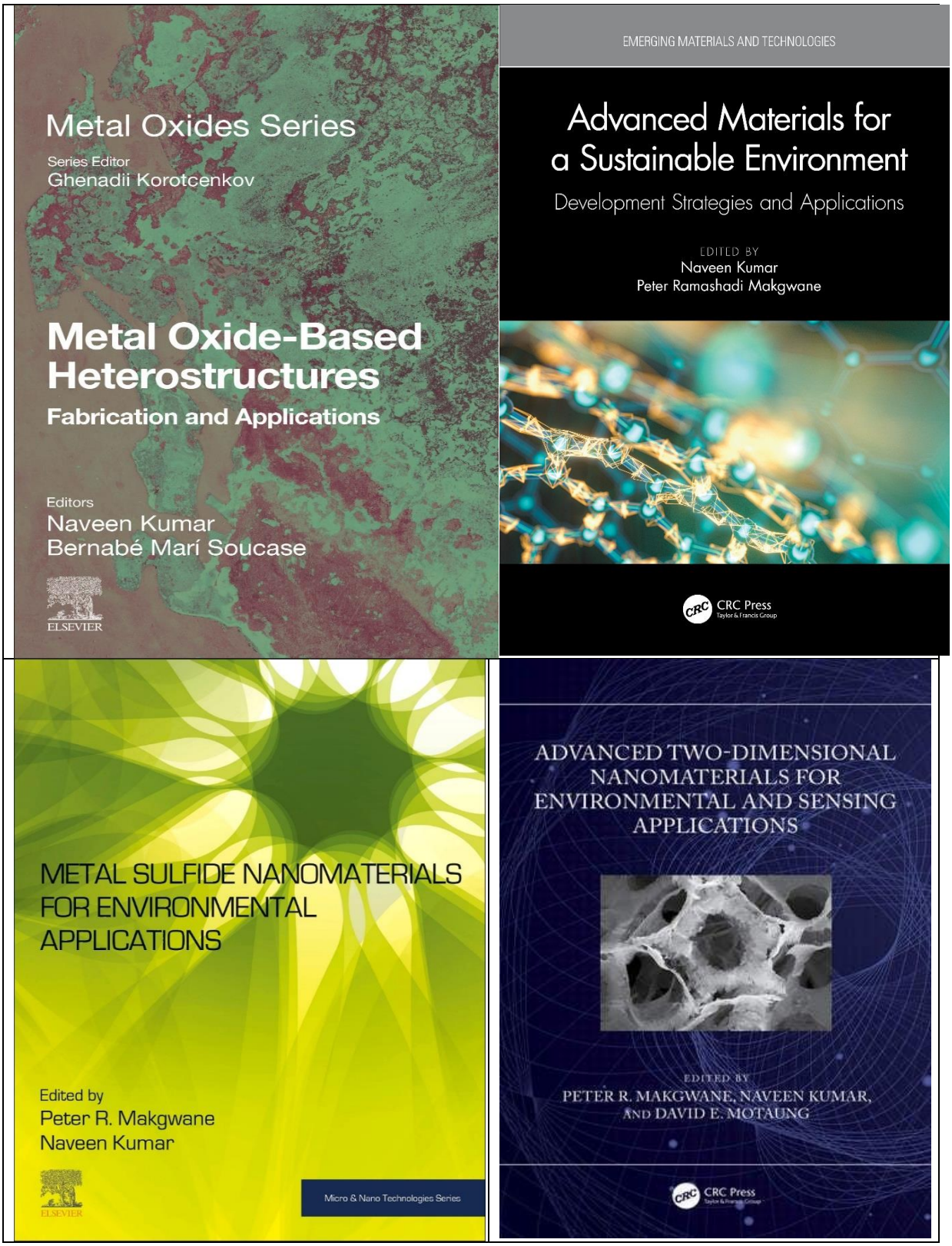
(ii) **Advanced Materials for a Sustainable Environment: Development Strategies and Applications**
Editors: Naveen Kumar, Peter Ramashadi Makgwane

https://www.routledge.com/Advanced-Materials-for-A-Sustainable-Environment-Development-Strategies/Kumar-Makgwane/p/book/9781032073057

(iii) **Metal Sulfides Nanomaterials for Environmental Applications**
Editors: PR Makgwane and N Kumar Published: November 2024
https://shop.elsevier.com/books/metal-sulfide-nanomaterials-for-environmental-applications/makgwane/978-0-443-13464-7

(iv) Advanced Two-Dimensional Nanomaterials for Environmental and Sensing Applications
Editors: Peter R. Makgwane, Naveen Kumar, David E. Motaung (Published: December 2024)
https://www.routledge.com/Advanced-Two-Dimensional-Nanomaterials-for-Environmental-and-Sensing- Applications/Makgwane-Kumar Motaung/p/book/9781032458809?srsltid=AfmBOor1QbRZ9HF87IZOjotZfZ6FCPP7y3XvbDZ_JCO9Hh7d2zYOMTHp

(v) **Transition Metal Nitrides. Fundamentals, Design and Applications**
Editors: Dr. Naveen Kumar (MDU, India), Prof. Peter Makgwane (UNISA, South Africa), Prof. Seshibe Makgato (UNISA, South Africa), and Dr. M. Tahir (UAEU, Abu Dhabi)
Publisher: Wiley-VCH (in Progress)


Metal Oxides Series
Series Editor
Ghenadii Korotcenkov
Metal Oxide-Based Heterostructures
Fabrication and Applications
Editors
Naveen Kumar
Bernabé Marí Soucase
ELSEVIER
EMERGING MATERIALS AND TECHNOLOGIES
Advanced Materials for a Sustainable Environment
Development Strategies and Applications
EDITED BY
Naveen Kumar
Peter Ramashadi Makgwane
CRC Press
Taylor & Francis Group
METAL SULFIDE NANOMATERIALS FOR ENVIRONMENTAL APPLICATIONS
Edited by
Peter R. Makgwane
Naveen Kumar
ELSEVIER
Micro & Nano Technologies Series
ADVANCED TWO-DIMENSIONAL NANOMATERIALS FOR ENVIRONMENTAL AND SENSING APPLICATIONS
EDITED BY
PETER R. MAKGWANE, NAVEEN KUMAR, AND DAVID E. MOTAUNG
CRC Press

Participation in conferences/seminars **18 (Annexure C)**

Research Guidance

Ph. D: Awarded 7, Guiding – 6

Awarded

[1] Jitender Jindal Supervisor: Dr. Naveen Kumar Year: 2016
Title: Fabrication and characterization of anodic oxide film on valve metals
[2] Anuj Mittal Supervisor: Dr. Naveen Kumar Year: 2020
Title: Synthesis, Characterization and Photocatalytic Activity of the TiO2 Based Materials for Environmental Applications
[3] Suprabha Yadav Supervisor: Dr. Naveen Kumar Year: 2020
Title: Photocatalytic Degradation of Environmental Pollutants by Zinc Oxide Based Materials
[4] Vijaya Kumari Supervisor: Dr. Naveen Kumar Year: 2021
Title: Synthesis, Characterization and Photocatalytic Applications of ZnO and ZnO Based Hybrid Materials
[5] Shankar Supervisor: Dr. Naveen Kumar Year: 2022
Title: Photocatalytic and biological application studies of titanium dioxide-based materials
[6] Deepak Supervisor: Dr. Naveen Kumar Year: 2023
Title: Thermo-physical properties of aqueous and non-aqueous fluids: Experimental and theoretical investigations

[7] Anuradha Supervisor: Dr. Naveen Kumar Year: 2023
Title: Hybrid composite materials for environmental remediation-Thermodynamic, Adsorption and Photocatalytic aspects

In Progress

[8] Shruti Jain Supervisor: Dr. Naveen Kumar
Title: Hybrid nanocomposite materials: Synthesis, characterization and their potential application in environment
[9] Monika Kumari Supervisor: Dr. Naveen Kumar
Title: Development of multifunctional nanocomposite materials and their application in environment and energy
[10] Swati Supervisor: Dr. Naveen Kumar
Title: Structural engineering of multicomponent nanostructures for environment and sensing

[11] Rohit Supervisor: Dr. Naveen Kumar
Title: Experimental and Theoretical Investigation of Thermo-physical Properties in Binary Liquid Mixtures and Prediction of Molecular Interactions

[12] Manisha Supervisor: Dr. Naveen Kumar
Title: Synthesis and characterization of 2-Dimensional (2D) compositing multifunctional materials for photocatalytic and electrochemical applications

[13] Pooja Supervisor: Dr. Naveen Kumar

Title: Metal Oxide Based Multifunctional Nanocomposite Materials: Synthesis, Characterization and Applications

International Visits:

- Visited Department of applied Physics, University of Politechnica, Valencia, Spain on FP7/IRSES for research work in the international research project entitled as "**DEVELOPMENT OF A NEW GENERATION CIGS BASED SOLAR CELLS**" [NANICIS-269279] in 2013 and 2014.

- **5th Asia Conference on Renewable Energy and Environmental Engineering**, Singapore, March 22-24, 2024

Assignments in M D University, Rohtak

- Project Implementation group member: **PURSE(Promotion of University Research and Scientific Excellence)**-DST, New Delhi, India
- **Deputy Director**, Internal Quality assurance Cell (IQAC)
- **Mentor-Mentee Coordinator,** Department of Chemistry, M.D.U, Rohtak
- **Deputy Coordinator**, Special Assistance Programme (SAP) UGC, New Delhi
- **Coordinator,** Alumni Department of Chemistry, M.D.U, Rohtak
- Science Conclave 2011, organized by M.D.U. Rohtak and DST, Govt. of Haryana from Dec. 2-3, 2011. **(Organizer)**
- National Conference on Advances in Chemical Sciences (ACS-2013) organized by Department of Chemistry, M. D. University, Rohtak sponsored by Indian Society of Analytical Scientists –Delhi Chapter (ISAS-DC). **(Organizer)** March 1-2, 2013
- Science Conclave 2014, organized by M.D.U. Rohtak and DST, Govt. of Haryana from Feb. 22-23, 2014. **(Organizer)**
- National Conference on Recent Advances in Chemical Sciences NCRACS-2018, organized by Dept. of Chemistry, M.D. University, Rohtak on March 7, 2018. **(Organizer)**
- 1 st National Conference of Indian Science Congress Association – Rohtak Chapter on "Science and Technology for Sustainable Development" on 12th and 13th February 2019 held at Chem. Dept. M.D.U. Rohtak. **(Organizer)**
- 1 st National conference of Indian Science Congress Association – Rohtak Chapter on "Science & Technology for Sustainable Development" (NCSTSD – 2019) organized by Chemistry Department, M.D. University, Rohtak on Feb. 12-13, 2019. **(Organizer)**
- 2 nd National Conference in Association with ISCA – Rohtak Chapter sponsored by UGC-SAP on "Science and Technology for Rural Development" on 14th and 15th October 2019 held at Chem. Dept. M.D.U. Rohtak. Participated **(Organizer)**
- National Conference entitled " Recent Trends in Materials & Life Sciences" (RTMLS-2023) on September 29, 2023**(Organizer)**
- **Organizing Secretory:** One Day Workshop on NAAC Documentation for UTDs 14th November, 2022
- **Organizing Secretory:** One Day Workshop (Faculty wise) on Basic Contours of NEP- 2020 9 th-12th January, 2023
- **Organizing Secretory:** One Day Workshop (Faculty wise) on Curriculum and Credit Framework for Undergraduate Programme, 25.03. 2023, 01.04.2023, 08.04.2023
- **Coordinator:** Intellectual Property Awareness program under National Intellectual Property Awareness Mission

(Annexure A)

List of Publications

1. **SnS and CdS nanoclusters coupled g-C3N4 photocatalysts: synthesis, structure, DFT analysis and application for environmental remediation,** Swati, Naveen Kumar, Anuj Mittal, Peter R. Makgwane, Muhammad Tahir, Pardeep Singh, Mustapha Sahal, Gita Rani, Jogender, Shankar Sharma, **Emergent Materials,** August 2025
   https://doi.org/10.1007/s42247-025-01236-z **Impact Factor: 4.3**
2. **Construction, DFT analysis, and electrochemical characterization of a double type II-scheme g-C3N4/SnS2/CdS heterogeneous photocatalyst for organic pollutant decontamination from water,** Swati, **Naveen Kumar**, Vijaya Kumari, Shruti Jain, Peter R. Makgwane, Muhammad Tahir, Anuradha Sharma, Pardeep Singh, Gita Rani, Jogender, **Journal of the Taiwan Institute of Chemical Engineers**, Volume 176, November 2025, 106313
   https://doi.org/10.1016/j.jtice.2025.106313
   Impact factor: 6.3

3. **Bio-waste derived S, N-enriched carbon quantum dots: an in-depth analysis of various factors affecting photocatalysis**, Siddharth, Gita Rani, Harish Kumar, Sanju Bala Dhull, Sunil Kumar & Naveen Kumar, International Journal of Phytoremediation, September 2025
   10.1080/15226514.2025.2559164

4. **Kinetic analysis of anaerobic coal desulfurization: Impact of particle size on sulfur content, ash, and calorific value**
   Seshibe Makgato, Bridjesh Pappula, Opeyemi Oyewo, Tunde Yusuf, **Naveen Kumar**, Damian O nwudiwe, Peter Makgwane **Results in Engineering** Volume 27, September 2025, 106407
   https://doi.org/10.1016/j.rineng.2025.106407 **Impact factor: 7.9**

5. **Synergy between dual Z-scheme heterostructured Vo-Bi2WO6/Bi2S3/Ag2S@Chitosan for the effective degradation of fuchsin basic dye**
   Kusum Sharma, Sonu Sonu, Pardeep Singh, Tansir Ahamad, Savas Kaya, Konstantin Katin, **Nav een Kumar**, Archana Singh, Chaudhery Mustansar Hussain, Pankaj Raizada **Journal of the Taiwan Institute of Chemical Engineers** Volume 175, October 2025, 106265
   https://doi.org/10.1016/j.jtice.2025.106265 **Impact factor: 6.3**

6. **Construction, characterization, and DFT analysis of Li, P co-doped g-C_3N_4 multifunctional materials with boosted performance as photocatalyst and supercapacitor electrode,** Monika Kumari,**Naveen Kumar**, RajKishore Sharma, Seshibe Makgato, Muhammad Tahir, Suresh Kumar, Jogender, Jitender Kumar, Manisha, **Sustainable Materials and Technologies**, Volume 45, October 2025, e01426, https://doi.org/10.1016/j.susmat.2025.e01426
   Impact factor: 8.7

7. **Structural, computational, and electrochemical analysis of SnS2 embedded g-C3N4/In2O3 heterostructures for photocatalytic decontamination of water pollutants**, Monika Kumari, **Naveen Kumar**, Raj Kishore Sharma, Seshibe Makgato, Muhammad Tahir, Jogender, Ashish Kumari, **Materials Science in Semiconductor Processing,** 197, 2025, 109658
   https://doi.org/10.1016/j.mssp.2025.109658 **Impact factor: 4.2**

8. **Simulation and optimization of MAPbI3/MASnI3 heterojunction solar cell perovskite with double ETL by SCAPS-1D Software.** Boughanbour, Khadija & Sahal, Mustapha & Oublal, Essaadia & **Kumar, Naveen** & Belkassmi, Youssef & Kotri, Abdelhadi. (2025). **Optical and Quantum Electronics.** 57. 1-23. 10.1007/s11082-025-08138-8**.** **Impact factor: 3.3**

9. **Boosting supercapacitor performance and thermal stability: transforming PANI nanorods into a ternary interconnected mesh structure.** Bhawna, & Rani, Gita & Dhull, Sanju Bala & Chahar, Suman & Kumar, Harish & **Kumar, Naveen**. (2025). **Emergent Materials.** 10.1007/s42247-025-01080-1. **Impact factor: 4.8**

10. **Harnessing 3D Printing for Tailored TiO_2 Structures Redefining Organic Pollutant Degradation,** Kaur, Balvinder & Thakur, Sourbhh & Singh, Archana & Chaudhary, Vishal & **Kumar, Naveen** & Khan, Aftab Aslam & Rub, Malik & Azum, Naved & Raizada, Pankaj. (2025). **Journal of Environmental Chemical Engineering**. 13. 116042. 10.1016/j.jece.2025.116042. **Impact factor: 7.4**

11. **SnS_2 integrated P-Doped g-C_3N_4 with advanced photocatalytic efficiency towards organic pollutants decontamination**
Monika Kumari, **Naveen Kumar**, Raj Kishore Sharma, Muhammad Tahir, Manickam Selvaraj, Pardeep Singh, Jitender Jindal, Anuj Mittal, Environmental Research, 274, 2025, 121210
https://doi.org/10.1016/j.envres.2025.121210 **Impact factor: 7.7**

12. **SnS_2 interfaced Li-Doped g-C_3N_4 heterojunctions with enhanced photocatalytic performances for organic pollutant decontamination: Performance and mechanistic analysis,** Monika Kumari, Anuradha Sharma, **Naveen Kumar**, Raj Kishore Sharma, Peter R. Makgwane, Seshibe Makgato, Muhammad Tahir, Sonia Grover, Journal of Molecular Structure, 1334, 2025, 141848
https://doi.org/10.1016/j.molstruc.2025.141848 **Impact factor: 4.0**

13. **The prospect of CuX (X=O, S, Se) co-catalysts in photocatalysis: From engineering heterostructural integrity towards enhanced photocatalytic activities – A concise review,** Shruti Jain, Swati, Mohammed Ismael, Muhammad Tahir, Pardeep Singh, Pankaj Raizada, Bhupinder Singh, Van-Huy Nguyen, **Naveen Kumar**, Journal of Physics and Chemistry of Solids, In Press
https://doi.org/10.1016/j.jpcs.2025.112634 **Impact factor: 4.3**

14. **Unveiling ultra-sensitive HCl gas detection at ambient conditions with gadolinium-doped Mn-Zn ferrite nanocomposites**, Sushilkumar S. Bandgar, Gajanan M. Hingangavkar, Ekanath K. Kore, Manickam Selvaraj, **Naveen Kumar**, Shailesh G. Pawar, Ramesh N. Mulik , Vikas B. Patil, Ceramics International, In Press
https://doi.org/10.1016/j.ceramint.2025.01.374 **Impact factor: 5.1**

15. **Facile Synthesis of PANI-NiS2 Binary Nanocomposites for Asymmetric Supercapacitor**, Sakshi Sharma,Sonia Grover,Pooja Kadyan,Kirti Sharma,Raj Kishore Sharma, **Naveen Kumar**, Authorea. October 16, 2024
10.22541/au.172906214.49143201/v1

16. **Photocatalytic Carbon Dioxide Reduction with Water to CO and CH4 over Bio-sludge Modified TiO2 Composite** Beenish Tahir, Muhammad Tahir, Abdulrahman Alraeesi , **Naveen Kumar**, Chemical Engineering Transactions, 113, 193-198
10.3303/CET24113033

17. **Recent advances in Lanthanum-based photocatalysts with engineering aspects for photocatalytic hydrogen production: A critical review**, Azmat Ali Khan, Animesh Towfiq Partho, Monabbir Hasan Arnab, Mohd Amjad Khyam, **Naveen Kumar**, Muhammad Tahir, Materials Science in Semiconductor Processing, Volume 184, December 2024, 108809
https://doi.org/10.1016/j.mssp.2024.108809 **Impact factor: 4.2**

18. **Synergistic effect of bimetallic RuCo loaded N-defective g-C3N4 nanosheets with cleavage of metal-hydrogen bonds for H2 production in a continuous flow photoreactor,**
Beenish Tahir, Muhammad Tahir, Abdulrahman Alraeesi, **Naveen Kumar**, Mohamed Al-Marzouqi, International Journal of Hydrogen Energy, Volume 95, 18 December 2024, Pages 402-416. **https://doi.org/10.1016/j.ijhydene.2024.11.263** **Impact factor: 8.1**

19. **Tailoring dual S-Scheme based g-C3N4/ZnO/TiO2 ternary photocatalytic system immobilized on floating cork for environmental remediation,**
Anchal Rana, Sonu Sonu, Anita Sudhaik, Rohit Kumar, Akshay Chawla, Pankaj Raizada, Visha l Chaudhary, Tansir Ahamad, Savaş Kay, **Naveen Kumar**, Konstantin P. Katin, Chaudhery Mustansar Hussain, Pardeep Singh, Journal of the Taiwan Institute of Chemical Engineers, Volume 168, March 2025, 105914
https://doi.org/10.1016/j.jtice.2024.105914 **Impact factor: 5.5**

20. **Multi-interfaced SnS2/ZrO2/g-C3N4 ternary nanocomposites: Charge transfer mechanistic exploration and enhanced photodegradation efficiency towards Rhodamine B dye and ciprofloxacin antibiotic,** Monika Kumari, **Naveen Kumar**, Raj Kishore Sharma, Shruti Jain, Muhammad Tahir, Pardeep Singh, Peter
R. Makgwane, Pankaj Raizada, Inorganic Chemistry Communications, Volume 174, Part 2, April 2025, 114040
https://doi.org/10.1016/j.inoche.2025.114040 **Impact factor: 4.4**

21. **Multicomponent interfaced Ag2S@In2S3/Bi2O3 dual Z-scheme with visible light activity for enhanced photocatalytic decontamination of organic pollutants,**
Shruti Jain, Swati, Vinod Kumar, **Naveen Kumar**, Peter
R. Makgwane, Pardeep Singh, Pankaj Raizada, Sonia Grover, Seshibe Makgato, Journal of Molecular Liquids, Volume 423, 1 April 2025, 126983
https://doi.org/10.1016/j.molliq.2025.126983 **Impact factor: 5.3**

22. **Click Chemistry: an overview and recent updates in the medicinal attributes of click-derived heterocycles,** Poonam Bishnoi, Bhavna Saroha, Suresh Kumar, Gourav Kumar, Arpana Bhardwaj, Meena Kumari & **Naveen Kumar**, Molecular Diversity, 2025 10.1007/s11030-025-11110-z **Impact factor: 3.9**

23. **Photocatalytic and electrochemical exploration of a novel Pd modified FeVO4/ZrO2 nanocomposite materials for organic pollutant decontaminants in water,** Monika Kumari, **Naveen Kumar**, Raj Kishore Sharma, Muhammad Tahir, Vinod Kumar, Pardeep Singh, Pankaj Raizada, Suresh Kumar, Journal of Molecular Liquids, Volume 423, 1 April 2025, 127013
https://doi.org/10.1016/j.molliq.2025.127013 **Impact factor: 5.3**

24. **Synthesis of Vanadium Carbide MXene As a Cocatalyst with TiO2 for Photocatalytic CO2 Conversion to CO and CH_4,** Beenish Tahir, Mustafa Jawad Nuhma, Muhammad Tahir, Abdulrahman Alraeesi, Ali A. Jazie, Naveen Kumar, Journal of Engineering and Sustainable Development

25. **Template-free synthesis of hierarchical graphitic carbon nitride (H-gC3N4) embedded with NiO for water splitting and CO2 reduction with the role of hole scavenger: A comparativeinvestigation,**
Beenish Tahir, Muhammad Tahir, **Naveen Kumar**, Mohammad Siraj, Amanullah Fatehmulla , Materials Science in Semiconductor Processing, Volume 178, 1 August 2024, 108379, https://doi.org/10.1016/j.mssp.2024.108379 **Impact factor: 4.2**

26. **Fabrication of novel S-type In_2S_3/Ag_2S heterostructures with superior photocatalytic and electrochemical characteristics for remediation of organic contaminants in water,** Shruti Jain, Monika Kumari, **Naveen Kumar**, Anuj Mittal, Vinod Kumar, Muhammad Tahir, P ardeep Singh, Gita Rani, Jyoti Kataria, Jogender, Inorganic Chemistry Communication, 26 November 2024, https://doi.org/10.1016/j.inoche.2024.113621 **Impact factor: 4.4**

27. **In-situ synthesis of V2AlC@V2O5/TiO2 immobilized over honeycomb support with vanadium oxide electron transfer mediator for stimulating selective CO2 photoreduction through bi-reforming in a monolith reactor,** Muhammad Tahir, Beenish Tahir, **Naveen Kumar**, Mohamed AlMarzooqi, Mohammad Siraj, Amanullah Fatehmulla, Fuel, Volume 370, 15 August 2024, 131816, https://doi.org/10.1016/j.fuel.2024.131816 **Impact factor: 6.7**

28. **An extensive catalytic potential of sustainable TiO2-based materials fabricated via flame spray pyrolysis: A comprehensive review,** Mohammed Ismael, Anuradha Sharma, **Naveen Kumar**, Sustainable Materials and Technologies, Volume 40, July 2024, e00826, https://doi.org/10.1016/j.susmat.2024.e00826 **Impact factor: 8.7**

29. **Oxygen vacancy enriched SrTiO3 and NiO-based S-scheme heterojunction moored on activated carbon from exhausted water filter batteries for ameliorated photodegradation of doxycycline hydrochloride and methyl orange degradation,** Vatika Soni, Sonu, Pardeep Singh, Sourbh Thakur, Tansir Ahamad, Van-
Huy Nguyen, Vishal Chaudhary, **Naveen Kumar**, Savas Kaya, Chaudhery

Mustansar Hussain, Pankaj Raizada , Journal of the Taiwan Institute of Chemical Engineers, Volume 159, June 2024, 105419,
https://doi.org/10.1016/j.jtice.2024.105419 **Impact factor: 5.5**

30. **Photovoltaic efficacy of CNGS as BSF and second absorber for CIGS thin film solar cells-numerical approach by SCAPS-1D framework,** Essaadia Oublal, Mohamed Al-Hattab, Abdelaziz Ait Abdelkadir, Mustapha Sahal, **Naveen Kumar** , Materials Science and Engineering: B, Volume 305, July 2024, 117401
https://doi.org/10.1016/j.mseb.2024.117401 **Impact factor: 3.9**

31. **Physicochemical properties, theoretical modelling and molecular interaction analysis in ternary liquid mixtures containing 1-propanol, 1,3-diaminopropane and ethyl acetate at temperature 298.15–318.15 K,**
Deepak Parmar, Manju Rani, **Naveen Kumar**, Noureddine Issaoui, Omar M. Al-Dossary, Mustapha Sahal, Seetu Rana, Leda G. Bousiakoug , The Journal of Chemical Thermodynamics, Volume 192, May 2024, 107262,
https://doi.org/10.1016/j.jct.2024.107262 **Impact factor: 2.2**

32. **Progressive updates on nickel hydroxide and its nanocomposite for electrochemical electrode material in asymmetric supercapacitor device,**
Sakshi Sharma, Pooja Kadyan, Raj Kishore Sharma, **Naveen Kumar**, Sonia Grover, Journal of Energy Storage, Volume 87, 15 May 2024, 111368,
https://doi.org/10.1016/j.est.2024.111368 **Impact factor: 8.8**

33. **Concise updates on micro-/nanoplastic detection and decontamination: Focus on Magnetic biochars as remediation material**,
Swati Bansal, **Naveen Kumar**, Muhammad Tahir, Jitender Jindal, Anuradha Sharma, Sonia G rover, Pardeep Singh, Kavitha Kumari, Materials Today Sustainability, Volume 27, September 2024, 100833,
https://doi.org/10.1016/j.mtsust.2024.100833 **Impact factor: 7.2**

34. **A novel NH2-MIL-125/dandelion-like MnO2 nanosphere composite with a rapid interfacial electron transfer pathway for photocatalytic degradation of ornidazole**,
Shilpa Patial, Rohit Kumar, Anita Sudhaik, Sonu, Sourbh Thakur, **Naveen Kumar**, Tansir Ah amad, Savas Kaya, Chaudhery Mustansar Hussain, Pardeep Singh, Pankaj Raizada, Solid State Sciences, Volume 153, July 2024, 107576,
https://doi.org/10.1016/j.solidstatesciences.2024.107576 **Impact factor: 3.4**

35. **Fabrication of novel ternary dual S-scheme ZnFe2O4/Ag3PO4/ZnIn2S4 photocatalyst with enhanced visible light-driven RhB degradation,**
Yogesh Kumar , Sonu, Anita Sudhaik, Pankaj Raizada, Van-
Huy Nguyen, **Naveen Kumar** , Savas Kaya, Tansir Ahamad, Chaudhery
Mustansar Hussain, Pardeep Singh, Journal of Industrial and Engineering Chemistry
Volume 138, 25 October 2024, Pages 543-554,
https://doi.org/10.1016/j.jiec.2024.04.032 **Impact factor: 5.9**

36. **ZrO2 based nanostructures: A sustainable, economical, green and efficient organocatalyst,**

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(Annexure B)

Book Chapters				
Sr. No	**Title with name of authors as appearing in publication**	**Book Title**	**Publishers**	**ISSN/ISBN**
1	**Waste to Energy Conversion: Key Elements for Sustainable Waste Management,** Karambir Singh, Naveen Kumar, Akhilesh Bharti, Pankaj Thakur, and Vinod Kumar	**Integrated Waste Management** Editors:Akanksha Gupta, Ravinder Kumar, Vinod Kumar	International Publisher, Springer	978-981-97-0823-9
2	**Metal sulfide nanomaterial-based photocatalysts for remediation of gaseous air pollutants,** Monika Kumari, Naveen Kumar, Sonia Grover, Peter R. Makgwane	**Metal Sulfide Nanomaterials for Environmental Applications** Editors: Peter R. Makgwane, Naveen Kumar	Elsevier	978-0-443-13464-7
3	**Introduction to metal sulfide,** Katekani Shingange, Shankar Sharma, Peter R. Makgwane, Naveen Kumar	**Metal Sulfide Nanomaterials for Environmental Applications** Editors: Peter R. Makgwane, Naveen Kumar	Elsevier	978-0-443-13464-8
4	**An Introduction to Two-Dimensional (2D) Nanomaterials,** Swati Bansal, Naveen Kumar, Peter R. Makgwane, David E. Motaung	**Advanced Two-Dimensional Nanomaterials for Environmental and Sensing Applications** Editors: Peter R. Makgwane, Naveen Kumar, David E. Motaung	CRC press	9.781E+12
5	**Advanced Materials towards Environmental Protection,** Naveen Kumar, Peter R Makgwane, Jitender Jindal	**Advanced Materials for a Sustainable Environment Development Strategies and Applications**, Editors: Naveen Kumar, Peter R	CRC Press, Taylor & Francis	9.78103E+12

6	**Metal oxide–assisted heterostructures: At a glance,** Naveen Kumar, Anuj Mittal, Anuradha Sharma	**Metal Oxide-Based Heterostructures Fabrication and Applications**, Editors: Naveen Kumar, Bernabe Mari Soucase	Elsevier	9.78032E+12
7	**Nano sensor for crop protection** Monika Kamari, Naveen Kumar, David E. Motaung, Noureddine Issaoui, Suresh Kumar, Gita Rani	**The Impact of Nanoparticles on Agriculture and Soil** , Nar Singh Chauhan Sarvajeet Singh Gill	Elsevier	978-0-323-91703-2
8	**Nanoparticle synthesis, characterization and applications** Shruti Jain, Naveen Kumar,Muhammad Tahir, Sapana Garg	**The Impact of Nanoparticles on Agriculture and Soil**, Nar Singh Chauhan Sarvajeet Singh Gill	Elsevier	978-0-323-91703-2
9	**Biofuels Additives Blending,** Peter R. Makgwane, Naveen Kumar, David E. Motaung	**Nanotechnology for Advanced Biofuels: Fundamentals and Applications**, Editors: Ashok Kumar, Tuan Anh Nguyen Swati Sharma, Muhammad Bilal Ram Gupta	Elsevier	978-0-323-91759-9
10	**Photocatalysis by zinc oxide-based nanomaterials,** Naveen Kumar, Suprabha Yadav, Anuj Mittal, Kavitha Kumari	**Nanostructured Zinc Oxide, Kamlendra Awasthi**, Chapter-15, 2021, 393-457	Elsevier	9.78013E+12
11	**Anodic oxide nanostructures: Theories of anodic nanostructure self-organization,** Naveen Verma, Jitender Jindal, Krishan Chander Singh, Anuj Mittal, Advanced Coating Materials	**Advanced Coating Materials**, Chapter 8, Book Editor(s): Liang Li, Qing Yang	WILEY-Scrivener Publisher	1119407567

(Annexure C)

Conference Attended

Sr. No.	Title of the paper presented	Presented by	Title of the conference/ seminar etc & organizer	Date of the event
1	Excess Gibb's free energy of butyl acetate with cyclohexane and aromatic hydrocarbons at 308.15 K	Naveen Verma	95th Indian Science congress held at Visakhapatnam	03-07 Jan, 2008
2	Volumetric properties of *sec*- and *tert*-butyl chloride with benzene, toluene, and xylenes at 308.15"	Naveen Verma	95th Indian Science congress held at Visakhapatnam	03-07 Jan, 2008
3	Study of Thermodynamic molecular interactions in liquid mixtures containing isomeric chlorobutanes + cyclohexane or benzene or toluene mixtures at temperature 303.15 K	Naveen Verma	National conference on Global Challenges New Frontier in Chemical Sciences, Kurukshetra University Kurukshetra, Haryana	22-23 Sep, 2012
4	Excess molar enthalpies and isothermal (vapour liquid) equilibria of sec butyl chloride + cyclohexane or benzene or toluene mixtures.	Naveen Verma	International conference on Green Technologies for Environmental Rehabilitation, Gurukul Kangri, Haridwar, Uttarakhand	11-13 Feb, 2012
5	Porous anodic alumina film formation in oxalic & phosphoric acid solutions and photoluminescence properties	Naveen Verma	National conference on Advances In Chemical Sciences, Maharshi Dayanand University, Rohtak.	1-2 March, 2013
6	Structural Studies Of Porous Anodic Alumina Formed In Phosphoric Acid By Two Step Anodic Oxidation And Influence Of Applied Voltage For Fabrication of Ordered Porous Structure.	Naveen Verma	International conference on Interdisciplinary Areas with Chemical Sciences, Punjab university, Chandigarh	30 Oct- 1 Nov. 2013
7	Improved porous structure of anodic alumina formed in Phosphoric acid by two step anodic oxidation	Naveen Verma	National Conference on Emerging Trends in Engineering & Sciences. Gurukul Kangri, Haridwar, Uttarakhand	9-10 Nov. 2013
8	Influence of anodization parameters of first step on structural features of porous anodic alumina (PAA) finally formed in phosphoric acid	Naveen Verma	101st Indian Science Congress Association, University of Jammu, Jammu	3-7 Feb. 2014

9.	Surface and Electrochemical Impedence characteristics of Anodic Oxide Film on Ta and Nb in Different aqueous electrolyte	Naveen Verma	101st Indian Science Congress Association, University of Mumbai, Mumbai	3-7 Jan 2015
10	Anodic oxide film on aluminium in H_3PO_4 + $KMnO_4$ electrolyte mixture at different anodization conditions	Naveen Verma	National conference on Emerging Trends in Chemical Sciences and Technlogy(ETCST-15) CDLU -Sirsa	Feb 25, 2015
11	Luminescent Properties of $CaAl_2O_4$: Eu^{3+},:Gd^{3+} phosphor synthesized by combustion synthesis method.	Naveen Verma	National conference on Science and technology for Indegenious development on India ISCA-Haridwar Chapter Gurukul Kangri University, haridwar, Uttrakhand	Sept. 28-30. 2015
12	Spectral properties of the Eu^{2+} /Eu^{3+} activated Barium aluminate phosphors with varies Gd^{3+} concentration by combustion method	Naveen Verma	International conference on Nascent development on chemical sciences BITS-PILANI	October 16-18, 2015
13	Enhanced Luminescence by Tunable Coupling of Eu^{3+} and Tb^{3+} in $ZnAl_2O_4$:Eu^{3+}:Tb^{3+} phosphor synthesized by solution combustion method	Naveen Verma	National Conference on science and Technology for national Development Gurukul Kangri University, haridwar, Uttrakhand	November 20-22, 2016
14	Synthesis, characterization and Photocatalytic activity of visible active ternary TiO_2/CdS/ZnS nano-composites.	Naveen Kumar	NCSTSD, Department of Chemistry, M D University, Rohtak	Feb12-2019 2019
15	Hydrothermally synthesized binary TiO2/SnS composite for photocatalytic activity	Naveen Kumar	NCSTRD, Department of Chemistry, M D University, Rohtak	Oct 14-15 2019
16	Novel mixed metal oxide (ZnO.La2O3.CeO2) synthesized via hydrothermal and solution combustion process -A comparative study and their photocatalytic properties.	Naveen Kumar	Ist International conference on Manufacturing, Material Science & Engineering Hyderabad, India-501401	August 16-17, 2019
17	TiO2/Bi2O3/CuO nanocomposites for environmental protection: Synthesis, characterization and removal of Triclopyr pesticide	Naveen Kumar	Department of Chemical Engineering, Veer Surendra Sai University of Technology, Burla, Odisha 25-26th March 2023	25-26th March 2023
18	Pd deposited FeVO4/ZrO2 visible active photocatalysts for organic pollutant degradation	Naveen Kumar	5th Asia Conference on Renewable Energy and Environmental Engineering, Singapore	March 22-24, 2024

Invited Lectures delivered outside Institute

(i) Lecture delivered in Conference Title: Green Technologies: Issues and Challenges on Topic "**Visible Active Photocatalysts for environmental remediation**"

(ii) Lecture delivered on in S G T University, Gurgaon on the topic "**ZnO as an efficient catalyst**"

(iii) Lecture delivered in CRS University, Jind, Haryana, India "**Laboratory Experimental Instruction"**

(iv) Lecture delivered in AIJHM College Rohtak, Haryana, India "**Raman Spectroscopy and its applications"**

(v) Lecture delivered on "**Nanocomposite materials for adsorptive and photocatalytic decontamination of water pollutants**"13th Conference of Haridwar (March 19, 2023) Chapter Of The Indian Science Congress Association on Science & Technology for all

(vi) Lecture delivered on "**Visible active photocatalysts for environmental remediation Green technology: issues and challenges**" during September 22-24. 2022, Department of Chemistry, CCS University, Meerut