

SUNEEL KUMAR, MSc., Ph.D.



Designation: Assistant Professor (Chemistry)

Address: Govt. Degree College Chamba
District Chamba, Himachal Pradesh, India.

Teaching Experience: 2018-till date

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AREAS OF INTERESTS

Semiconductor based photocatalysis and artificial photosynthesis, involving the design and development of efficient photocatalysts for water splitting and environmental remediation applications based on biomimetic approaches.

EDUCATIONAL CREDENTIALS

- **Ph.D. (2014 to 2019) – Chemistry**
Research work: ZnO-based photocatalysis for energy generation and environmental remediation
Indian Institute of Technology Mandi, Himachal Pradesh, India
- **M.Sc. (2011 to 2013) – Chemistry**
Himachal Pradesh University, Shimla, India
- **B.Sc. (2008 to 2011) – Chemistry, Botany, Zoology**
Himachal Pradesh University, Shimla, India

Publications

1. A. Kumar, K. L. Reddy, **S. Kumar**, A. Kumar, V. Sharma and V. Krishnan, 'Rational Design and Development of Lanthanide-doped NaYF₄@CdS-Au-RGO as Quaternary Plasmonic Photocatalysts for Harnessing Visible-NIR Broadband Spectrum' *ACS Appl. Mater. Interfaces* 2018, DOI: 10.1021/acsami.7b17822.
2. A. Bahuguna, A. Kumar, **S. Kumar**, T. Chhabara and V. Krishnan, '2D-2D Nanocomposite of MoS₂-Graphitic Carbon Nitride as Multifunctional Catalyst for Sustainable Synthesis of 3C-functionalized Indoles' *ChemCatChem* 2018, DOI: 10.1002/cctc.201800369.
3. A. Bahuguna, **S. Kumar** and V. Krishnan, 'Nanohybrid of ZnO-RGO as Heterogeneous Green Catalyst for the Synthesis of Medicinally Significant Indole Alkaloids and Their Derivatives',

ChemistrySelect 2017, 3, 12373 –12379.

4. H. Kaur, M. Venkateswarulu, **S. Kumar**, V. Krishnan and R. R. Koner, 'Metal-organic framework based multifunctional catalytic platform for organic transformation and environmental remediation', **Dalton Trans.** 2017, accepted.
5. **S. Kumar**, N. L. Reddy, H. S. Kushwaha, A. Kumar, M. V. Shankar, K. Bhattacharyya, A. Halder and V. Krishnan, 'Two dimensional N-doped ZnO-graphitic carbon nitride nanosheets heterojunctions with enhanced photocatalytic hydrogen evolution', **Int. J Hydrogen Energy** 2017, DOI: 10.1016/j.ijhydene.2017.09.113.
6. **A. Kumar**, S. Kumar, A. Bahuguna, A. Kumar, V. Sharma, V. Krishnan, Recyclable, Bifunctional Composites of Perovskite Type N-CaTiO₃ and Reduced Graphene Oxide as an Efficient Adsorptive Photocatalyst for Environmental Remediation, **Material Chemistry Frontiers**, 2017, 1, 2391—2404.
7. A. Bahuguna, **S. Kumar**, V. Sharma, K. L. Reddy, K. Bhattacharyya, P. C. Ravikumar and V. Krishnan, 'Nanocomposite of MoS₂-RGO as facile, heterogeneous, recyclable and highly efficient Green catalyst for one-pot synthesis of indole alkaloids', **ACS Sustainable Chem. Eng.** 2017, 5, 8551-8567.
8. **S. Kumar**, N. L. Reddy, H. S. Kushwaha, A. Kumar, M. V. Shankar, K. Bhattacharyya, A. Halder and V. Krishnan, 'Efficient electron transfer across ZnO-MoS₂-RGO heterojunction for remarkably enhanced sunlight driven photocatalytic hydrogen evolution', **ChemSusChem** 2017, 10, 3588 – 3603.
9. R. Balaji, **S. Kumar**, K. L. Reddy, V. Sharma, K. Bhattacharyya and V. Krishnan, 'Near-infrared driven photocatalytic performance of lanthanide-doped NaYF₄@CdS core-shell nanostructures with enhanced upconversion properties', **J. Alloys Compd.** 2017, 724, 481-491. (I.F 3.133)
10. **S. Kumar**, A. Kumar, A. Bahuguna, V. Sharma and V. Krishnan, 'Two-dimensional carbon-based nanocomposites for photocatalytic energy generation and environmental remediation applications', **Beilstein Journal of Nanotechnology** 2017, 8, 1571–1600.
11. K. L. Reddy, V. Srinivas, K. R. Shankar, **S. Kumar**, V. Sharma, A. Kumar, A. Bahuguna, K. Bhattacharyya and V. Krishnan, 'Enhancement of Luminescence Intensity in Red Emitting NaYF₄:Yb/Ho/Mn Upconversion Nanophosphors by Variation of Reaction Parameters', **J. Phys. Chem. C** 2017, 121, 21, 11783–11793.
12. N. L. Reddy, **S. Kumar**, V. Krishnan, M. Sathish, M.V. Shankar, 'Multifunctional Cu/Ag quantum dots on TiO₂ nanotubes as highly efficient photocatalysts for enhanced solar hydrogen evolution', **Journal of Catalysis**, 2017, 350, 226-239.
13. **S. Kumar**, V. Sharma, K. Bhattacharyya and V. Krishnan, 'N-doped ZnO-MoS₂ binary heterojunctions: Dual role of 2D MoS₂ in the enhancement of photostability and photocatalytic activity under visible light irradiation for tetracycline degradation', **Material Chemistry Frontiers**, 2017, 2017, 1, 1093—1106
14. **S. Kumar**, R. Sharma, V. Sharma, G. Harith, V. Sivakumar and V. Krishnan, 'Role of RGO support and irradiation source on the photocatalytic activity of CdS–ZnO semiconductor nanostructures', **Beilstein Journal of Nanotechnology**, 2016, 7 (1), 1684-1697.

15. **S. Kumar**, V. Sharma, K. Bhattacharyya and V. Krishnan, 'Synergetic effect of MoS₂-RGO doping to enhance the photocatalytic performance of ZnO nanoparticles', *New Journal of Chemistry*, 2016, 40, 5185-5197.
16. V. Sharma, **S. Kumar**, A. Jaiswal and V. Krishnan, 'Gold deposited plant leaves for SERS: Role of surface morphology, wettability and deposition technique in determining the enhancement factor and sensitivity of detection', *ChemistrySelect*, 2017, 2, 165-174.
17. V. Sharma, **S. Kumar**, A. Bahuguna, D. Gambhir, P. S. Sagara and V. Krishnan, 'Plant leaves as natural Green scaffolds for palladium catalyzed Suzuki-Miyaura coupling reactions', *Bioinspiration & Biomimetics*, 2017, 12, 016010-1-9.
18. V. Sharma, G. Harith, **S. Kumar**, R. Sharma, K.L. Reddy, A. Bahuguna, 'Amorphous titania matrix impregnated with Ag nanoparticles as highly efficient visible and sun light active photocatalyst material', *Materials Technology*, 2017, 32, 8, 461-471.
19. V. Sharma, **S. Kumar** and V. Krishnan, 'Clustered Au on TiO₂ Snowman-Like Nanoassemblies for Photocatalytic Applications', *ChemistrySelect*, 2016, 1, 2963-2970.
20. V. Sharma, **S. Kumar** and V. Krishnan, *Materials Chemistry and Physics*, 'Homogeneously embedded Pt nanoclusters on amorphous titania matrix as highly efficient visible light active photocatalyst material', 2016, 179, 129-136.
21. V. Sharma, **S. Kumar**, K. L. Reddy, A. Bahuguna and V. Krishnan, 'Bioinspired Functional Surfaces for Technological Applications', *Journal of Molecular and Engineering Materials*, 2016, 04, 1640006.
22. V. Sharma, M. Sharma, **S. Kumar** and V. Krishnan, 'Investigations on the fog harvesting mechanism of Bermuda grass (*Cynodon dactylon*)', *Flora*, 2016, 224, 59-65.

Conference Presentations

- Oral presentation in "International Conference on Nanotechnology: Ideas, Innovations and Initiatives" (ICN: 31-2017) at IIT Roorkee, India on Dec. 06 to 08, 2017.
- Participated and presented a poster in Conference on "Spectroscopy of Emerging Functional Materials" (SEFM-2017) at IIT Mandi, India on Oct. 09 to 10, 2017.
- Participated Participated and presented a poster in International Conference on "Advances in Biological Systems and Materials Science in NanoWorld" (ABSMSNW-2017) at IIT (BHU) Varanasi, India from Feb. 19 to 23, 2017.
- Participated and presented a poster at 19th CRSI (Chemical Research Society of India) national symposium held on July 13-17, 2016 at North Bengal University, Darjeeling, West Bengal.
- Participated in the international conference on Recent Advances in Nanoscience and Technology (RAINSAT-2015) Jul. 08-10, 2015, at Sathyabama University Chennai, India.

Other achievements

- Awarded with senior research fellowship (SRF) by University grants commission (UGC), New Delhi, India.
 - Got best teaching assistant award in IIT Mandi Foundation Day, 2016.
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I hereby affirm that above furnished information is true to the best of my knowledge.

Suneel Kumar

Place: *Chamba (India)*